



2nd

International Conference on Education Proceedings

Theme: Quality Education for Societal Transformation

July 20-22, 2011
Nairobi, Kenya

Editors

Dr. Adelheid Bwire
Prof. Joanna Masingila

Mr. Yan Huang
Prof. Henry Ayot

KENYATTA UNIVERSITY
SYRACUSE UNIVERSITY

Proceedings of the 2nd International Conference on Education

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Preface

Kenyatta University and Syracuse University have had an institutional linkage since 2000. This conference is one of the activities sponsored through the Kenyatta University-Syracuse University Partnership.

These proceedings are a written record of the research presented at the International Conference on Education held July 20-22, 2011 at the Kenyatta University Conference Centre, Nairobi, Kenya. The theme of the conference, *Quality Education for Societal Transformation*, focuses on an important set of opportunities for research to be useful in improving teaching and learning. Keynote addresses were given by Prof. Melissa Luke, Prof. Olive Mugenda, and Dr. Beatrice K. Njenga.

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BUILDING BRIDGES IN THE CLASSROOM: THE ROLE OF RELATIONSHIP IN ACADEMIC SETTINGS

Melissa Luke
Syracuse University

Building bridges in the classroom: The role of relationships in academic settings



Dr. Melissa Luke, Syracuse University
2nd International Conference on Education
Kenyatta University Conference Center– July 20, 2011

INTRODUCTION

Habari ya asubuhi. It is a pleasure to be here this morning. I am delighted to have the opportunity to return to Kenya for the 2nd International Conference on Education, here at the Kenyatta University Conference Center. First, I would like to take a moment to acknowledge the Minister of Education, as his presence and support here today is a reflection of his dedication to student learning more broadly. Additionally, I want to thank the ICE conference chair Dr. Gathumbi, not only for all of her efforts in making this conference possible, but also for her continued work, with that of the entire KU faculty, to improve teacher education. Accordingly, I also extend appreciation to Dr. Masingila, who as many of you already know, was instrumental in establishing the formal linkage between Kenyatta University and Syracuse University, a linkage that underpins this conference, as

well as ongoing research. Moreover, I wish to publically thank my doctoral advisee Ms. Hrovat, for her assistance in procuring resources for and contributions to this talk, as well for her efforts to make this Power Point. Finally, I extend my gratitude to you, voluntarily participating in professional development so that you can expand and extend your educational effectiveness. Thus, on behalf of all of your past, current, and future students, thank you.

I would like to provide a context for my presentation this morning, entitled 'Building bridges in the classroom: The role of relationship in academic settings.'

Context

- Relationships...
 - are central to Kenyan culture.
 - serve as a bridge when working with students.
 - ground the work of an educator.
 - influence all learning taking place in academic settings.



CONTEXT

When I visited Nairobi for the first time in July 2009 to attend the ICE, I was struck by numerous things: initially I was moved by the physical beauty of the land, the people, and the plants and animals, later I was emotionally inspired by learning more about both the strengths of and developmental challenges facing the Kenyan educational system, and over time I was intellectually drawn to the centrality of relationship within Kenyan culture. As a former high school English and Social Studies teacher, who later retrained and worked as a secondary school counselor, and who more recently became a counselor educator in the

university setting, I could relate to the importance of relationship in working with students. Across the educational contexts in which I worked, I could see how relationship served as a bridge on which academic and emotional learning traversed. That said, at some point during my visit here two years ago, likely through my informal interactions with Kenyan youth, their families, and others in their respective communities, as well as through my formal conversations with various educational professionals, many of whom I recognize here this morning, I gained a sense of how my personal/professional relational position not only grounded my work as an educator, but I began to think about how at the same time, such relationships influenced all of the learning taking place in the academic setting.

Overview

- Review of relevant literature
- Discussion of group dynamics and group work
- Exploration of relationally focused classroom interventions
- Illustration of relationships as a 'bridge to somewhere'

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Thus, drawing on the teacher education and the counseling and counselor education literatures, I am going to review what is known about relationship, specifically within academic settings. In doing so, group dynamics will be introduced, as relationships within an academic setting almost always arise within a group context. As such, the current literature about group work in education will be examined, linking this to what we know about group development. Finally, I will also provide a rationale for various relationally focused interventions that can readily be incorporated into the classroom and used with student groups. With this, I hope to illustrate how all of the relationships cultivated in your classroom, the ways in which you facilitate their development, tend to and maintain

relationships across student groups, as well as the means by which you don't, are a bridge to somewhere. As will be discussed, research supports that that the 'somewhere' students end up isn't always where we as educators originally anticipated. My intent is to illustrate how we as educators can intentionally use relationships as a developmental bridge between students' current functioning and the learning to which we aspire to be part within our academic settings.

Background

- Symbiotic relationship between teaching and learning
- Role of educator defined by delivery of subject-specific content
- Relational aspects of teacher role not explicitly recognized



BACKGROUND

When we consider our work as educators, likely the first description that comes to mind involves behaviors associated with teaching and learning; we do the former and our students the latter. I will not deconstruct if or how much of one can take place without the other; it will suffice to say that ideally, there is a symbiotic relationship between the two processes. As educators, we deliver instruction for the purposes of increasing the knowledge acquisition of our students. These processes take place in tandem and define our respective roles within the academic setting. That said, we as educators classify ourselves further by the subjects in that we're experts, be it science, math, language, civics, or the like. Recall that I shared a moment ago that I was a former English and Social Studies teacher and current counselor educator, labels that provide some description of the

teaching and learning that have taken place in my classroom. This common subject-based classification is content driven, and as such it provides a goal for and gives direction to what occurs. Of note is that as educators, we rarely talk about what we do as relational; we are much less likely to consider our teaching responsibilities as consisting of forming relationships with students, and/or transforming relationships between students for academic purposes. Despite the absence of our (and perhaps the larger field's) explicit recognition, that is part of what we do every day.

Relationships in academic settings

- Teacher-student relationships impact educational outcomes.
- Teacher-student relationships correlate with student perceptions (Keiter, 2000) and motivation towards learning (Christensen & Menzel, 1998; Wilson & Taylor, 2001).
- Significance of relationship extends to 'problem' students as well.

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Relationship in academic settings

When speaking of student achievement, Henderson and Nash (2007) said what we as educators already know; "The nature of teacher-student relationships is consequential to a successful outcome" (p. 17). Though this is the consensus when students are children, adolescents, or adults, the import of relationship can get relegated to the background amidst the many demands within the classroom. Nonetheless, research supports that teacher relationships and mutual respect are important to students (e.g., Magolda, 1987) and that a teacher's ability to communicate empathy and concern for students in the classroom is positively correlated with students' perception of teaching effectiveness (Keiter, 2000). Perhaps more importantly, teacher-student relationships have also been

found to correlate with student motivation toward learning (Christensen & Menzel, 1998; Wilson & Taylor, 2001). Concomitantly, the significance of relationship is not exclusive to positive circumstances, as when discussing students who exhibit problem behaviors in class McKeachie and Svinicki (2006) cautioned, “Remember that your problem students are human beings who have problems and need your empathy and help...no matter how much you would like to strangle them” (p. 189). How many of us have overlooked the ameliorating effects of relationship as an academic intervention in such situations?

Relationally focused self-assessment in higher education settings

- Communication skills
- Student dynamics
- Morale-building skills
- Ability to identify, address and express emotional content
- Social relationships

(Henderson & Nash, 2007)



Relationship has been considered in higher education settings as well, with at least one identified college teaching text including a relationally focused self-assessment tool targeting the following: general communication skills; identification of student dynamics, including noting when there is tension, when someone is left out, and who talks to whom; morale-building skills like showing interest, affirmation, and upholding the rights of individual students when they are experiencing group pressure to think differently; ability to identify, address, and express emotional content; and a category entitled social relationships which address undesirable behaviors such as competing with students, dominating students, as well as desirable behaviors such as learning to trust students, and keeping one's ego in check (Henderson & Nash, 2007, pp. 210-212).

Linguistic strategies

Associated with successful communication: (Luke & Gordon, 2011)

- *Used by both teachers and students:*
 - Repetition of the others' words
 - Professional jargon
- *Used by students:*
 - Constructed dialogue/ reported speech of a third party
- *Used by teachers:*
 - First person collective pronouns (we, us, our)
 - Discourse marker ("that being said")

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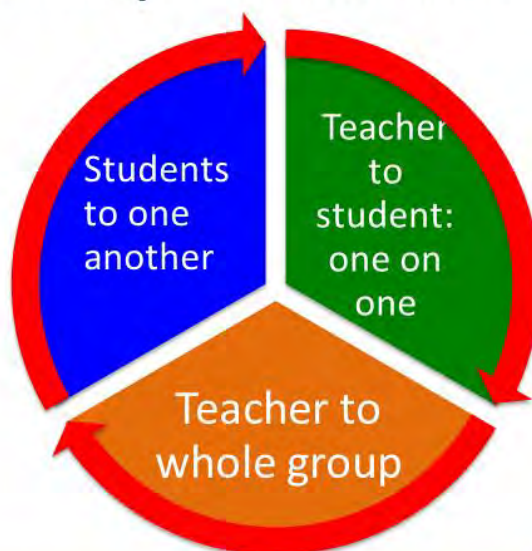
Related, using discourse analysis, Luke and Gordon (2011) identified five linguistic strategies associated with successful teacher-student communication. They found two strategies used by both teachers and students, the first being a repetition of the others' words. The repetition occurred in both form and function, and illustrated shared attention and understanding, demonstration of mutuality, and reinforced the value of certain topics. The second strategy used by both teachers and students involved professional jargon. Often used to label or describe experiential material, professional jargon was used mark the teachers' and students' shared identity and meanings within the educational context.

The one strategy used only by students was constructed dialogue (Gordon & Luke, 2011), wherein the student reported the speech of a third party, in this case positive evaluation. By identifying their strengths indirectly ("Mr. Mahero said my paper was the best he had seen all year."), students can elevate their competence while not appearing/feeling self-promoting. They also identified two strategies employed only by the teacher. One was the use of first person collective pronouns such as we, us, and our. Although in this work teachers used individual pronouns (e.g., I, me, my) often, they employed collective pronouns to strategically join with their students on an emotional and professional level. Additionally, teachers also used the discourse marker (Schiffrin, 1987), 'that being said,' to link an affirming or validating statement with a challenge to examine an idea from another perspective. For example, the teacher might say, "Grace, you have clearly done a lot of

research for this project. That being said, as all of your resources were written more than ten years ago, it is possible that you overlooked information.” It is interesting that ‘that being said’ is a fairly cumbersome and formal linguistic construction; however, the temporal space it occupies may provide part of the function, to ease the student in to receptivity.

While Luke and Gordon’s work did not assess the quality of teacher-student relationships per say, others have classified the identified linguistic strategies as ‘face saving’ behaviors in other contexts (Arundale, 2006, 2010; Goffman, 1987). Moreover, Locher and colleagues (2005; 2006; 2008) purported that discursive strategies accomplished as part of face work have the potential to enhance relationships. Considered with what we know about social role modeling (Bandura, 1977) gives new meaning to ‘It’s not what we say, but how we say it that counts.’

Relationships within the classroom



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GROUP WORK

Overwhelmingly, teachers and other educators work with classrooms of students, as opposed to merely with individual students. As such, the teacher does not only have to consider his or her relationship a single student, but rather in addition to acknowledging relationships with each student, a teacher also has to manage the exponentially more complicated relationships between the class room full of students, as well as negotiate his

or her relationship to the group as a whole. There is no doubt that all of this can be daunting, leading Hammer (2005) to remind us that we need to enact self care to stave off ego depletion and to effectively do this work. It also seems that the formidability of relationship within academic settings may not only predicate, but be predicated by, this topic's limited attention in the literature. Hence, a brief review of group work may be useful to better understand the ways in which relationship arises in group work.

Group work

Therapeutic/ curative factors

- Imparting of information
- Development of socializing techniques
- Interpersonal learning
- Modeling and corrective recapitulation
- Universality
- Group cohesiveness
- Instillation of hope
- Altruism
- Catharsis
- Exploration of existential issues



Early research into the effectiveness and benefits of group work identified important elements found to be present in most groups (Jacobs, Masson, & Harvill, 2009). Referred to in counseling as therapeutic factors, or in some literature as curative factors (Fall & Levitov, 2001), these elements include factors that are quite obvious to educators having used group work, such as the imparting of information, development of socializing techniques as well as interpersonal learning, and the occurrence of both modeling and corrective recapitulation. More subtle and less intuitive, are factors discussed in the counseling literature such as normalizing of experience via universality, development of group cohesiveness, instillation of hope and altruism, experiences of catharsis, and exploration of existential issues. More recently, Read (2011) indirectly described these factors when noting that “Children’s peer cultures work to influence and constrain the ways in which [they] children construct meaning and values, act and communicate with each other, and conduct complex aspects of

‘identity’ work in relation to themselves and their peers” (p2). Furthermore, it is within this peer group culture that behavioral norms are established and reinforced, as well as where group members pursue social power through conforming to and challenging the norms.

Educational group work

- Classroom can be seen as a large group.
- Student groups more likely than best individual member to solve problems. (Laughlin et al, 2006)
- Groups with diverse views create more ideas and solutions to problems. (Larson, 2007; Paulus & Brown, 2003)
- Challenge within groups can benefit group output and individual achievement. (Gillies & Hatnes, 2011; Oliveira et al, 2011)
- Teacher-provided structure and modeling facilitates student learning.

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Educational group work

Usage of group work is pervasive in education, as the classroom itself can be conceptualized as a large student group. That said, there are also naturally arising subgroupings within the class (e.g., boys-girls, affinity, mother tongue) (Keddie, 2004), as well as those small groups that the teacher imposes. Examples of teacher imposed small groups may be reading groups in elementary school, where students are divided by level (Chamber, Slavin, Madden, Abrami, Logan, & Gifford, 2011) or those developed for problem based (Ochoa & Robinson, 2005) or cooperative learning (Gillies & Haynes, 2011), two student-centered pedagogical approaches to increase student involvement in their own learning.

Regardless of how formed, we know from research that student groups are more likely than the best individual members to solve some complex problems (Laughlin, Hatch, Silver, & Boh, 2006). Moreover, although groups do not tend to seek out alternative solutions

(Ochoa, Gottschall, & Stuart, 2004), there are times when a minority opinion can sway the group consensus (Ochoa & Robinson, 2005). In addition, there are a variety of group behaviors that have been associated with increased student achievement. Gilles and Haynes (2001) found that increased explanatory behavior, problem-solving, and reasoning led to better student outcomes. This work, as well as other research (Larson, 2007; Paulus & Brown, 2003) has supported that groups with diverse views can create more ideas, justification proposals, and solutions to problems, particularly when the group members value one another's input.

Although the literature has also suggested that offering a discrepant view, pointing out another's error, or speaking up against the shared opinion is often avoided in group work (Burgh & Yorshansky, 2011), these more recent studies have demonstrated two very important challenges (Gillies & Haynes, 2011; Oliveira, Tinoca, and Pereira, 2011). First, behaviors commonly interpreted as obstacles to group relationship (e.g., inter-personal conflict, domination and coercion, and other actions that indicate reluctance to distribute power) can at times, not only provide students opportunities for growth, but that these behaviors can benefit both the group output or product and the achievement of individual group members. Secondly, research reveals that when teachers provide structure and instruction about group communication, modeling and foreshadowing 'polite disagreement' strategies, it increases its manifestation and thereby facilitates student learning.

Relationship focused linguistic strategies

- “Polite disagreement” can reduce blame and increase common ground in groups.
- Use of “if” as a hypothetical distances disagreement.
- Use of passive voice diminishes causal agency. (Chui, 2008)

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Expounding upon this further, Chui (2008) noted how relationship focused linguistic strategies, akin to those used in “polite disagreement,” can reduce blame and increase common ground in the group. “For example, Ann can disagree politely [by noting], ‘If we add two and three, we don’t get six.’” Notice that Ann never directly addresses the group or group member, reducing any sense of culpability or defensiveness. Moreover, her use of ‘if’ as a hypothetical, distances her disagreement from the reality of what is taking place. Lastly, she uses the passive voice, again diminishing causal agency. Ann’s language reveals that she can simultaneously attend her relationship with her group, while also accomplishing the academic task at hand.

Patterns of group work

Negotiation	-Clarification of focus -Collaboration	-Making the goals explicit -Establishing a structure
Research	-Sharing information	-Creation of artifacts
Conception	-Collaboration headings -Drafts of sections	-Defining section -Reflection over product
Production	-Establishing final presentation -Assurance concerning assessment requirements -Revision -Sharing final product with the community	-Discussion

(Oliveira et al, 2011)

Research has examined these issues in higher education settings, including that of teacher training (Yoon, Liu, & Goh, 2010). In a study of group work patterns in an online course, Oliveira, Tinoca, and Pereira (2011) identified four primary categories of interactions associated with successful group functioning over time, including negotiation, research, conception, and production. They further distinguished how these tasks were behaviorally enacted in the groups. In a separate study, Ikpeze (2007) investigated conditions that helped and hindered the collaborative learning of teachers-in-training within online student groups, finding three important factors: participation and group interaction, group processing behavior, and leadership structures and student roles.

Group dynamics

Group dynamics

- Roles within groups
 - Leader
 - Monitor
 - Gatekeeper
 - Storyteller
 - Interrogator
 - Follower
 - Scapegoat
 - Harmonizer
- Therapeutic factors in Botswana group work:
 - ① Self-understanding
 - ② Acceptance
 - ③ Vicarious learning
 - ④ Interpersonal learning

(Nitza, 2011)

(Jacobs et al, 2009)

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Common to the development of counseling groups is the process of group members taking on roles within the group system. As this happens organically as part of the group process, it is possible for group members to change roles throughout the duration of the group (Dinkmeyer & Muro, 1979). Although this is discussed less often in the educational literature, the dynamic of role ascription is nonetheless present in group work in academic settings. For example, studies recording collaborative small group interaction have found that group members do not contribute equally and as such, some group members may have the tendency to emerge as self appointed group leaders, monitors, or gatekeepers, largely influencing the group processes (Ochoa & Robinson, 2005).

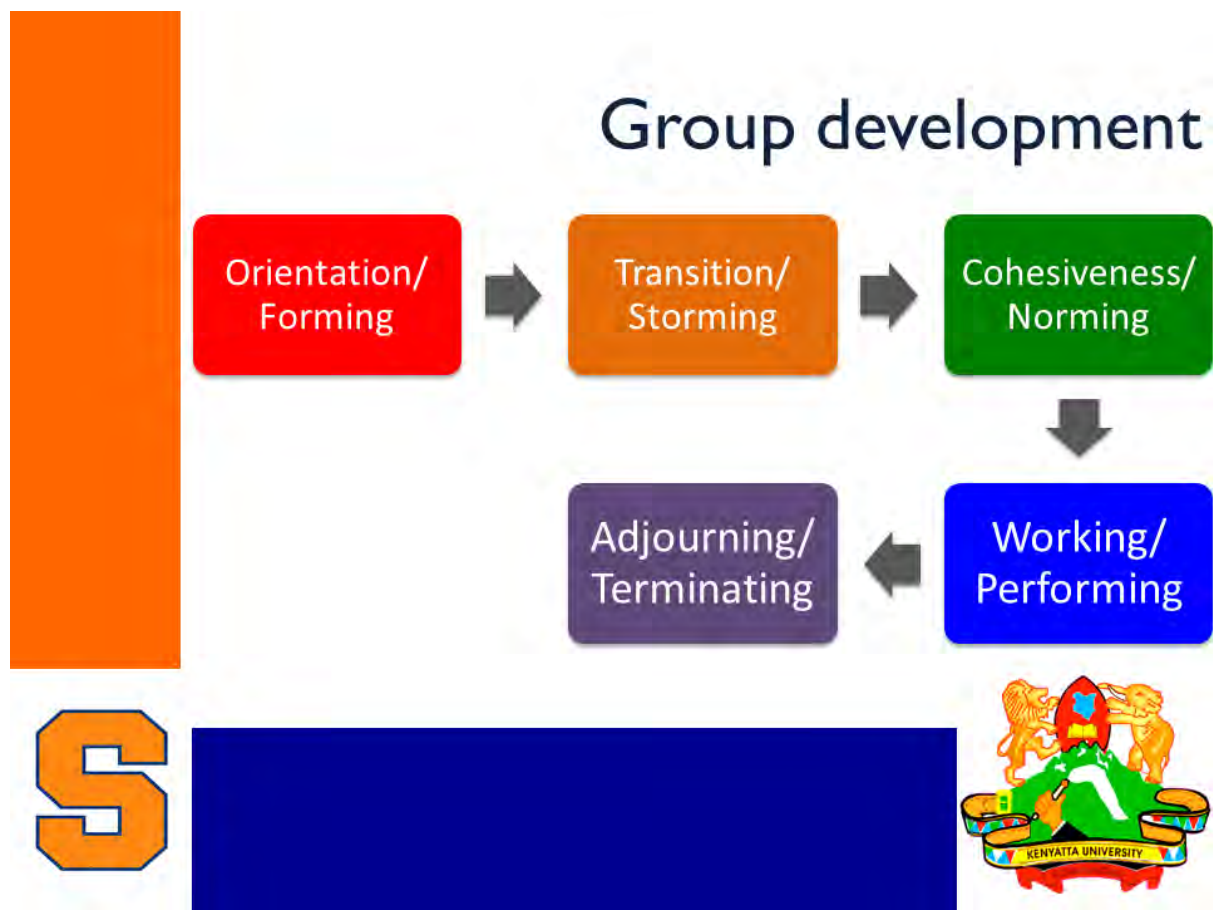
Other roles from counseling group work that have been noted in educational group work as well are that of the storyteller, the interrogator, the follower, the scapegoat, and the harmonizer (Jacobs, Masson & Harvill, 2009). The storyteller refers to the group member who monopolizes the group with their own ideas, opinions, and experiences, while the interrogator tends to ask other group members multiple questions while avoiding their own sharing. The follower goes along with whatever the other group members want, seldom voicing his or her own view, whereas the scapegoat gets the blame for much of the conflict that occurs in the group. Lastly, the harmonizer, in my observations disproportionately

evident in both teacher and counselor education programs, seeks to keep the peace in the group and avoid conflict at all cost.

Although research has demonstrated the effectiveness of counseling in Sub-Saharan Africa, Dr. Amy Nitzá's (2011) conducted the first investigation of group process that explored the cultural relevance of group work. She examined the therapeutic factors and group climate as perceived by members of an experiential group in Botswana, hypothesizing that the collectivist culture would influence the processes of group work. Contrary to expectations, the highest ranked therapeutic factor was self-understanding, arguably a more aligned with individualistic values. This was followed by acceptance, vicarious learning, and interpersonal learning, more consistent with collectivistic values. As this was the first time these constructs had been assessed in Botswana or anywhere else in Africa, she also assessed the factor structure of the Group Climate Inventory and compared to earlier research in the US and Europe. Differences suggested that culture affected group climate variables. Thus, when considering the group work literature more broadly, we need to recognize that much of what we know about group processes extends across cultures, and at the same time, cultural differences can influence some aspects of group work, such as group climate. It is unknown empirically if or how culture may impact group roles, though anecdotal reports suggest that similar group roles to what has been described are evident across cultures.

Though it may be natural for these roles to emerge within group work, they often serve to replicate power structures seen elsewhere in the classroom or larger community. As such, many teachers have reactions to what can appear as less than democratic consequences of these group roles (Berkman, 2009). Yet, it is important to recall that emerging research suggests that group cohesiveness does not always yield the best academic outcomes. Instead, diversity of thought including that that arises through polite disagreement and argumentation, stimulate improved individual and group outcomes. That said, intentional facilitation and implementation educational interventions, including scaffolding the group process activities, can increase group processes leading to positive ends and any manage the negative impact that these roles can have on relationships between group members, as well as on group development (Oliveira, Tinoca, & Pereira, 2011).

Group development



Across contexts, practitioners and researchers alike have recognized that productive group functioning does not immediately occur after putting together a group of people, but rather grows over time (Fall & Levitov, 2009). There are several well-recognized and distinct stages that groups move through in their development (i.e., Tuckman, 1965). These stages include: orientation/ forming; transition/ storming; cohesiveness/ norming; working/performing; and adjourning/ termination and are commonly used as a framework for understanding the way that groups form, develop, and accomplish their work.

In what is commonly referred to as the orientation or forming stage, group members become acquainted with the group and to each other. Common to this stage is group members' tentativeness with one another, reflected through minimal risk taking. Also evident is the group's dependence on the group leader, in this case the teacher, to provide structure or guidance. As such, the group work contains periods of silence, awkwardness, with members appearing uncertain about when, how, and how much to contribute (Tuckman & Jensen, 1977).

Following this in the transition or storming stage, it is normal for the group as a whole and participants individually to experience feelings of anxiety and ambiguity as they attempt to

define the boundaries of the group. This can be seen in individual member's relationship to the group whole, as they work to establish the generally accepted practices or "norms" of the group. Interpersonally, this stage is often filled with conflict and confusion, sometimes referred to as storming. In the third stage, the cohesiveness or norming stage, the group begins to move out of conflict and into the building of a therapeutic alliance amongst members. Trust begins to form, with individuals making a commitment to cooperate on the task at hand. As members begin to take control of some group leadership functions, the group leader can assume a peripheral, less active role.

Although not all groups develop to the fourth stage, it is in the working or performing stage that members begin to share more openly, give and receive feedback and experiment with new ideas. In describing this stage, Tuckman and others (1965; 1977) noted that the group becomes a fully functioning, creative, and unified system as it achieves a level of maturity characterized by open expression and acceptance of interdependence and flexible group norms. As a result of the need for less group approval, individual group members are able to increasingly raise discrepancy and engage in more divergent thinking.

Finally, the group moves through the adjourning or terminating stage where the work of the group is honored, group relationships are appreciated, and plans for transitioning to a life without group are discussed. It has been suggested that groups with predetermined endings, such as most educational group work, are more likely to experience sadness or noticeable feelings of loss. As a result, members may exhibit denial and defensive behaviors, coupled with occasional periods of productivity and expression of appreciation.

Levels of functioning within group system



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Related, in a study of counselors-in-training and their experience of group work, Luke & Kiweewa (2010) observed counselors-in-trainings' descriptions of events across the differing group stages revealed a systemic interconnectedness across four levels of functioning within the group system; namely the intrapersonal level (e.g., internal experience of group member; David felt worried), the interpersonal level (e.g., shared experience between two or more group members; Anita and Robert were whispering to one another), the group as a whole level (e.g., the shared experience of the entire group system; no one knew the answer), and the supra group level (e.g., outside of group occurrences that influence the group; Samuel emailed an article to the group). The noted relationship was later corroborated in a direct investigation of group work by Kiweewa (2010) and offers some direction for how group leaders, or in our case teachers, can understand the relational aspects of group content and thereby intervene within group work.

IMPLICATIONS

Implications

- Link the contributions and experiences across group members.
- Make the rounds.
- Use open and closed ended questions to clarify group members' contributions.
- Directly teach the difference between "I" and "you" statements.

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Although research suggests that some teachers are more adept at relational work than others, it is also the case that even the most relationally skilled of us can struggle in this regard with some students from time to time. It is imperative that we remember that relationship does not occur in a vacuum (Bernard & Luke, in press), rather, relationship is connected to all we do as educators. In consideration of this, and the impact relationships can have on student learning, what follows is a list of suggestions for teaching in a manner that is relationship enhancing.

- *Link the contributions and experiences across group members.*

This is a common and effective group intervention that builds group cohesiveness and a sense of universality, by allowing members to see connections with others in the group.

- *Make the rounds.*

In order to elicit participation from all group members, this is a technique in which each member is asked to participate by sharing an answer, comment, or perspective related to the topic or content of the group work.

- *Open and closed ended questions to clarify group members' contributions.*

Group facilitators may find it helpful to use clarification to confirm accuracy of understanding, as well as to scaffold members to be concrete by giving clear examples and not speaking simply in vague terms.

- *Directly teach the difference between 'I' and 'You' statements.*

Asking group members to use "I" when they are speaking helps them to own their perspectives and not generalize their experiences to the whole group.

Implications

- Assist students in seeing their impact on the group.
- Model appropriate giving and receiving of feedback.
- Structure desired group behavior.
- Build a sense of community.
- Communicate respect and concern.

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- *Assist students' in seeing their impact on the group.*

One way this can be accomplished is through requiring students to begin their contributions with "I am saying this because..." and then offering the content.

- *Model appropriate giving and receiving feedback.*

One way to do this in the group is by raising a discrepancy, bringing to awareness a disconnect between what a group member says or values and does. Another possibility would be to demonstrate how to politely disagree, or to find opportunities to use some of the previously discussed linguistic strategies. By modeling such strategies, teachers encourage group members to give one another clear, direct feedback, express opposing views, while also affirming relationships.

- *Structure desired group behavior (e.g., polite dissent, processing, etc).*

In light of what we know from the literature on group theory and dynamics, as well as what has been supported via the educational literature, teachers can incorporate the behaviors associated with positive group work outcomes in to the assignment. For example, each group member could be expected to offer two differences of opinion or ideas within each group meeting.

- *Build a sense of community.*

Students look for clues and cues about our fairness, our approachability, our responses to them as individuals, and so on. It's important to balance these needs with our need to cover the content of the course. Taking time to build a sense of community has long-term payoffs.

- *Communicate respect and concern.*

Respect is communicated in many ways, with numerous cultural differences. Although keeping eye contact when a student is speaking is perceived by US students favorably, this is not necessarily true everywhere. Generally, attempting to find a kernel of a student's answer that can be embellished rather than the part of the answer with which one takes exception, enhances respect. So too, does keeping to a schedule, letting students out on time, and clarity regarding assignments.

Implications

- Express concern about personal well-being.
- Maintain appropriate boundaries.
- Attend to relational discord.
- Develop effective classroom management strategies for group work.
- Attend to your own multicultural competence.

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- *Express concern about personal well-being.*

This is a level beyond respect, but has nonetheless been purported to be an important dimension in teacher-student relationships (Meyers, 2009). This can be accomplished by making reference to something shared by the student, inquiring to see how they are experiencing something, as well as responding to student's requests when possible. While I could not find any data to support my observation, in my experience there is a connection between a teacher's communication of concern and students' openness to challenging feedback.

- *Maintain appropriate boundaries.*

Students understandably can get confused in about different ground rules and boundaries across classroom settings; one teacher's related practices can differ from the next. In a study by Luke and Goodrich (2010), students' reported to often value most the lessons learned from teachers who successfully navigated dual roles of faculty and mentor. Deciphering this, however, can be especially hard for some students. In all cases, it is the teacher who must model the parameters of the student-teacher boundary (Goodrich, 2008).

- *Attend to relational discord.*

Although there may not ever be a way in which the teacher prevents or rids interpersonal tensions between him or herself and students, one simplified formula for dealing with relational discord is the following: first acknowledge in a non-defensive manner the rupture that has occurred, then communicate in as sensitive a manner as possible that the primary contract with the student is instructional, and invite discussion about the potential impact of the discord on the instructional contract. Finally listen to the student's perspective while also offering your own.

- *Develop effective classroom management strategies for group work.*

Often in group work there are equally valid, but competing goals. For example, the teacher may try to stimulate an active and engaged discussion, but also have need to limit the input of some members, redirect the content when off track, etc. In their research of counselors-in-training during an initial experience with group work, Goodrich and Luke (2010) uncovered a lack of preparedness in school counselors-in-training related to the preventative and responsive mechanisms to necessary effectively manage students' participation in the group. Thus, training programs may want to specifically teach to this.

- *Attend to your own multicultural competence.*

Despite being professionals, we are not immune to the same micro-aggressions that are discussed elsewhere in the literature (Constantine & Sue, 2007). For those who may not be familiar with the term, a micro-aggression is defined as an action subtly displaying bias or prejudice. These can be particularly damaging because students have a harder time identifying the expressed insensitivity and separating it from their own reactions. It is our ethical obligation to continually monitor, reflect on, and endeavor to further develop our multicultural competence, as it is not static.

Implications

- Be careful not to privilege one student or a group of students.
- Know and address your interpersonal strengths and weaknesses.
- Assess and monitor your relational work.

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- *Be careful not to privilege one student or a group of students.*

This is a common criticism heard from students across teaching settings; their perception that a particular teacher just does not like them or that a teacher has ‘favorites.’ While this complaint may be as much a reflection of the student sharing it as it is on the identified teacher, it is nonetheless also possible that students’ perceptions are influenced by real values, opinions, or preferences.

- *Know & address your interpersonal strengths and weaknesses.*

One of the hallmarks of education is its emphasis on reflective learning (Skovholt & Ronnestad, 1992); therefore, we encourage introspection among our students as part of becoming a good educator themselves. Although research demonstrates that personality does not determine good professional practice (Scarborough & Luke, 2008), a core pattern of interpersonal “beliefs, attitudes, conceptions, and perceptions” (Bain, 2007, p.137) does. As such, we need to continue to pay attention to where we are developmentally with respect to our interpersonal skills and to work towards the same type of growth that we expect of our students.

- *Assess and monitor your relational work.*

Despite longstanding recognition of the importance of formal evaluation in measuring and monitoring educational outcomes (Education Commission, 1995), there has been little systematic focus on how or where the teacher-student relationship fits into the overall equation (Pascarella, 2001). Nonetheless, this can be done informally by noting student contact or by collecting more formal feedback through student evaluations. It seems possible that by simply asking students for their perspective could have the potential to positively influence the relationship. That said, as no standardized measures that assessed the teaching relationship could be found, this may be an area for future inquiry.

Cautions

- No studies were found that directly examined relationship.
- Little quantitative outcome research exists.
- Need for more studies that examine the role of computers in groups.
- Potential benefits and harm related to dual relationships.
- Important to consider intersection of culture.

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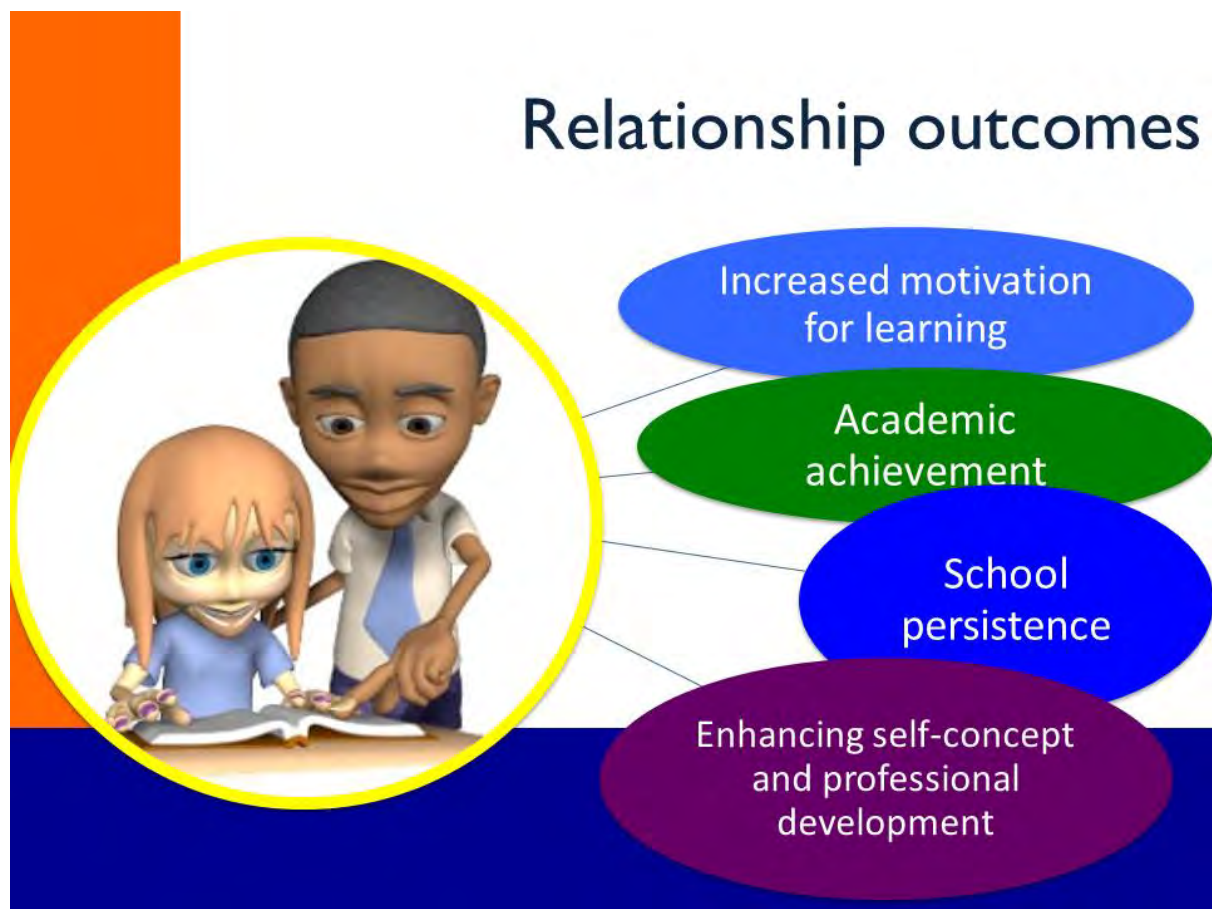


CAUTIONS

While it is my contention that relationship is endemic to what we do as educators and that as such, our awareness of and intentional use of relationship within academic settings is paramount to students' and therefore our own success, this work is not without caution. There is a significant amount of practice literature that recognizes the role of relationship and there are certainly studies that indirectly investigate relationship oriented variables; yet, I was unable to identify any recent studies that directly examined relationship. Moreover, the studies that do exist are largely qualitative, leaving a gap in outcome research. Likewise, with the increase usage of computers in education broadly and more

specifically their usage in group work, there is a need for more studies that examine the role of relationship in this forum. Goodrich (2008) alerted us to the potential benefits, as well as harm, that can arise from dual relationships in educational settings. While his work underscores the ongoing relevance of boundary issues, it can become even more salient when we're explicitly considering how relationship can be used as an intervention. Educators must never confuse attention to and valuing the function of the teacher-student relationships with being a student's friend (in person or via online social networking sites like FaceBook or My Space). Lastly, but related, a number of cultural issues intersect with how we perceive, experience, and enact relationship in academic settings. It is imperative to not only consider how age, race, gender, ethnicity, educational role, or any other individual difference can influence how we approach relationship, but to also always be aware that there are parallel processes taking place for our students. As this is inherently complex and inadequately understood, there is a need to investigate the implications of these issues more fully.

CONCLUSIONS



Excellent teaching requires the integration of several different skill sets. One of these, the ability to create, enhance, and maintain positive teacher-student relationships, has a variety of positive outcomes for students. The documented benefits of constructive teacher-

student relationships range from increasing motivation for learning, academic achievement, and school persistence to enhancing self concept and professional development. Many of the skills that enhance teacher-student relationships can be developed. Therefore, teacher education programs and professional development opportunities can incorporate training, practice, and experience in specific relationship enhancing skills that have been shown relevant to creating and maintaining a positive learning environment.

As Bain (2004) noted, the best instructors use their power to communicate their investment in their students. Our students are much like us, in that when our students know that we care about them, as well as their learning and their success, they tend to care as well! In this spirit, let us move forward with the conference and then go back to our respective classrooms with the concept of relationship in the foreground. I am confident that we can all use relationships to bridge the divides encountered with our students.



Asante sana!

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KENYATTA UNIVERSITY
KINYATI NI NG'AMU

Asante sana! I appreciate your time and attention this morning.

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THE ROLE OF CURRICULUM EVALUATION IN QUALITY EDUCATION IN NIGERIA

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Abstract

The paper dwelt on the role of Curriculum Evaluation in quality education in Nigeria. The quality of education in Nigeria has come under serious criticism in recent years. The paper revealed that credence has been lent more to these criticisms because of the poor performance of students noticed in public examinations like the West African School Certificate Examination (WASCE) and the National Examination Council (NECO). As a result of these fall out, the effectiveness of public secondary school in Nigeria has become an issue of debate.

The paper stated that, since curriculum evaluation is the act of gauging the value and effectiveness of any aspect of educational activities, it then becomes imperative to look at certain aspects of the Secondary School System in Nigeria, especially the teaching learning process.

The paper goes further to explain how curriculum evaluation may come handy in solving some of the problems facing secondary school education in Nigeria, such as, issues bothering on instructional methods, instructional materials, class size, students' assessment and evaluation and other sundry issues affecting quality education in Nigeria.

The paper concluded that mass failure in public examination can be drastically reduced in Nigeria if curriculum evaluation is allowed to thrive within the educational system in the country.

Curriculum Evaluation

Curriculum evaluation is the process of gauging the value and the effectiveness of educational activities Salia (1987). The word curriculum, itself is derived from the latin word "*currere*" which means "a course to be run" (Kool-Chun, 2002). According to Tanner and Tanner (1975), curriculum entails planned instructional experiences designed to assist

learners develop and exhibit individual capability. The major elements of curriculum comprise:

- Aims and objectives
- Content of Curriculum
- Organization of learning experiences/methods
- Evaluation

Curriculum evaluation is concerned with the quality of educational programmes because one of the problems of quality control in education is how to maintain the effectiveness of curriculum over a period of time. Curriculum evaluation is therefore saddled with the responsibility of:

- Ensuring that curriculum goals and objectives are being met.
- Determining if allocated resources to an educational programme is producing desired benefits.
- Identifying curriculum areas that need improvement.
- Identifying curriculum areas that are yielding desired results, areas that are not, and why those areas are not working well.
- Reporting education progress to relevant stakeholders.

The issue of quality in education is more germane in the African continent whose education has come under serious criticism in recent years. The seemingly poor quality of education is perhaps, a direct fall out from the socio-political and economic instability that have bedeviled some African countries in recent times. Coupled with these shortcomings are, poor funding of education and mismanagement of public fund in some African countries.

The resultant effect from these happenings are, infrastructural decay in schools, non-availability of instructional resources, over-populated (large classes) classes, poor remuneration of teachers, lack of qualified teachers in certain subject areas among others.

It is therefore not surprising that there have been noticeable decline in the performance of students in public examinations in recent years since quality education is closely related to students' performance. This decline in performance among other factors, seems to have lent credence to the criticism of the quality of education in this part of the world. Such public examinations include, West African School Certificate Examination (WASCE), National Examination Council (NECO) etc.

Shielding light on this, Otiti (2011) writes that:

...the monster of failure has taken over the throne, unleashing its fancy on students year after year. The harvest of academic failures has brought many students to their knees in tears.

Even, the Federal Government of Nigeria is disturbed by the persistent poor performance of Secondary School students in public examinations conducted by WAEC, NECO and other bodies in the country, Idoko (2009). Also, Fabayo (1998) hinted that local and international stakeholders in education are worried about the poor performance of students in public examinations. As a result of these shortcomings, the effectiveness of public Secondary Schools in some African countries has become an issue of debate. Babalola (2009) therefore suggested that a lasting solution of improvement be found for the schools, the curriculum and methods of teaching.

Curriculum evaluation on its part, play vital role in quality education and such evaluation may be **Formative** or **Summative**. When it is **Formative**, it can be used to:

- Monitor the quality of learning during instruction.
- Determine the effectiveness of instructional resources.
- Determine the effectiveness of instructional methods.
- Assess the quality of school facilities/infrastructure.
- Quality of school personnel
- To find out the interaction level of all of the above.

Formative curriculum evaluation is used to monitor learning progress during instruction. The purpose of such evaluation is to provide continuous feedback to stakeholders in education on learning successes and failures (Gronlund, 1976). For instance, feedback to learners provides opportunity for learning adjustments. Also, feedback to teachers provides them with appropriate information for modifying instructional activities, and it also provides to teachers, prescribe remedial action for individual or group of students.

On the other hand, **Summative evaluation** of curriculum comes up at the end of school programme or course – which is typically at the end of a term or at the end of school year. This type of evaluation determines the overall effectiveness of the programme. **Summative evaluation** can reveal the extent to which instructional objectives have been attained. It is also used for:

- Students' assessment
- Assigning course grade to students
- Certification of students

- Promotion of students

Evaluation Model

The next question is, how can a curriculum be evaluated to ensure quality sustainability? This brings us to the issue of Models of curriculum evaluation. First of all, a model of evaluation is a framework or a paradigm that helps evaluators to explain a reality. In other words, a model of evaluation is a comprehensive framework for guiding curriculum, programme, project etc. evaluation models are used to define the parameters of an evaluation – such as the concepts of study, the processes and methods required to generate vital information.

There are various models of evaluation which can come handy in curriculum evaluation. Among these models are:

- **CIPP: Context – input – process – product**
- **ATO: Anticident – Transaction Outcome**

CIPP was proposed by Stufflebean. The model, (CIPP), was developed to help improve and bring about quality assurance through the accountability in school programmes. The four phases of this model represented by CIPP, are context, input, process and product. The curriculum evaluator can apply any phase of the model to:

- Context evaluation
- Input evaluation
- Process evaluation
- Product evaluation

Context Evaluation

In context evaluation, if the focus is on curriculum for instance, the curriculum evaluator may need to state the existing socio-political, economic and cultural situations that gave birth to the curriculum. The context provides indept background information that helps to determine curriculum setting, the target group (students), the available resources with the geo-political system in terms of finance, man-power among others.

Input Evaluation

The input arm of curriculum evaluation in CIPP has to do with the quantitative and qualitative measures of human, material and financial resources.

Process Evaluation

Here the implementation procedures and process are considered. The process aspect of the curriculum is very crucial. This is the stage where the interaction among the variables in education is considered. Such consideration could be on the interplay of:

- Teachers
- Students
- Instructional materials
- Teachers' classroom management
- School management
- Finances
- Students achievement
- School infrastructure
- School Facilities etc.

The importance of this stage is that it helps to identify problems or bottlenecks in the programme being evaluated, in this case – the curriculum being evaluated.

Product Evaluation

Here, consideration is given to the effect and impact of the course of the implementation of the programme or the curriculum. This stage considers the outcome or achievement of the curriculum. The effect and the impact of the programme on education socio-economic and political life of the people is also considered here.

Antecedent Transaction Model (ATO)

The model was proposed by Robert Stake. It is one of the models that impact on decision making. The model is represented by the acronym **ATO** as in:

A – Antecedent

T – Transaction

O – Outcome

The antecedent aspect of 'ATO' represents the prevailing or the existing conditions prior to the introduction of the programme, such as curriculum. The prevailing condition may be political, social, economic situation in a country. It could also be the existing human and material resources (quality and quantity).

For instance, in curriculum evaluation, the evaluator may want to know the kind of curriculum being implemented, the category of teachers that are available and the instructional materials and other facilities available within the curriculum implementation.

Transaction in 'ATO' stands for the inputs and interaction that take place during the process of implementation. While the '**outcome**' of 'ATO' model of evaluation stands for the available or measurable effect as a result of the various implementation phases - such as effects of political, social and economic situation, learning outcomes, programme efficiency and the general effect on humanity or the entire society.

ATO model of evaluation helps to detect the resources as well as their quality and quantity on ground for good transactions to take place – to produce the desired outcomes.

Curriculum Evaluation and Quality in Education

Evaluation is very concerned with the quality of educational programmes. According to Rathore and Schuemer (1998), evaluation (is not) an end in itself, evaluation should rather provide information which can be used to maintain or improve the quality of products and process. Therefore, it is the responsibility of the curriculum evaluator to discover whether or not a particular educational programme continue to be effective in attaining specific educational objectives.

Curriculum evaluation can also determine the nature of deterioration observed in a curriculum - whether such deterioration cuts across the entire curriculum, or parts of the curriculum. Evaluation can reveal if the defects in the curriculum was unintended or a combination of the above.

In addition, the curriculum evaluator can identify the cause or source of such defects or deterioration. Of course, this is done through careful data collection and analysis. As already hinted in this paper, sometimes, a number of factors may cause deterioration in an educational programme. For example, if an educational programme is not adequately funded or if teachers as the implementors of the curriculum fail to implement the curriculum in the intended form, such curriculum will not yield the desire result. Evaluation can reveal such defects. Without knowledge of cause and source of deterioration, it is very

difficult to work out any relevant, and effective solution and prescriptions for remedy. Also, when the causes or sources of any deterioration is identified, and measures are taken to improve the effectiveness of the deteriorating curriculum, it still behoves on the curriculum evaluator to take necessary steps to investigate how remedial actions or measures are working. Through the employment of these processes, there is no doubt that quality education could be maintained and sustained.

One of the major gains of quality education is improved performance of students in public examinations. Therefore, if quality education is truly considered desirable in the African Continent, then Curriculum evaluation must be allowed to thrive within the educational system. It must be noted that curriculum evaluation should not only be involved in an implemented curriculum, but rather, the evaluator must be involved even at the planning stage of a new curriculum. By doing so, appropriate evaluation strategies would have been built into the programme/curriculum to enable it withstand adversities in the course of implementation. Quality education is synonymous with socio-political and economic stability of a country. It is hope that stability will return to the body polity of many African countries so that education can take its rightful place in these nations. Quality education is a task that must be achieved in Africa, if curriculum evaluation is rightly involved and allowed to flourish.

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ROLE OF EDUCATION IN PROMOTING ENTREPRENEURIAL SKILLS THROUGH CLASSROOM PRACTICES: TEACHER TRAINING IN THE KENYAN UNIVERSITIES

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The purpose of this paper is to characterize the status of classroom practice that will bring about the amalgamation of formal and non-formal education in Kenya and the extent to which regular Monitoring and Evaluation (M&E) can be integrated in this process to bring into practice learners' activities on hands-on experiences, high enrolment rates that deny teachers a chance for one-on-one remedial, limited resources for teaching and learning, lack of enabling environment to allow teachers perform their best in the training process and lack of motivation needed to propel both teachers and learners to high achievement levels. The formal and non-formal education sectors in Kenya have the potential of revolutionizing socio-economic, cultural and political development of the country. But some of the challenges facing the implementation of an effective system of education include first and foremost, the lack of coordination between the various ministries and stakeholders that are involved in their running. Second, there is a lack of focused, planned and active partnerships that are guided, monitored and evaluated in order to learn for the future. Last but not least, the government has the challenge of finding a balance in terms of the support given to these two sectors of education. The approach taken in this paper begins with setting the state of teacher training in one of the Kenyan universities that prepare teachers for both formal and non-formal education schools in Kenya with an emphasis on how they currently augment each other. The role of the education sector in Kenya should bring about the much anticipated opportunities which act as a net safety for absorbing those school leavers who cannot either further their education or find employment. The formation of partnerships between the various stakeholders involved is also highlighted. The conclusions are in the form of recommendations towards improving classroom practices, partnerships between the various stakeholders of education in Kenya and the role of M&E in the process of educational reform to achieve the full benefits of education in society.

Key words: Entrepreneurship Education; Revolutionizing Education; Innovativeness; Formal versus Non-formal Education; Individual (School-leaver).

1.1 Entrepreneurship Education

Entrepreneurship education seeks to provide students with the knowledge, skills and motivation to encourage entrepreneurial success in a variety of settings. Variations of entrepreneurship education are offered at all levels of schooling from primary, secondary schools and through tertiary or graduate university programs. Entrepreneurial education has a big role to play in revolutionizing the way education builds the learners for a world of work. Entrepreneurial education prepares school-leavers for work as entrepreneurial education must include skill-building courses in negotiation, leadership, new product development, creative thinking, exposure to technological innovation (McMullan & Long, 1987; Vesper & McMullen, 1988; King, 2001; Honig, 2004). It is further argued that entrepreneurial education should instill in the learners awareness of entrepreneur career options (Donckels, 1991; Hills, 1988; Kuratko, 2004). Therefore, teachers and students should embrace hands-on teaching and learning for that recognizes certain desirable outcomes and endorses student-centered instructional approaches. Research has confirmed many of the seemingly intuitive benefits of hands-on learning and has also documented a variety of unanticipated benefits to the learners long after schooling (Graham-Brown, 1991; Fordham, 1993; Jeffs & Smith, (eds. n.d.). The author of this paper wonders: What effects of hands-on learning could advocate as most important or valuable in the current school system in Kenya? This might greatly depend on the prevailing circumstances and the societal needs of man-power development.

1.2. Objectives of Entrepreneurial Education

What makes entrepreneurship education distinctive is its focus on realization of opportunity, and where the management of education is focused on the best way to operate existing forms and hierarchies in the educational setup. Researchers have argued that both approaches share an interest in achieving "profit" in some form (which in non-profit organizations or government can take the form of increased services or decreased cost or increased responsiveness to the customer/citizen/client; (Vesper & Gartner, 1997; Vesper, 1999; Zahra, Hayton, Marcel & O'Neill, 2001). Entrepreneurship education can be oriented towards different ways of realizing opportunities such as by the learners trying to put knowledge into practice, that is, opening a new organization; engaging in approaches that promote innovation or introduce new products or services or markets in existing firms or as recent approaches that involves creating charitable organizations which are designed to be self-supporting in addition to doing their good works. This is usually called social entrepreneurship or social venturing that gives an individual a chance to put into practice the knowledge and skills learnt at school.

1.3. Status of Classroom Practices Based on Teacher – Student Ratio that Advocates for Hands-on Experiences

The biggest challenge facing the education system in Kenya is the enrollment of students in class. The current statistics show that with the free primary and secondary education, the enrollment has increased over the years. In most public universities in Kenya, the lecturer-student ratio is about 1:12,000 students. This ratio is too high for a teacher training department to have sufficient time to trainee the teachers on how best to train skills. Thus, a system of education that is responsive to the global labour market demands must be one through which the Ministry of Education ensures the identification of the educational needs of the students attending the learning institutions; guarantees recommendations for the development, implementation and assessment of the curriculum that accommodates plans required for change and success (Vesper, & McMullen, 1988; Vesper & Gartner, 1999; Vesper, 1999).

Teacher education has moved from knowledge, skills, and attitudes to knowledge, skills, and dispositions (Villegas, 2007). Disposition can be defined as a tendency to exhibit frequently, consciously, and voluntarily a pattern of behavior that is directed to a broad goal (Ros-Voseles & Moss, 2007). This is because the world has changed and the new labour requirements need an all round person. Indeed, dispositions are an individual personal qualities or characteristics, including values, attitudes, beliefs, interests, behaviors, and performance that are required in the daily operations of an individual at work. These traits extend to professional modes of conduct and the ways in which beliefs and attitudes are displayed in and out of the classroom.

Education gained during the learning process should be one that provides entrepreneurial skills to the learners. Equally, schools and other learning institutions must work toward accommodating the needs of diverse learners in all classroom settings. This will be achieved through on-going professional development, support services through general education settings, direct and systematic instruction to all students, encouragement of teacher mentoring and collaborations, and encouragement of parents (Solomon, Weaver & Fernald, 1994; Solomon, Duffy, & Tarabishy, 2002; Stevenson, 2000). The formulation of a school improvement plan must endeavour to look at the teacher-study ratio that guarantees one-on-one relationships during the process of teaching and learning. The following aspects constitute a workable plan of implementation:

(i) Documentation

- a) Staff evaluation instruments to ascertain the teaching staff preparedness and willingness to adapt to changes in curriculum and world of technology.
- b) Site-based school improvement plans to conform to global changes.
- c) Assess curriculum reform guidelines.
- d) Institute a state framework that works for all under the prevailing circumstances.
- e) Establish a workable strategic plan to guide the instituted changes that work for the individual and society he is to serve.

(ii) Curricular and Academic Programs

- a) Establish a school-to-work programme that allows learners to apply their skills and perfect their operations after graduation.
- b) Ensure a working program with technology integration for that is where the world is heading and it is now an important tool of operation.
- c) Provide an academic program that advocates for the students' success plan based on an education system that is responsive to change.

(iii) Professional Development

- a) The educational programs should guarantee professional growth and development by:
- b) Addressing different learning styles that give the learners an opportunity to apply their knowledge and skills.
- c) Differentiating the curriculum to provide a wide range of opportunities to the learners rather than limiting them, that is, an education system offering both academic and vocational tracking rather than the current system that is examination oriented and academic in nature.
- d) Instructional strategies should be diversified and be more practical oriented to allow the learners operationalize their efforts in and out of school.
- e) Offer mentoring opportunities to allow novice learners a chance to concretize their skills.
- f) Provide teacher orientation and regular in-services to enhance learning of new changes in the teaching profession and labour market requirements.
- g) Allow technology training to meet the needs and desires of the young generations and the labour market demands.

1.4 Promoting Entrepreneurial Skills Through Classroom Practices

According to Marzano, Pickering, and Pollack (2001), effective pedagogy consists of three elements: instructional strategies, management techniques, and curriculum design. The aim of education is for learners to cultivate a broad knowledge of instructional strategies that

draw upon content and pedagogical knowledge and skills delineated in professional, state, and institutional standards to help all students learn entrepreneurial skills needed in the job market.

There is need for classroom teachers to relate content to the national goals of education and prepare learners for the world of work (Ondigi, 2002; Hindle, 2006; Mitchell, & Chesteen, 1995; Peterman, & Kennedy, 2003). Learners in a normal classroom setting are expected to be tooled with school-to-work life skills which are necessary for the learners to maximize their educational growth and development. The students need to learn:

- a) Communication skills to express and understand thoughts and opinions in a variety of settings, situations and with diverse populations.
- b) Decision- making and problem-solving skills and strategies needed in daily life.
- c) The three important basic language skills and a broad vocabulary to use as building blocks in developing reading, writing, and critical thinking.
- d) Self-advocacy skills to make needs and wants known in socially constructive ways in learning, work and social situations.
- e) Personal strengths and capabilities and use this information to act responsibly at school and work.
- f) Social skills to develop positive relationships with peers and community members in a variety of settings and situations and with diverse populations.
- g) Organizational skills and study strategies for school and work. Important skills include, but are not limited to: time management, conflict resolution, goal setting management and use of materials/resources learning strategies
- h) Career development skills to make, pursue and maintain personal employment choices that fit the career training or labour changes in the society.
- i) The use of tools and technology to augment learning and access information so as to keep abreast of changes in the society.

1.5 What Are the Classroom Practices in the Institutions of Learning?

Classroom practices are the range of instructional practices and strategies that are employed to impart knowledge and skills to students eager to learn and change the way of doing things. These include, but are not limited to: time, space, modality, grouping, presentation, classroom organization and behaviour management, materials, equipment, technology and environment under which learning takes place. Educators at all levels should ensure and need to promote:

- Student self-management whereby facilitators should use strategies designed to promote student self management and independence. The learning process should at all times provide consistency, structure, and clear expectations to the learner for learning to be meaningful. Facilitators must ensure that the teaching and learning provides appropriate positive learning reinforcement, feedback, and recognition for student accomplishment.

- Setting for instruction and learning that promote supportive and responsive climates that facilitate social and cultural learning and allow students to take risks and learn from failure. The facilitators ought to provide opportunities and environments for meaningful participation of all students in instructional and social activities. Adapt physical environments to match the learning needs of students.

- Ensure instructional practice that incorporate life skills, social and affective skills, and skills in self-advocacy throughout the curriculum. Choose teaching and learning methods that match the learning needs and styles of the student. Incorporate direct instruction of how-to-learn skills and thinking skills throughout the curriculum. It is important to use methods that promote active learning, including hands-on learning, real-world and experiential learning, community-based learning, and learning involving student choice. The learning of skills should be through use Learning materials, equipment, and media tailored to the unique learning needs of students. In some cases, design and implement specific opportunities for students to apply and transfer learning to a variety of situations, both familiar and unique so as to perfect skills. These efforts will ensure that the learners have mastered the required knowledge and skills for the world of work. Thus education must offer school-to-work opportunities that are entrepreneurial in nature.

Essentially, most of the university centers training teachers should embrace the inculcation for entrepreneurship that focus on three major areas: (1) entrepreneurial education; (2) outreach activities with entrepreneurs; and (3) entrepreneurial research in order to strengthen the training programmes (Clark, Davis, & Harnish, 1984; Baron, & Ward, 2004). Today, the trend in most universities should be to develop and expand entrepreneurship programmes and design unique and challenging curricula specifically designed for entrepreneurship students. John Maynard Keynes once said, "The greatest difficulty in the world is not for people to accept new ideas, but to make them forget about old ideas."

Clearly, for entrepreneurship education to embrace the 21st century, professors must become more competent in the use of academic technology and also expand their

pedagogies to include new and innovative approaches to the teaching of entrepreneurship. For example, the use of video conferencing and streaming of video case studies show promise as viable uses of educational technology... (Solomon et al., 2002:82-83).

Entrepreneurship is a new concept and it is all about continual innovation and creativity among teachers and learners. Today, the education system should be one that subscribes to the new innovation regime of the 21st century that emphasizes on words such as: dream, create, explore, invent, pioneer, and imagine. Entrepreneurship educators must have the same innovative drive that is expected from entrepreneurship students. Vesper (1999) argues that "Entrepreneurship in universities has so far been developed as an add-on to business education, first as an elective course, then more courses, and finally as a concentration, major or program..." The Kenyan university should adapt to these new ventures of entrepreneurship to give students a chance to learn new survival tactics in the world of labour.

1.6 Revolutionizing Formal versus Non-formal Education in Kenya

This paper dispels the common misconception that entrepreneurship is about any businessman, or anyone who starts a business, is an entrepreneur who has the aim of making profits. But starting a business, according to economists Say and Schumpeter, is not the main component of entrepreneurship, but rather entrepreneurship is concerned with stimulating economic progress through innovation and action (<http://www.ashoka.org/files/yespaper.pdf>, 20th may 2011). According to Davis (200), in the early 19th century, the French economist Jean Baptiste Say described entrepreneurs as "the venturesome individuals who stimulated economic progress by finding new and better ways of doing things. Thus an individual after graduating from school must in all ways be certain to put into practice the knowledge and skills gained during schooling for the development of the individual and society at large. Education will not make any sense to an individual, the nation or society unless the graduate realizes the national goals of education as stipulated in the Kenyan school syllabi (Social Studies syllabus, 2002 edition). Davis (200) further argues that entrepreneurs optimize the allocation and use of resources to generate maximal profits. Therefore, the pertinent question to ask is "How can education make the learner entrepreneurial after schooling?"

Both formal and no-formal education should be harmonized and geared towards the mastery of knowledge and skills geared towards the development of the individual and society for the socio-economic, political and cultural development of a nation. The knowledge and skills taught in schools have to nurture innovativeness that meets the prevailing conditions of a given environment, but must also prepare the individual to adapt too

existing global labour challenges since the society has become a global village (DeTienne, & Chandler, 2004; Brockhaus, Hills, Klandt, & Welsch, 2001). Individuals should be retooled easily due to changes in technology by undertaking education that prepares one for school – to –work philosophy.

To achieve his socio-economic objectives, education should prepare the learner with the entrepreneur’s mindset that must be innovative, creative and goal-oriented. According to Davis (2002), in the words of 20th century economist Joseph Schumpeter:

The function of entrepreneurs is to reform or revolutionize the pattern of production, ...by exploiting an invention or, more generally, an untried technological possibility for producing a new commodity or producing an old one in a new way, by opening up a new source of supply of materials or a new outlet for products, by reorganizing an industry and so on.

The system of education offered at any one given time and in whichever society should guarantee that the graduate is prepared to thrive on problems and is motivated by the idea of altering an unpleasant situation to make the best out of it. Rather than waiting for instructions or assistance, the school-leaver can initiate direct action by being responsive, innovative and creative given the knowledge and skills gained during schooling. In fact, if the school-leaver sees a more effective method of doing things, he or she will not hesitate to do away with existing systems in favour of a whole new approach to a problem. The individual should have the courage to take calculated risks, sometimes even doing “things that others think are unwise or even undoable as long as the anticipated outcome is achieved. In situations where the individual carries projects through to completion and is uninhibited by occasional setbacks or challenges will mean that the education gained has transformed the individual positively.

1.7 System of Teacher Preparation for the Formal and Non-formal Institution

The Kenyan school curriculum today emphasizes on education that offers knowledge and skills as outlined in the Mackay report of 1985. However, the practice in class is one of examination oriented whereby students are prepared to pass national examinations at the expense of training in skills. This situation is mainly compounded by the existing conditions in schools such as: high enrolment of students compared to teacher-student ratio; lack of adequate infrastructure to offer learners a chance to put into practice what the Learn theoretically in class; the constraining teaching and learning environment that does not give room for application of knowledge; clouded curriculum, lack of proper teacher training programmes that expose trainees to technology that is the norm of teaching in schools today. The prevailing circumstances have made it difficult for the school-leavers at all levels

of learning to be responsive to the labour market demands. This is characterised by high unemployment rates in Kenya, lack of innovativeness among school leavers in creating jobs for themselves or being self-reliant and self-sufficient entrepreneurs.

The existing Kenyan system of education that is currently under review this year (2011) has many options to make but the right choice will be one that offers the learners an opportunity to operationalize the knowledge and skills gained in school. The learning process has to be one that fronts the learners to exposure in practical life. The learning must be based on Bloom's taxonomy of learning: Psychomotor, cognitive and affective domains. The teachers undertaking the teaching in the classroom must be versed with the taxonomies of teaching and learning that promote holistic learning for the transition of school-to work to normalize the current situation experienced in society today.

The system of teacher preparation must have to adapt a solution-based approach that is responsive to the prevailing circumstances and has to blend formal education with informal learning to fit in the non-formal education. The model figure 1 discussed in the subsequent pages below offers some possible suggestions that can be adapted to create entrepreneurial skills in the school-leavers.

1.7.1 Revised Kenyan Training Programme Based on the Five Modules

The Kenyan system of training and learning at all levels needs to be reviewed to inculcate elements of knowledge and skills responsive to the needs of society. The curriculum must be designed to enforce entrepreneurial skills at all levels. Through a tightly integrated structure of both on- and off-campus modules, GMP provides a holistic view of leadership with an emphasis on practical knowledge and personalized learning. The authors (n.d.) argue that the on-campus modules must present a rigorous, action-oriented, and collaborative learning environment designed to develop outstanding business learners who can achieve results in all market climates. Education without practical skills and meaningful utilization of knowledge does not make meaning to the individual or society unless realized as on campus, the students learn foundational skills and case based learning which lead to building foundational skills for entrepreneurial use as outlined in figure 1 below:



Figure 1: Integrated structure of both on- and off-campus modules on action-oriented and collaborative learning environment.

Learners should be eager to learn, be able to strategize, and make use of the environment in any given situation. The learning should enable participants to use the latest technology in preparing for classroom case discussions and use in the world of work. Learners should be able acquire critical analytical skills and frameworks in three core areas understanding knowledge and skills, being able to put it into practice and reacting to existing challenges.

1.7.2: Sharpening Diagnostic Skills

The teaching and learning should offer knowledge on assessing the current challenges facing society in the world of business in order to prepare an individual on: setting strategy, building the career, understanding the economics and key value drivers of an economy, and how to exploit new opportunities in both good and bad economies. Education is expected to equip learners with critical analytical skills and frameworks that enable them to manage resources, finances, and be aware of strategy formulation for survival in any working conditions. While the objective is to develop working knowledge in each of these functional domains of life, the programmes employs a highly integrated approach: case studies analyze cross-functional problems that require comprehensive action plans.

1.7.3: Applying the Knowledge and Skills

Education should prepare the school –leavers adequately return to their communities/society where they begin applying what they have learned in school. They should continue to assess and develop their potential in leadership, development and organizational challenges as part of their life experiences after school. Putting knowledge-in-action is paramount and should begin to deliver concrete benefits to the individual or community/society for this is the anticipation once the individual has graduated. It also provides an opportunity for the school-leavers to share their insights and analyses with colleagues at work as a way to further refine their personalized knowledge and skills. The transition to work requires school-leavers to get to work so as to perfect their skills, though the common practice in our systems today is that there is no readily available job for school-leavers can “grab” anything available.

1.7.4: Action-Oriented Leadership

Institutions have an obligation to prepare learners adequately for the world of work. Equipped with fresh insights into their jobs and their organizations, the graduates should be competent enough and determined to tackle new challenges, share their newfound knowledge, and refine their personal action plans to the best of their abilities. The focus of education is to prepare the learners on leading in turbulent and uncertain environments, driving fundamental change throughout the operation and achieving longer-term objectives. Thus, institutions are mandated to train learners on analyzing the ethical, motivational, and performance challenges associated with the world of work and leadership positions, whereby they develop the skills needed to capitalize on changing technology and globalization. Therefore, the education system has an obligation to equip the school-leavers with problem-solution based knowledge to navigate on long after schooling while at the same time, they continue the process of personal transformation through self-reflection.

As a result of this renewed educational process of entrepreneurialship, learners will discover new insights about themselves: how they analyze problems, how they can apply the leadership skills of their mentors for their own growth, what constitutes their personal leadership styles, and how they can best contribute to the success of their communities and the society at large.

1.7.5: Implementation and Ongoing Learning

It is believed by the author of this paper that the ultimate measure of success is through the positive impact education brings to an individual and how best the individual can revolutionize the community or society. This is apparent when the individuals are able to applying their new knowledge and skills coupled with their leadership styles and insights across all levels to influence changes of all forms in society or the organization in which they serve. In addition to serving and implementing their personal action plans, individuals should begin the process of lifelong learning and societal transformation for education to be seen to work. The learning process should ideally through a variety of resources, and the school systems enable the learners to stay abreast of new developments in society for socio-economic, political and cultural transformation.

1.8 Regular Monitoring and Evaluation to Bring an Integrated Process of Hands-on Experiences

It is important to ask whether the prevailing education system has any goodness to offer to the society. The question educators need to ask is what are the appropriate assessment practices to evaluate the effectiveness of a system? There needs to be accommodations and adaptations necessary for assessing whether the system of education is adequately demonstrating the required knowledge and skills (Reynolds, Camp, Bygrave, Autio, & Hay, 2001; Charney, & Libecap, 2000). In assessing the learning of learners, educators need to:

- Allow for a variety of assessments that evaluate what is being taught. This may include:
 - Portfolios assessment of daily work observations, self and peer evaluations demonstrations and projects, oral tests cooperative group assessments, family, community, and employer evaluations/observations.
- Ensure that the language used in assessment is consistent with the language used during instruction and use the student's preferred mode of communication. When

assessing, always consider: Student's culture/preferred language' clarity of instructions, verbal and non-verbal options (e.g., sign language).

- Consider the student's unique needs when determining the content of the assessment:
 - Identify the skills or content to be assessed and ensure that assessments test only looks at the *content taught*. Design assessments to determine what the student knows as opposed to what the student does not know.
- Utilize student's prior knowledge to determine instruction and subsequent assessments
 - Identify individual learning styles and design assessments to elicit a variety of thinking and application skills.
- Design assessment procedures and accommodations to meet individual student needs.
 - Assess in student's primary communication mode (i.e., Braille, sign language, picture board, etc.). Utilize a variety of people (i.e., family, peers, employers, other professionals, etc.) in the assessment process Utilize technology for presentation of assessment and student response.
- Allow flexibility in the time and scheduling of assessments. Allow extended time for the students to take breaks. Divide assessment into smaller segments. Schedule assessment when students can perform best. Utilize untimed assessments.
- Allow for a variety of assessment environments. Consider the purpose of the assessment and the student's unique needs and choose the environment which fits best. Consider student's physical condition, endurance, emotional state, attention span and distractibility, medical condition, etc. at time of assessment. Control for distractions, create supportive settings that encourage student participation, use preferential seating, use real life settings and other alternative environments.
- Consider the evaluation criteria which will be utilized when designing assessments and set the criteria prior to assessment. Involve others in determining the realistic expectations and goals for the students provide family and others the opportunity to assist in interpreting assessment results, make expectations and criteria clear and explicit. Provide a variety of grading methods, including: individual grading, scale narrative and report group grades.

1.9. Formation of Partnership Between Various Stakeholders to Bring About Change.

It is a sound belief that change is eminent and unavoidable in any form of society. The right choice of partnership in the implementation of educational changes must reflect on the needs of an individual and that of society. This is only possible if the educational reforms are instituted by understanding and defining the characteristics of social entrepreneurs which according to Martin, and Osberg (2007) must prepare the school-leavers with entrepreneurial skills that make them to be:

- *Social Catalysts* – The school-leavers should be visionaries who create fundamental social changes by reforming social systems and creating sustainable improvements. According to (Dees 2009), “though they may act locally, their actions have the potential to stimulate global improvements in their chosen arenas, whether that is education, health care, economic development, the environment, the arts, or any other social field.”
- *Socially aware* – So as to bring about social improvement, as opposed to the creation of profit, should be the ultimate goal of the social entrepreneurs. The success of the individuals’ endeavors is measured by their social impact experienced in the community.
- *Opportunity-seeking* – They pursue their goals relentlessly, seeing every obstacle as an opportunity to develop and fine-tune their business models for the good of the nation and society.
- *Innovative* – They are creative, willing to think outside the box and ready to apply ideas to new situations. They understand that not every innovation will be a success, and they see failures as learning opportunities even as they strive for success.
- *Resourceful* – Their visions are not limited by the resources that they have. Besides optimizing the use of existing resources, they actively expand their resource pool through collaboration with others.
- *Accountable* – It is the norm nowadays that individuals exhibit high levels of accountability and transparency to inhibit trust among citizens. Thus, individuals with social entrepreneurship skills are accountable to their beneficiaries, and they often ask themselves, “Am I creating value for the people I am serving? Do I understand their needs?” This is because social entrepreneurs want to know that they are actually making an impact. They are also accountable to many educational partners who want to know that their contributions are indeed stimulating social improvements as promised by the social entrepreneurs. The proposed changes must in build the views of all partners to realize comprehensive educational reforms that bring about realizable achievements.

1.10 Overcoming Challenges that Affect Entrepreneurship of Education.

Challenges ever exist in any form of system in society and the educational reforms are at the centre stage because of the role education plays in shaping the direction of society. The author of this paper believes that meaningful education can be attained through an organized system of teacher training that prepares teachers to teach their disciplines by relating content to the national goals of education. It is only through meaningful teaching and learning that learners can acquire the entrepreneurial skills that render them useful long after schooling (Kuratko, 1996; Ronstadt, 1990; Young, 1993; Shane, & Venkataraman, 2000). Therefore, change in education is only meaningful which according to Young (1993) means that: "A unified system does not separate academic and vocational routes but recognizes that to fulfill the aims of a highly qualified workforce, a wide range of different combinations of academic and vocational studies need (sic.) to be possible that do not separate students into distinct tracks at 14, 16, or 18." Her final conclusion was that: "a unified system...is...the only future for any country, whatever its current circumstances. Academic and vocational divisions for all their embeddedness in our culture and our institutions are structures of the past which were developed in response to certain circumstances at a particular time."

The system of education must equip the learners with innovative knowledge and skills that prepare them for the technological tests of the century and critical responsiveness to any changes ushered in by developments of time. Bowles (1993) echoed this caution by saying that:

An occupational skills focus for the school system--particularly at its elementary and secondary levels--will prove an expensive and ineffective productivity development strategy and will compromise the more general objectives of developing the capacity for critical thought, collective action, and further learning throughout life. (p. 45).

Educational reforms in Kenya have put emphasis on a system that prepares a learner to be a round person though these efforts have never been fully realized because of the styles of training that cuts through our education system which is characterized by unemployment and persistent levels of underemployment. In fact, Kenya's move into a new vocationalized curriculum of the 8-4-4 system appears to have borne little fruit, in part because the government did not anticipate the costs of the changes and the implementation process was never critically thought through. Consequently todate, almost no schools are equipped to offer the required practical components of the curriculum in vocational and technical areas at either the primary, secondary or university levels. The system of education has the

obligation of inculcating the entrepreneurial skills in the learner which has not been greatly realized in the Kenyan system of education.

It is only through the education system that meaningful changes in society can occur and the entrepreneurial skills of the learner are realized for as Fisher (1993) observed:

There is an intuitive appeal, underpinned by political and economic considerations, to the claim that schooling should be made more 'relevant' to the world of work and the requirements of the economy. This claim has been particularly strong in developing countries, where, from colonial times, governments have tried to curb educational 'over-production,' limit the demand for higher education, inhibit the drift from the rural areas to the towns and strengthen the contribution of the education system to economic growth.

Apparently, the Kenyan system of education has to work through the instituted reforms to guarantee a workable environment for realizing the far reaching needed changes for MacLean and Kamau (1999) recommend that:

- Kenya needs a more highly developed system of vocational and technical education and training which will develop only with appropriate leadership.
- Human resource development has great potential for growth and impact on business and industry in Kenya.
- Kenyatta University has the potential in personnel and other resources to take a leading role in vocational and technical education and training in Kenya.

1.11 Recommendations for Achieving Entrepreneurial Education in Kenya

There is need for radical changes that can bring about entrepreneurial education that benefits the individual, the community or society they serve (Wawro, 2000; Zahra, Hayton, Marcel, & O'Neill, 2001). Therefore, there is need to:

Undertake an independent review of the quality improvement aspects of the major primary, secondary and tertiary education development including various separate quality improvement recommendations by the instituted educational commissions in order to develop a comprehensive and coordinated quality improvement strategy and programme that will address the root causes of poor quality education in Kenya. Cosmetic changes will never heal the ailing Kenyan system of education.

Begin increasing public budget for educational institutions by targeting the new resources to quality improvement measures in schools.

For the new list of competencies, design fresh orientation programmes for teachers and their QASO supervisors in terms of both teaching-learning and assessment processes. Devise and introduce measurement indicators and standards for the competencies to be exhibited.

Raise awareness among teachers about the existing state of the quality of education in terms of the attainment of the terminal competencies, and the need to improve it.

Introduce new materials and books to engage students in creative and problem-solving exercises in various subject areas. Also train teachers to handle this new demand on them. Support and encourage more interaction between the formal and non-formal systems and institutions including those for teacher training in order to build on and make the best use of the strengths of each other.

Ensure the system of rewarding and motivating both teachers and students is fair, transparent and those in-charge are held accountable to their actions in driving the education system to greater heights.

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CHANGING TIMES FOR WORKING SINGLE MOTHERS: REFLECTIONS ON EDUCATIONAL ACHIEVEMENT OF THE GIRL CHILD FROM A HISTORICAL PERSPECTIVE

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Abstract: *In the recent past, the issue of working single mothers and the academic performance of their girl child has often been the focus of public debate. This paper highlights the changing times of single working mothers in relation to performance of the girl child from a historical perspective. The data for the study was collected using a questionnaire and interviews. Data was collected from Kitui, Kiambu and Uasin Gishu districts in Kenya, East Africa. Three hundred and five single and coupled parents were randomly sampled for the study. The data collected were analyzed using SPSS software programme. The findings showed that most working single mothers had readjusted to a sudden situation (single parenthood) and were offering the girl child the best education within the prevailing conditions. Though the law regarding property ownership and matters of inheritance have been reviewed and documented, the issue of actual ownership by single mothers is yet to be fully addressed. The failure to appreciate single mothers and the attendant parenting pressure is likely to affect the girl child academic achievement. On the basis of these findings the study recommends that single mothers be recognized as dual parents and that the girl-child be protected from any form of discrimination.*

Introduction

Traditionally, it was the responsibility of the man to head his household. Even when a husband died, the widow was married to another man within the clan (Were, 1985: 5).

Consequently women did not have the responsibility of heading households. The situation has changed tremendously as women become more educated; career oriented, and more financially independent, a large majority marries while others do not marry at all. This fact has meant that women in both rural and urban areas are now taking responsibilities which traditionally were not theirs (Kevin 1989: 185).

It is not common for single parents to feel overload with too much responsibility and too much to do. The difficulties of providing for their own and their children physical and emotional need often results in role overload and fatigue. The stress of single mothers is experienced in three main areas namely; children, money and loneliness (Standard on Sunday 1994:3, Lewis 2010).

Some children assume guilt for their status believing erroneously that it is shameful to come from broken family or single family, however much of the hardship facing lone parents and children is directly related to the economic exploitation of women and to the fact that women in general and mothers in particular as if they were economically dependent on man (Lewis, 2010). The average income of one single parent is under half of that of two parents average income. For most of them good housing is a nightmare, many are homeless or often have to share overcrowded and often substandard accommodation at punitive rents. Finally, the legal system, both the laws and courts are experienced as a bewildering absurd machine, perfectly designed to foster as much bitterness and frustrations as possible among people trying to extricate themselves from their marriages.

The economic situation in Africa is such that both men and women strive to earn a living through salaried employment. This forces the parents to leave the young ones with relatives or house girls who have very little experiences, if any and interest in the child care. This causes a lot of psychological and social problems in the child. Problems such as indiscipline and poor performance may affect the child negatively in the future and the community in which he or she lives. Further, the absence of either parent can be used to explain some abnormal behaviour among children.

In Kenya, there is a growing problem concerning the increase of young unmarried mothers who are found in rural and urban centres (Kenya Institute of Education 1987:24, Kibera and Kimokoti 2007). In the arid and semi arid regions single female parenthood is confounded by retrogressive practices such as early marriage, moranism and Female Genital mutilation are rampant. These practices that go back to historical times have no place in modern times. According to Ngome (2002) and Chiuri and Kiumi (2005), these factors have led to poor school participation of the primary school age group among the nomadic communities.

Parents have a duty, first to expose their children to the psychological conditions that facilitate the development of their capacities for self-determination or autonomy. Secondly they have a duty to raise their children in such a way as to promote their self fulfillment, for which primary goods like self respect and health are necessary. Due to cultural limitation, girls of single and married parents are disadvantaged as some societies argue that a woman does not need to be educated because unlike man who is the head of the family and bread earner, she is expected to be a home maker and mother.

The absence of either parent is more markedly felt during the child adolescence. However, one danger of single parent family remains the loss of parent-child relationship and the development of a “buddy- buddy” friendship between the mother and child. In such families the child is considered to be more mature than he or she is. The single parent relies on the child for emotional support, help in decision making, freely expressing bitterness towards the ex-spouse and frustrations with the numerous burdens and social relations.

Are working single female parents more sensitive than coupled parents in regard to socialization of children?

Many factors influence how children develop in single parent families: the parents’ age, education level, and occupation of the parent, family’s income, and the family’s social network of friends and extended family members (Lewis 2010). Research findings show that children of single working parents are mature and likely to share more household responsibilities. It’s common for single working mothers to discuss issues with their children (no matter the sensitivity of the issue) which, in other families, are usually discussed only between parents. The situation is confounded by the fact that single parent families are on the rise owing to a combination of factors. Accordingly, divorce and separation rates have been going up as individuals find themselves unable to put up with unsatisfactory marriage. After divorce, income tends to drop sharply for mothers. Krein (1986) found children in single parent family were twice likely to drop out of school as children living with two parent families. The researcher also found out that children in single-parents homes were also likely to have their own marriages end in separation or divorce and are at higher risk for unmarried parenthood. This was a rare phenomenon in African societies but a common occurrence today.

In her research, Mbae (1984) reports the fact that women (married or single) have filled diverse roles in their home activities, as wives in the personal lives with their husbands, as mothers in their responsibilities for the development of their children and as home makers. However, whatever the reason for becoming a single parent is not easy to be one. In his

book, Kerre (1989) highlights the special problem that children of such parents are likely to face. These include:

- lack of complete parental care;
- Those who are single either due to divorce or due to a child born outside wedlock, may find it difficult in trying to explain to their children who their father is. It will not pay to tell lies;
- The social stigma attached to a single mother especially by labeling her as “loose” while the girl may regard herself as a failure;
- Most single parents face the difficult of providing sufficiently for the needs of children both materially and mentally.

In a related study in Kenya, on divorce and its effects in Kenya (Joan, 1992) found out that a child whose parents are divorced face long emotional problems that appear later in life. Children of two and half years and below experienced regression in toilet training, irritability, crying, anxieties, confusions and tantrums. At the age of five to six, girls are more vulnerable to loss of father and they maintain sad fantasies of recovering their father with their love. The study concluded that such girls usually function poorly in school.

Methodology

The research study employed both quantitative and qualitative approach. These approaches were preferred because they provide insight and understanding of activities carried out in the sampled districts (Kasomo 2006).

Due to financial and time limitations the research was conducted in Kitui, Kiambu and Uasin Gishu districts in Kenya. Due to its vastness, the districts have a significant number of single mothers and coupled parents. Both samples contained

- males and females;
- parents in both “difficult” geographical and “comfortable” zones;
- the employed, unemployed and self employed;
- divorced, widows, Married, single by choice and widower; and
- denominational background.

Data analysis consisted mainly of detailed report on what was observed, information generated from questionnaires and interviews. Interviews were held with parents in order to get more information on recent trends and patterns of life among single mothers. In order to explore the main reason for this significant change, parents were asked to rank reasons in order of their importance during the interview sessions. Data was analyzed

according to the objectives of the study. The following questions were used as guidelines during the analysis;

- What are the financial problems that single parents through divorce face as they bring up their children?
- What adjectives are used to describe single female parents and why?
- What are the sources of income for female single parents by choice in educating their children?
- How are single parents portrayed in relations with others members of the community and why?

Results

Background of the parents

Data obtained through the Questionnaire indicated that 47 (15.5%) were divorced, 34 (11.1%) were widows, 145 (47.5%) were married, 63 (43.7%) were single parents by choice and 16 (5.2%) were widowers.

Table 1: Marital Status of the Sampled Parents

Marital Status	F	%
Divorced	47	15.5
Widow	34	11.1
Married	145	47.5
Single	63	43.7
Widower	16	5.2
Total	305	100

Further the parents were asked about their source of income and denomination. It was reported that 99 (32.4%) of the respondents were employed, 99 (32.4%) were unemployed and 107 (35.2%) were self employed. In addition 110 (36.1%) respondents were Catholics, 114 (37.4%) were Protestants, 48 (15.3%) were Muslims 15 (5.0%) Hindus and 19 (6.2%) were traditionalists.

Findings: Financially related problems that single parents (through divorce or single by choice) face as they bring up their children

The findings of this research revealed that the ten most frequently selected financially related problems were:

- Inadequate school fees for school going children;
- Insufficient food;
- Inadequate shelter;
- Inadequate land for putting up structures;
- Inadequate clothing;
- Lack of stable jobs;
- Inadequate learning materials for school going children;
- Insufficient funds for proper health care;
- Lack of adequate external family support; and
- Inadequate farming equipments for rural single parents

The data examined shows the many disadvantages single parents have over the working coupled parents. Lack of money or financial constraints crown the many disadvantages and this explains why most children born by single parents through divorce or by choice are out of school, doing odd jobs while some have turned into acts of lawlessness.

Adjectives used to describe single female parents family and why.

Interviews showed that there are a number of negative attributes used against single female parents. These responses varied across the geographical locations and regions where this research was conducted. The moral debate tends to be between the modernist and traditionalist with the modernist welcoming or accepting the changes in the family structure, while the traditionalist decry the declines in marriage and the rises in divorce, cohabitation and single parenthood.

This particular study revealed a number of attributes used against single parents. Some of these attributes were; women alone, husband snatchers, family breakers, loose, good for nothing people, betrayers and cowards. The one negative finding in this study was that there was a high delinquency among teenage children of working single mothers who were involved in such things as truancy, ungovernability, petty theft, vandalism and offenses involving sex and alcohol. These behaviours were common among children in both rural and urban regions contrarily to the past beliefs that they were confined in urban areas.

Sources of income of female single parents in educating their children.

The findings of this research question highlighted several sources of income for single parents in the following order:

- Farming;
- Buying and selling charcoal;
- Weaving local basket for sale;
- Picking coffee and tea;
- Carrying stones for sale;
- Working as bar and house maids;
- Seeking assistance from Churches and Non-governmental organizations;
- Knitting clothes for sale;
- Employment (formal); and threshing sisal for sale.

The findings of this research question seem to suggest that farming was the core source of income (especially for rural single parent); however, other economic activities were equally important because they supplemented farming. These findings provide a basis for concluding that a large number of single parent would continue being committed to the welfare of their families by doing some odd jobs if they have no other alternative.

Single female parents in relationship with other members of the community.

The study found out that most of juvenile activities and even violence is perceived to be related to incidences of family background. It was reported that most single mothers did not mix freely with other members of the community for fear of being victimized, that they spoil other women (other than the spoiled single mothers) while if seen with men, most people believed that they were seducing them. This situation according to research findings seems to be accentuated by:

- Low social interaction which contribute to their high social isolation and ;
- Low esteem, negative self image that contribute to their self denial and hostile attitudes towards the wider community.

However the career women or educated in this sample were less likely to be at risk of poverty and therefore it cushions them against “blanket” condemnations.

Conclusions and Recommendations

The data presented in this paper reveals that single parenthood is an emerging and common phenomenon in the society today. The issues facing single female parents are too complex and pressing. Yet, as the study data reveal most of the parents in this study sample were ready to offer education to their children. This finding implies that education was the best gift these parents could give to their children in order for them to fit in the competitive world.

The study highlights that female single mother and males are negatively labeled and experience the same stigma. This implies that if members of the society are not sensitized on the role of single parenthood in the society in terms of social, political and economic development, then the society may face stagnation. Therefore a society must be educated on the imperative of single parents' participation in development as equal partners.

There are financial constraints that affect single parents, as well as widows, widowers and coupled parents. This problem could be alleviated if the Ministry of culture and social services provided credit facilities for all categories of parents especially the poor. Further single female parents and especially those in rural areas need to be sensitized about their status in law and consulted about possible changes which would help them. Their suggestions should be solicited and accorded due respect and attention.

Finally the findings of the study have shown that societies are male dominated and gender blind in orientation. The single parents (either by choice or divorce) that rise into positions of authority are looked down by most men because women tend to be viewed as "secondary bread winner". A need therefore arises to understand that men and women have different needs and roles to play hence addressing the question of gender. It is recommended that both men and women should be gender sensitive; for example, the relationship between man and woman in development should be seen as being complementary and supportive in nature. This sensitization is required in order for all to appreciate the woman's identity, her rights, needs and multiple roles. Although the government has put intervention programmes and policies, of 50 to 50 percent job sharing across the board (Government of Kenya, 2010) the situation on the ground is wanting. A caring approach through a focus on respect and understanding, not on name calling and game blame is crucial.

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A COLLABORATIVE PROJECT TO BUILD CAPACITY THROUGH QUALITY TEACHER PREPARATION

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Kenyatta University (KU) and Syracuse University (SU) have recently been awarded a grant funded by the United States Agency for International Development (USAID) through Higher Education Development (HED) and the Africa-U.S. Higher Education Initiative (http://soeweb.syr.edu/centers_institutes/Kenya_partnership_projects/default.aspx). The Africa-U.S. Higher Education Initiative aims to strengthen African higher education capacity through partnerships with U.S. institutions of higher education. In February 2009, almost 300 partnership proposals were submitted to HED for consideration for \$50,000 planning grants in six focal areas—agriculture, health, science and technology, engineering, education and teacher education, and business.

Thirty-three partnerships were awarded six-month planning grants of \$50,000 each to develop a strategic plan with a ten-year vision. Eleven of these 33 partnerships, and their resulting strategic plans, were chosen for two years of funding in 2010. There is the possibility of these partnerships being funded for years three to five, and hopefully up to ten years. These 11 partnerships are in 10 African countries—Burkina Faso, Ethiopia, Ghana, Kenya, Liberia, Malawi, Senegal, South Africa, Sudan and Uganda. Kenya has two funded partnerships—one at Kenyatta University with Syracuse University focused on teacher education, and one at the University of Nairobi with Colorado State University focused on drylands. Each of these partnerships will work with the USAID mission in the African country and other relevant government agencies and stakeholders.

The Kenyatta University and Syracuse University partnership will build capacity at the secondary school level through quality teacher preparation across the span of teacher education—from preservice teacher preparation, to novice teacher induction, to practicing teacher continual growth. The task of preparing teachers is among the most important jobs in which higher education institutions are engaged, and teacher preparation and the

continued professional development of practicing teachers are keys to economic development and transformation in any country.

Context

Through the institutional situation analysis and needs assessment we completed during our planning grant, we identified the following institutional and policy constraints: (1) large student numbers in courses and teaching practica (problem of massification), (2) heavy workloads for faculty members due to large student numbers, (3) lack of adequate information technology skills among faculty members, (4) lack of access to modern methodology and technology for preparing teachers, (5) lack of well-equipped science laboratories (i.e., biology, chemistry, physics), (6) lack of language laboratory, (7) lack of a modern resource center for preparing teachers, and (8) lack of transport to project schools and participating institutions.

We also identified the following programmatic needs: (1) the teacher education curriculum at KU is in need of revision, (2) teachers need to be prepared to support all learners, (3) teachers need to be prepared to use IT in teaching and learning, (4) teachers need to be well prepared in content and pedagogical content knowledge, and (5) teacher education needs to be coherent and supported from preservice teacher preparation, through induction and professional development for continual learning.

The areas we identified through our needs assessment align with Kenya's national development goals for education, as articulated in the Kenya Education Sector Support Programme (KESSP), which outlines the education sector agenda for national development. Section 16 of the KESSP deals with the Secondary Education Investment Programme and the points at which our goals are particularly aligned are: (1) strengthening of secondary education through inservice training, (2) establishing a national system of monitoring and evaluation, (3) enhancing information computer technology (ICT) in secondary education, (4) integrating ICT in teaching and learning, (5) building teachers' capacity to use ICT, (6) enhancing participation of partners in secondary education, and (7) enhancing access to and quality of secondary education for disadvantaged students.

Our goals also align with a number of the sector-specific goals of USAID/Kenya. In the education sector, the goals of USAID/Kenya for which our strategic plan goals are particularly aligned are: (1) improving the quality of education, (2) improving teacher training practices, and (3) providing professional development for teachers and administrators.

In our strategic plan, we identified our core areas of collaboration as focusing on building capacity (1) of the KU teacher education faculty to prepare high quality teachers, (2) of the teacher education program to conduct research, (3) of the teacher education program to review and revise its curriculum based on performance data from its graduates, and (4) of Kenyatta University to provide quality service to education stakeholders with regards to teacher preparation. We will work with USAID/Kenya, the Ministry of Education in Kenya, the Kenya Institute of Education, the Kenya Secondary School Heads Association, and other partners in this collaborative work.

Partnership Description

Identified Issues

Through our needs assessment of teacher education at Kenyatta University and in Kenya, we identified five issues related to current teacher preparation, induction and professional development. These issues are:

1. The teacher education curriculum in Kenya is not systematically revised based on evidence of teacher knowledge and performance.
2. Teachers in Kenya are not adequately prepared or able to support all learners.
3. Teachers in Kenya have limited information technology (IT) skills.
4. Teachers in Kenya lack deep and connected content and pedagogical content knowledge, including adequate practical skills.
5. There is no link in Kenya between preservice teachers' preparation and teachers' work in schools allowing for coordinated monitoring of induction and professional development.

Related to issue #1, there has not been a systematic review of the teacher education curriculum at Kenyatta University since the curriculum was put in place in the mid-1960s. Further, any revisions that have taken place have not been informed by evidence of teacher knowledge and performance. Thus, faculty members at Kenyatta University do not know if graduates have been prepared in the best ways to meet the challenges of the classroom. Constraints related to issues #1 include a lack of documented evidence of changes that are needed based on teacher knowledge and performance, structures that are slow to change, and distance and the number of preservice teachers. Given that data are not currently available on how teacher education graduates of KU are performing and that teacher performance expectations are not in place, it is not clear what revisions might need to be made. The university structure, at present, does not have a protocol for developing indicators, developing data collection instructions, collecting and analyzing data and revising

course curricula in light of the data. KU graduates might be placed anywhere in the country to teach and given that there are literally thousands of graduates, collecting data from them is challenging logistically.

Concerning issue #2, the teacher education curriculum that is in place prepares teachers to teach “typical” students. Thus, teachers are not prepared to teach all learners, especially those with special needs. Currently, there is a move towards inclusion in Kenyan schools and away from segregating students with special needs. This means that there is an even greater need for teachers to be prepared to support all learners in learning. Constraints related to issue #2 include the current curriculum that focuses on “typical” learners, time in existing courses, the pressure of national examinations, and a lack of support for implementing new teaching strategies, among others. The Kenya Certificate of Secondary Education examinations influence instruction quite a lot at the secondary level. Teachers feel pressured to prepare their students for the exams, and given the limited time in the classes to cover a large syllabus, teachers often feel compelled to teach to those students who are “typical” and feel constrained in trying to support all learners in their classes.

Related to issue #3, technology is part of the primary and secondary curricula and teachers need to be prepared to support learners in using technology in learning. The current teacher education curriculum does not prepare teachers to be able to use technology appropriately and effectively in supporting student learning. Constraints related to issue #3 include availability and accessibility of equipment and the IT capacity of the teacher education faculty members. While the government of Kenya has a goal of getting computers in all secondary schools in the very near future, computers are not currently available to most teachers to use with their students. At the university level, the teacher education faculty members are often not knowledgeable about technology that can be helpful to support student learning and thus this technology is not incorporated into university teacher education courses.

Concerning issue #4, recent research in Kenya on teachers’ knowledge (cf., Japan International Cooperation Agency, 2007) indicates that the majority of Kenyan teachers lack deep and connected knowledge of the subject matter they are teaching, and are uncertain of how to support students’ development of conceptual knowledge of many topics in the curriculum (cf., Miheso-O’Connor, 2009). Constraints related to issue #4 include the limited exposure of teacher education faculty members to other ideas and opportunities for professional development, a lack of guiding frameworks and models for thinking about supporting teacher learning, and a lack of access to research on teacher education.

Issue #5 arises from the university concentrating almost exclusively on the preparation of teachers with little or no connection to what happens to these teachers once they leave the

university classroom. While at the university level faculty members have been most concerned with teachers at the preservice level, we realize the critical importance of developing capacity by addressing these problems across the whole continuum of teacher education—from preservice teacher preparation through the induction period of novice teachers through continual learning with in-service teachers—and working with the Ministry to Education to support teachers at all stages of their careers. Constraints related to issue #5 include the lack of teacher performance expectations and assessments at each stage of teacher education, the lack of a feedback protocol for gaining information about how teacher education graduates are performing in their teaching practice, and the need to have governmental support, among others.

Additionally, to achieve these ends it is useful and necessary to build the capacity at the institutional level. This means providing faculty members access to ongoing professional development focused on these issues, as well as systematically revising the teacher education curriculum. Improvements in these areas will provide a foundation for increased capacity of high quality instruction at the national level.

Partnership Vision and Goals

As research institutions with strong traditions in teacher education and a strong connection to each other, Syracuse University and Kenyatta University are uniquely positioned to collaborate on the challenge of preparing highly qualified teachers. Our partnership began when the two universities created institutional linkage in 2000, following a Syracuse University faculty member's time as a Fulbright Scholar at Kenyatta University in 1998.

Kenyatta University's School of Education has been a leader in teacher education in East Africa since its founding in 1965. It is the oldest institution in Kenya that prepares secondary teachers. The School of Education has undergraduate, masters and doctoral degree programs. The university enrolls 30,000 students, of which 19,000 are in teacher education programs.

The Syracuse University Board of Trustees established the all-University School of Education in 1934, which incorporated the Margaret Olivia Slocum Teachers College, founded in 1906. SU's School of Education pioneered the inclusion movement in the United States, making way for all learners to participate fully in mainstream classrooms and other inclusive learning environments. Syracuse University enrolls approximately 16,800 students, of which approximately 1,000 are in teacher education programs.

Through the KU-SU institutional linkage a number of collaborations have already taken place. Fourteen Kenyan students have completed or are completing Ph.D. (nine) or M.S.

(five) degrees at SU in teacher education since 1999. In July 2009, the Schools of Education at KU and SU co-sponsored an international conference on education that was held at KU and planning is underway for a second co-sponsored international conference on education to be held in July 2011 at KU. As can be seen, changes in capacity built through the KU-SU partnership will have wide-ranging impacts; there is particularly the potential for wide impact in teacher education in East Africa.

Our partnership objectives are to (1) strengthen the capacity of the KU teacher education faculty resulting in improved teacher preparation for the education sector in Kenya, (2) strengthen the research capacity of the KU teacher education program resulting in improved knowledge to produce more effective education, (3) enhance the KU teacher education program resulting in improved instructional capacity, and (4) provide quality service to education stakeholders resulting in improved instruction in secondary schools in Kenya. Along with these objectives, we have a long-term goal of developing and establishing a model for teacher preparation and education that we will share with other universities in Kenya and other East African countries. Parallel to all of these objectives is our goal of building awareness of issues and successful strategies related to capacity building at the departmental, institutional and national level among the SU faculty members and other partners through our collaborative activities.

Over the next ten years and beyond, we envision our collaborative work enhancing quality teacher preparation to have a great impact on how teachers are prepared, inducted and supported in continual learning in Kenya and throughout East Africa. We will work with USAID/Kenya, the Ministry of Education in Kenya, the Kenya Institute of Education, and other partners in establishing the goals and vision listed below. In brief, our five-year goals, ten-year goals and long-term vision are as follows.

Five-year goals. In Years 1-5, we will begin at the departmental and university levels and will: (1) develop a protocol for continuing professional development for teacher education faculty members, (2) review the teacher education curriculum, develop a protocol for collecting data from teachers about their preparation, and create a protocol for revising the teacher education curriculum based on evidence collected from the field, (3) work with the Ministry of Education to establish Teacher Performance Expectations and Assessments, and (4) develop a preservice teacher mentoring model.

Ten-year goals. In Years 6-10, we will work with the Ministry of Education to: (1) develop a mentoring model for novice (beginning) teachers, (2) develop a professional development program for practicing teachers and align this with the mentoring programs for preservice and novice teachers, and (3) create a model for collaboration between and among the

education stakeholders through the establishment of an educational consortium to serve as advisors to and partners with the Ministry of Education for teacher preparation and education.

Long-term vision. At the end of ten years, we will have: (1) developed a center of excellence for faculty development at KU housed at the Department of Educational Communication and Technology, (2) developed an institute at KU devoted to teacher development, research and policy, (3) developed a research program to examine the impact of the revised teacher education curriculum, and the newly implemented mentor and professional development programs, and (4) have a model for teacher preparation and development that can be shared with other universities in Kenya and other East African countries, as well as other Ministries of Education in other East African countries. As noted above, these goals are well aligned with Kenya's national development goals for education and with the sector-specific goals of USAID/Kenya.

Innovative and Entrepreneurial Initiatives

Through this collaboration, we will develop high-quality teacher education instructional materials that can be distributed to other universities and colleges for a fee. They will be sold in Kenya and in other East African countries, and later can be made available to all African countries. These materials will be developed for use at the preservice, induction and inservice levels and will be in the form of CDs, DVDs, practical kits, modules, written materials and instructor guides. The materials will grow out of the data-driven curriculum revision that we will undertake in our teacher education courses, covering the areas of mathematics and science, humanities and social sciences, and languages, and paying particular attention to supporting all learners, developing IT skills, and developing content and pedagogical content knowledge. In preparing and marketing these materials, we will work together with the Quality Assurance and Standards Officers from the Ministry of Education as well as staff at the Kenya Institute of Education. Companions to these materials will be materials for the professional development of teacher education faculty members and others who will work with preservice, novice and experienced teachers.

Another initiative through our collaborative project is the establishment of an electronic teacher education journal to share research findings as well as articles of best practice. We will invite firms and bodies to advertise in the journal to provide funding for the journal and its work. The journal will enable us to make our research findings and developed teacher education practices available to other African universities and colleges, as well as make known the availability of the materials that we have available for sale.

Project Components

In order to achieve our objectives of (1) strengthening the capacity of the KU teacher education faculty resulting in improved teacher preparation for the education sector in Kenya, (2) strengthening the research capacity of the KU teacher education program resulting in improved knowledge to produce more effective education, (3) enhancing the KU teacher education program resulting in improved instructional capacity, and (4) providing quality service to education stakeholders resulting in improved instruction in secondary schools in Kenya, we will have the following project components. Note that while the current funding is for two years, we are listing here activities for five years so that the project components can be seen more coherently.

Building human capacity. We will begin our capacity building of the KU teacher education faculty to prepare high quality teachers by instituting ongoing professional development, scholar exchanges, and support for KU faculty members to complete doctoral degrees (Objective 1). We will start with faculty members in the Department of Educational Communication and Technology (teacher education faculty members) in Years 1-5 and then expand to other School of Education faculty members in Years 6-10. Our long-term goal with regard to this capacity building component is to develop a center of excellence for faculty development at KU.

Building program capacity. Our second component of capacity building is at the program level (Objectives 2 and 3). We will strengthen the research capacity of the teacher education program through collaborative research projects and having experienced researchers mentor KU researchers. We will also institute a protocol for reviewing and revising the teacher education curriculum during Years 1-5. This protocol will include collecting data from KU graduates who are novice and experienced teachers. Our long-term goal for Years 6-10 is to develop an institute at KU devoted to teacher development, research and policy. Members of this institute could work together with the Ministry of Education toward a type of accreditation of teacher education institutions in Kenya to ensure high quality preparation of teachers.

Building national capacity. Our third component in capacity building is at the national level (Objective 4). In Year 1, we will work with the Ministry of Education to develop Teacher Performance Expectations and Assessments indicators. We will continue working with the Ministry of Education to improve the Quality Assurance and Standards observation form by incorporating the Teacher Performance Expectations and Assessments. Note that the role of the Quality Assurance and Standards Officers (QASOs) is to observe practicing teachers with the goal of giving feedback to the teachers and assuring quality. We will communicate with education stakeholders through seminars and policy briefs about project findings on

teacher preparation. Our long-term goal with regard to this capacity building component is to work with the Ministry of Education to extend the mentoring program for preservice teaching practice to novice teachers and to develop and align professional development for practicing teachers with these mentoring programs.

Program Impact

Program impact of Objective 1 will be measured through (1) number of faculty members involved in professional development, (2) increased faculty knowledge gained through professional development and scholar exchanges, (3) knowledge and ability to use student data to inform teaching practice, (4) reports from supervisors for KU faculty members participating in “sandwich” degree program, (5) reports from mentored researchers, (6) reports from scholars participating in scholar exchanges, (7) reports from KU faculty members participating in “sandwich” degree program, and (8) reports from teaching practice supervisors and KU graduates over time about KU teachers’ preparation. Program impact of Objective 2 will be measured through (1) faculty member self-assessment, (2) the KU TE faculty members’ ability to write fundable research proposals and conduct research, and (3) how the research is impacting the TE program. Program impact of Objective 3 will be measured through (1) the number of courses revised, (2) the baseline and yearly data from preservice teachers in the mentoring program, (3) reports from teaching practice supervisors and KU graduates over time about KU teachers’ preparation, and (4) focused discussion with mentoring program participants. Program impact of Objective 4 will be measured through (1) the adoption of the Teacher Performance Expectations and Assessments, (2) the adoption of the revised QASO form, (3) reports from the Ministry of Education, principals and QASOs, (4) the number of policy briefs adopted, (5) a demand for an expansion of the mentoring program to novice teachers, and (6) eventually to improved student performance and changes in what is being assessed on the national examinations.

Progress Made to Date

Since this partnership project was just funded in April 2011, we have begun our work very recently. In the first quarter of our project, we have achieved the following related to our first objective: established a Committee for Faculty Development, collected and analyzed baseline data related to the identified issues from the KU teacher education faculty members, set up a plan for systematic scholar exchanges and have begun to implement them, and set up a plan for KU faculty members to earn “sandwich” degrees and recruited and enrolled two KU faculty members in such a degree program at SU. Related to our second objective, we have identified possible KU-SU collaborative research areas. For our

third objective, we have developed a curriculum and have begun to collect and analyze baseline data on curriculum review and revision.

We had joint Steering Committee meetings in Syracuse in early June, and met with HED, American Council on Education (ACE) and USAID/Kenya staff members related to our partnership project in Kenya in early July. We are excited about this collaborative project and anticipate having much more information to share about our project activities and outcomes and the next International Conference on Education.

RE-THINKING IN-SERVICE TEACHER TRAINING IN TEACHER DEVELOPMENT

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Abstract

This study is a critic of in-service training provision in ELT in six selected schools from three districts in Eastern Uganda, namely Mbale, Tororo and Kumi. The study revealed that there is a mismatch between what the in-service providers state should be done and actual classroom practice. This is compounded by a number of weaknesses in INSET programs with specific reference to “follow-up-visits” in schools by district subject trainers of English. Other areas include content, actual classroom teaching and management, administration, study materials development and provision, student support, assessment and examinations. To gather the relevant data, the following tools were used; questionnaires for students of Senior four and their teachers; analysis of Ordinary level results for the period (1993-2001) for schools in the study area, interviews with head teachers, heads of the English department, schools’ directors of study, teachers, students and district subject trainers of English, DEOs and TRCs, officials from MOES and NCDC and UNEB. The researcher also examined documents (reports) held by MOES as part of the evaluation process of INSET and finally teachers’ diaries which were kept as part of a collection of data during the course of the research. To make the programmes more effective and efficient, the study identified some strategies that could be used. Of particular note is the need to strengthen the inspectorate department and put in place quality assurance mechanisms.

List of Acronyms

DEO	District Education officer
DSTTs	District Subject Teacher Trainers
ELT	English Language Teaching
ESA	Education Standards Agency
INSET	In-Service Education and Training
INSSTEP	In-Service Secondary Teacher Education Project
MOEs	Ministry of Education and Sports
NCDC	National Curriculum Development Centre

ODA Overseas Development Agency
TRCs Teacher Resource Centres
UNEB Uganda National Examinations Board

1.0 Introduction

In-service secondary teacher training is a programme that was jointly run by the government of Uganda and the British government under the auspices of Overseas Development Agency (ODA), from 1996 to 2000. Its major aim was to improve on the status of teaching in Ugandan secondary schools in the fields of English, Mathematics, and the three sciences (Physics, Chemistry and Biology). The researcher's major area of interest was to establish what impact In-service Education and Training (INSET) had had on the teaching of English language, in line with a new curriculum that was in place, that was based on a learner-centred and communicative approach to language teaching. The findings on the ground indicate that In-service training has not been successful in changing both the attitude of the teacher and the approach to using a learner-centred approach in language teaching. If anything, it has created a lot of hostility on the part of teachers, who see it as a foreign concept that is imposed on them by the Ministry of Education and Sports (MOES) through the National Curriculum Development Centre (NCDC). In addition, the idea of learner centredness has been misunderstood to mean simply giving students exercises without proper guidance. Therefore, there is need to re-think the whole notion of INSET to be able to fit the individual needs of the language teacher in the face of large classes and a different socio-cultural context.

2.0 Overview of theories that guide INSET

Theories of learning are informed by two opposing knowledge paradigms: the positivist ('knowledge-centered') and phenomenological ('person-centered') paradigms. These theories lead to differences in the way that teaching and the knowledge that teachers have is perceived. There is, however, general agreement that learning to teach is a lifelong process and that a teacher has to be equipped with sufficient knowledge, skill, and awareness in order to carry out his or her job professionally. Thus, it is commonly held that teachers should remain involved in continuous education throughout their teaching career (Sprinthall et al, 1996). INSET aims to improve classroom teaching practice and is available to teachers, following their initial teacher education (Hayes, 1997; knight, 2002). INSET programmes are intended primarily and exclusively to stimulate the professional

competence and development of teachers, to improve classroom teaching practice and to implement educational innovations decided upon at government level. (Pennington, 1990; Veenman et al., 1994).

On one hand, INSET inspired by a positivist paradigm is characterized by objectives that are motivated by some sort of deficit. This deficit may be a deficit in teaching skills, curricular knowledge, or another area of expertise and is typically defined as a gap between the teacher's current level of skill or knowledge and the level required by his or her role in the system. The INSET programmes are, therefore, 'training' oriented and aim to promote the development of specific skills. Trainers demonstrate a series of techniques or activities and provide handouts that detail the steps to be carried out. This training orientation to INSET is informed by the knowledge transmission and process-product models where specific teacher behaviours are identified as training objectives. Skills are shaped through behaviour modification and teachers are expected to incorporate such individual behaviours (process) to promote student learning (product) (Sprinthall et al. 1996).

On the other hand, INSET inspired by the phenomenological paradigm is 'developmentally' oriented. There is, thus, an emphasis on the importance of the practitioners' beliefs and recognition that these beliefs serve as filters screening new information and determining which elements are accepted and integrated into the knowledge base. There is evidence that teachers have elaborate knowledge structures of their own that have been gradually constructed on the basis of experience and have become highly stabilized as the result of this experience. The development-based INSET programmes include opportunities for teachers to become aware of their own practices and the beliefs that underpin them (Barlett, 1990; Hopkins, 1986). It is believed that it is almost impossible to change the established beliefs and behaviours of teachers in the knowledge-transmission type of training-based INSET programmes.

3.0 Current state of INSET in Uganda

3.1 The nature and role of teacher training and teacher resource centers in Uganda

From the 1990s onwards, increasing attention has been paid to the training, education and development of (English) language teachers, as a steady stream of important books on the subject testify (Richards 2001; Wallace 1991; Hall 2001; Richards & Nunan 1990; Freeman and Richards 1996; Hayes 1995). A good deal of this literature has focused, very usefully, on expanding our understanding of how teachers learn and how this information can be used, in a variety of situations, especially at the pre-service level, in the design of teacher learning programmes. However, the same literature has said relatively less regarding the design of

structures for facilitating the ELT teacher at the in-service level. In particular, the question of how classroom practice can be achieved – i.e. the bringing about of desired changes in the work place as a result of in-service training (INSET) seems to have received very little attention. The reader should also not lose sight of the fact that, all the authors mentioned above are Western and their work relates mainly to language schools rather than secondary schools, especially in developing nations like Uganda. Nevertheless, the issue is of obvious importance, since the chief *raison d'être* for INSET in Uganda is to achieve the effect of change from Teacher centered approach to a Learner-centered approach in language teaching.

The In-service Secondary Teacher Project (INSSTEP) took place from 1996 to 2000, and its purpose was to provide in-service training in classroom teaching methods for Ugandan secondary school teachers of English among other subjects. For English language in particular, it highlighted the importance of shifting instructional practice towards open-ended approaches, such as, “child-centered, activity-oriented teaching” (TRC Manual, 1996). Thus it was observed that this would require changes in the traditional rote learning methods that were still dominant in the vast majority of the classrooms. To facilitate quality control, three major variables in INSET follow up systems were to be adhered to namely:

- a) The course based component
- b) Teacher support during the school based phase of the training
- c) School based follow up activity

It was observed that if new teaching ideas are to become part of the teacher's everyday repertoire, it is essential for the teacher learning process to involve an overall emphasis on learning by doing, within a context as similar as possible to the real life one (Calderhead 1987; Freeman 1989; Wallace 1991). In what follows, the conceptual framework, which influenced the design of the INSET system, is first outlined. Next, its main components are described, and finally a number of overall conclusions are drawn. The ELT INSET of the kind this paper is concerned with has tended to be mainly course based, with training taking the form of a ‘workshop’ or ‘seminar’ lasting anything from half a day to four days. The English panel at the National Curriculum Development Centre (NCDC), saw the teacher learning literatures as indicating that learning about teaching methods via course-based training has a number of advantages (e.g. providing the time, energy and mental ‘space’ to get to grips with new ideas).

Additionally, it was based on the model advocated for by Joyce and Showers (1988), which pointed towards the desirability of a hybrid model of INSET, consisting of a joint course and school-based structure, with as much provision within it for experiential teacher learning

opportunities (TRC Manual, 1996). It was these theoretical orientations, which formed the conceptual underpinnings for the INSET programme in Uganda. As a result, while it included a course based component because of perceived benefits of the kind already mentioned, it also incorporated an additional closely linked school based follow-up component. This consisted of a series of structured teacher learning activities aimed at encouraging a switch from the traditional teacher-centered method to a learner-centered method in the work place, with teaching ideas as introduced by the District Subject Trainers of English (DSTTs) during INSET workshops, and supervised by the teachers' ELT managers' (heads of department). The INSET structure took the form shown in **Table 1** below.

Table 1: INSET structure for Ugandan secondary school teachers of English language

STAGE	ACTIVITY
Preparation	DSTTs meet to discuss material to use in workshops (two to three days)
Implementation	INSET workshops done in cycles (Each cycle runs for three to four days). Teachers implement new methods in classroom
Follow-up	Heads of Departments observe Teachers' lessons. DSTTs make school visits and observe lessons
Review	DSTTs meet Heads of Department and Teacher Resource Centre coordinators discuss findings
Follow-through	Teachers get feedback through Heads of Department and any major issue of concern raised at next INSET meeting.

The INSET structure was based on an 'action research paradigm' (Hopkins, 1985; Nunan, 1992) and consisted of five main stages as shown in **Table 1**. Two related activities fed into this part of the system as shown. First, because the execution process was supervised by the teachers' Heads of Department, a review process was developed, in order to share information with other stakeholders, namely; DSTTs and Teacher Resource Centre coordinators. Second, in order to meet the needs arising from the execution process, the trainers were supposed to hold a series of follow-up through meetings for the trainees on a regular basis. To be able to do this, the DSTTs were required to carry out in-class observations of lessons that were taught and thereafter give a feedback to the teachers concerned as to what their observations had been. This would serve a dual purpose of giving an immediate feedback to the teacher, and also forming a basis for further INSET, if need be. Using their field reports, DSTTs would report back to the Teacher Resource Center coordinators on the progress or otherwise, of how the new ideas and methods of teaching developed at TRCs were being implemented in schools. These would, in turn, report to the District Education Officers, who would inform the Ministry of Education and Sports about

any developments concerning INSET programmes. The stakeholders involved in the new programme of in-service training had a number of questions to address, especially as far as school management and pedagogical issues were concerned. These included the following:

- To what extent were schools whose teachers had attended INSET programmes incorporating suggested management strategies into their operations? (e.g., a new system of teachers recording a self-evaluation of their teaching and problems encountered in their teaching.)
- To what extent were teachers incorporating suggested pedagogical methods into their teaching repertoire? (For example, paired work in oral drills, role-play and drama; classroom management in light of large numbers, blackboard skills, higher order questioning and other general pedagogical methods.)
- To what extent were students becoming part of these initiatives? (e.g. doing worksheets produced at TRCs; using textbooks as a resource for analyzing issues and solving problems by way of critical thinking.)

On the side of resources and materials, the following questions were being asked:

- To what extent had the teachers embraced the creation and development of teaching materials in line with the guidelines as set out by the DSTTs during INSET programmes?
- How frequently were the materials being evaluated? Was there enough training in terms of innovativeness to match the requirements of the learner-centered approach to language teaching? Were there enough materials? Was there enough follow-up in schools?

3.2 Attitudinal factors affecting the implementation of INSET programmes

Based on the findings of the research, as per the methods outlined in the Abstract (For more information regarding the methodology used in the study, please refer to (<<http://www.universityofportsmouthlibrary.ac.uk/thesiscollection>>), it is clear that attitudinal factors have had a key role in the implementation of INSET. Teachers, in general, feel that this new programme has been imposed on them without due regard to their feelings and acceptability of the approach. In fact, they argue that this is a 'foreign idea' that has no role to play in their classroom teaching. On the side of the Ministry of Education and Sports, officials feel that INSET programmes are on the whole okay, but in reality, they have not done much to justify this assertion. In addition, there have been some misunderstandings between some officials as to the ownership of the programme. For example, one official is quoted as having said as follows:

It is rather annoying when personnel from different departments are invited for meetings to discuss matters concerning INSET and they do not turn up, because they are 'busy' handling more urgent issues. Later on, when decisions are made by members who are present, they are accused of hijacking the programme and taking control.

Regarding funding, much as at the inception of the programme, INSET workshops were co-funded by the Government of Uganda and the ODA, eventually when the ODA withdrew its funding the burden was pushed to individual districts and secondary schools. Therefore, this meant that parents had to meet the cost of funding as part of the tuition fees. The dilemma, however, is that when schools receive the funds, these are not passed on to the TRCs. This has inevitably brought In-service training to a halt, and nobody seems to be answerable as to why this is happening. Besides, inspectors of schools face the challenge of facilitation in many ways, including lack of fuel for their vehicles, which undermines field inspection.

District Subject Trainers of English have also faced a challenge of hostility whenever they visit schools as part of their follow-up role. They are viewed by some teachers as 'spies' of the District Education office, and some are regarded as less qualified for their job because they have similar academic qualifications to those of the very teachers they are supposed to assess.

4.0 Re-thinking in-service training

This study's quantitative and qualitative findings reveal that INSSTEP was not entirely adequate in preparing teachers for the new curriculum before its introduction. In the context of Uganda, the relationship between the experience of the teachers and the aims of the training programme are very different. The long established traditional approach to teaching and learning in the schools, which has given rise to 'lock step lessons' - segments of classroom interaction in which all learners must 'march in step', at the same tempo, dealing with the same topic - is greatly at variance with the approach being advocated for by the new curriculum under a learner-centered approach to teaching English. However, although stakeholders in education regularly talk of the importance of in-service training and even go further than that to actually conduct training, they often talk of difficulties surrounding it. Locally, the learner centered approach has been misunderstood by a significant fraction of teachers to mean letting students work on their own with limited involvement of the teacher in the learning process. A lot of frustration has also built up on the side of many teachers at their failure to effectively use the communicative syllabus despite attending several INSET trainings. In addition, other teachers attend these trainings just for the sake of routine and fulfilling the demands of the Ministry of Education and Sports.

But from a research perspective, current in-service training programmes are, on the whole, found to be insufficient due to the fact that they do not provide the participant teachers with opportunities to reflect on their own experiences, nor do they give them support in modifying teaching practice. Secondly, teachers have no role in planning the objectives of these trainings, yet ideally, stakeholders should involve teachers in the planning phase of these training activities. By contrast, while trainers demonstrate a series of techniques or activities and provide teachers with written handouts, little effort is made to get teachers to consider the rationale or principles underlying the use of those particular activities. The most fundamental flaw or challenge is that the trainings hardly acknowledge the participants' existing knowledge, beliefs and experience. Therefore, in most cases, the content and activities presented in a particular training session may have no relevance to a given school's situation. (Cohen et al, 2007; Watuulo, 2007).

A number of questions do arise. Which approach is most appropriate for different contexts, particularly with regard to emphasis? Should it concentrate on theory or practice; training or education? Are the three days of training per INSET cycle enough to bring about meaningful change? Thus, training or teacher education should provide for situations which cannot be unquestioningly accommodated into preconceived patterns of response. The findings in the field reveal that there isn't uniform code of practice in terms of teaching in the three districts under study let alone within individual schools in the same district. In reality, a dual system of teaching is being used.

Closely linked to the above factors, is the question of inspection. It was revealed that the organizational relationship between ESA and the MOES departments need to be clearly defined. The reality is that the inspectors in the districts who oversee TRC activities, and who are line managed by District Education Officers, have effectively changed their roles and are part of the district administration. How then can they supervise their line managers?

4.1 Challenges of managing change

In spite of its relatively brief existence in Uganda, INSET has undergone a number of major shifts in orientation. This has come about largely because INSET has developed at a time when fundamental revision of our view of language and methods used in teaching it have been taking place. Lacking a long tradition which might give some stability, INSET has frequently become a hotbed of conflict – The Western Model as opposed to Models that can be 'exported' abroad. As in the case of Uganda, new settlers in this land have often found it difficult to find their bearings with no agreed maps to guide them.

Many ELT teachers in Uganda are reluctant settlers in the new territory of using a learner-centered approach to language teaching, in spite of having attended a number of INSET workshops. They would rather teach English in the comfortable environs of the traditional teacher-centered mode of teaching, but have been forced by pedagogical pressure to emigrate. This does not engender a great desire to learn the new area, considering the nature of INSET programmes in Uganda. The general attitude in INSET seems to be to expect teachers to conform to the requirements of the target situation. The net result has been to produce a cadre of teachers, many of whom feel alienated by the subject they are expected to teach. The new approach to teaching English is seen as dull, boring, complicated, incomprehensible, and confusing. This can only have a negative effect on teaching. It is, therefore, essential that any approach to INSET should try to dispel the fears and hostility that many teachers have towards a learner-centered approach to language teaching.

5.0 Conclusion and recommendations

5.1 Conclusion

In conclusion, if any form of realistic In-service training is to take place, there is need to shift the focus from concentrating the training at Teacher Resource Centres. Instead, school based training organized at Departmental level may be more effective. Likewise, all the major stakeholders, such as, the Ministry of Education and Sports, National Curriculum Development Centre, and the District officials should not only be seen to embrace INSET programmes, but should, in reality, work together as a team. Conversely, teachers would benefit more from training and development-based in-service courses when they are provided with theoretical knowledge that is relevant to their objectives and with opportunities to recognize, reflect on and share the knowledge they have both during and following the course or particular training sessions. There is, therefore, need to rethink the whole training program.

5.2 Recommendations

Curriculum designers should attempt to fill the gap between theory and practice. They should pay attention to the practical field; that is, involve the teachers in planning curricular and not merely implementing it.

The organizational relationship between ESA and the Inspectorate department in the Ministry of Education and Sports needs to be clearly defined, whereby the inspectors in the

districts are expected to inspect the quality and effectiveness of the work of their own line managers – the DEOs.

Curriculum renewal can and should be a continuous process. The larger lesson should be what other countries can learn from Uganda's experience. This search for improvement in English language pedagogy is only possible when all concerned speak out frankly, and, in turn, listen attentively. The onus is on educational practitioners.

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SCHOOL PRACTICE AT UGANDA CHRISTIAN UNIVERSITY: THE STUDENT TEACHERS' EXPERIENCE

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Abstract

This is a field work research paper falling under the sub-theme of Teacher Education and Development 'focusing on school practice in pre service teacher education. School practice occupies a key position in the program of pre service teacher education because it marks a transition from classroom to practice in a school setting. It is a transition from theory to practice in a student teacher's life. It is the central pivot of professional training of teachers, yet university education does not give it the predominant attention it deserves. School practice is beyond classroom activities. Given the significance of school practice and the place it holds in a student teachers' life in pre service teacher education, the study was carried out to investigate the various experiences and challenges faced by student teachers in the period of school practice. In Uganda Christian University, school practice lasts between 6-8 weeks. In this study, data was collected from 40 out 168 students (23.8%) and were sampled for this survey from various schools. Interviews and questionnaires were used to gather data that was later analyzed. It was established that there were significant rich experiences but at the same time various challenges that affected their general teaching practice. The study suggested some measures to improve school practice in pre-service teacher education.

1.0 Introduction and outline

This paper discusses the student teachers' school practice (SP) experiences at Uganda Christian University. It exposes what school practice is and spells out its various roles. Despite its significance to students and their future profession, the paper exposes various student teachers' experiences: positive and negative. It is school practice that translates the theory of what has been taught to practice. The paper also proposes some recommendations not only for the betterment of the faculty but also for the entire teacher education program.

1.1 Uganda Christian University and education

Uganda Christian University¹ is a young institution that was established in 1997 .It has passed through various stages of development and it is still growing. The university is dedicated through teaching, scholarship, service, spiritual formation, student development and social involvement, to the preparation of the students for thoughtful, productive lives of Christian faith and service in their respective professions and places². The faculty of Education and Arts oversees the teaching of everything about education as a discipline. The faculty gives high priority to school practice³ as an integral part to teacher education. As a growing university, there are various things that still need to be in place in order to have a better SP. Through school practice, students gain confidence as young teachers in the profession. When a student teacher gets negative and unfortunate school practice experiences, the real impression on the whole teaching and learning exercise can be put to jeopardy. Most importantly, those in the training of teachers find it an opportunity to evaluate themselves, whether what was theoretically taught has been practically grasped.⁴

2.0 THE ROLE OF SCHOOL PRACTICE

There is no teacher education that can be said to be complete without an effective student teachers' teaching practice program⁵. For example, students who study Law cannot join the field of work in their profession without a postgraduate diploma in laws. Likewise, those who pursue education have to do school practice in order to become qualified teachers. Though we call it school practice, others call it teaching practice. The concept of school practice is deeply rooted in the drive towards the education and training of competent and professional teachers. However, what is school practice?

First, it is a pre-service professional preparation for interested persons aspiring to become teachers with a credible vision for sustainable human development.⁶

Second, it is a kind of apprenticeship stage during which the students are sent out to school to gain practical and professional experience by translating all the educational theories they have acquired or learnt during training into practice.⁷

1 Uganda Christian University is the first private university to receive a Charter in Uganda in 2004. It is a Church of Uganda (Anglican) founded institution.

2 Mission of the University from the University prospectus

3 For a number of years, it has been called teaching practice but it is school practice now because we want the student teachers to take part in each and every activity at school in and outside the classroom environment.

4 The success of SP is not only a success for the trainers and trainees but also for the entire faculty/university

5 http://www.nou.edu.ng/noun/NOUN_OCL/pdf2/EDU June 15,2011

6 ibid

7 ibid

Third, it is a practical teaching activity by which the student teachers are given an opportunity in actual school situation to demonstrate and improve training in pedagogical skills over a period of time.⁸ Grower,(1995) defines teaching practice as a situation in which a teacher trainee teaches a group of students under supervision. Its aim is, usually, to improve the trainees' teaching skills and develop their awareness of how students learn. Indeed, school practice needs supervision in order to produce good results.

2.1 Beginning a journey to the teaching profession

School practice offers student teachers an opportunity to determine whether they had chosen a good profession or not.⁹ It was found out that most of Second Year Education students 'found their level' only when they started teaching during school practice. It is the real beginning towards their profession, practically, with various experiences: challenges and opportunities, strengths and weaknesses. They did not know what teaching was until they took part in school practice.

2.2 Exploring one's potential in teaching

School practice offers student teachers an opportunity to explore their potential as far as teaching is concerned. It is the real occasion to experience what teaching is and what effort should be put in. It is the time to explore weaknesses and strengths because of constant supervision and peer- teaching Grower (1995). when they have chance to work with the regular teachers¹⁰ who may give counsel and guidance as far as teaching and learning are concerned.

2.3 Wide exposure of a student teacher to all kinds of students

School practice provides an opportunity to study teachers' and lecturers' behavior in the school where they do their SP. Some students are naughty, but others well behaved. On the side of teachers, some are cooperative while some are not. A student teacher is a silent learner and a 'visitor' too. She or he may not say much but silently, he/she learns the "what, when, where, and which" of the school during SP.

2.4 Opportunity for independence

8 ibid

9 This was reached at, through interviews with the student teachers, June 6, 2011

10 The term "regular teachers" refers to the staff the trainees find at school. These teachers offer invaluable assistance to the student teachers; even though, they may not do so, sometimes, due to various circumstances.

School practice makes student teachers become independent in various ways. It creates a situation of gradually increased freedom such that one becomes increasingly more independent; able to make decisions about what is taught and how it is taught.¹¹ It also leads one to create a sense of responsibility for his/her students¹²

2.5 Classroom management

This is very central to any teacher. It was found out that it is not an easy activity and, sometimes, may discourage some teachers from teaching at all. It is a time to prevent disruptive behaviour. Also, it is an opportunity to manage classroom in terms of time (Kauchak, D & Eggen, 2008). If one is able to handle classroom management at SP, then he/she may make a very good teacher.

2.6 Team work

Working with others as a team is crucial in a student teacher's life. Here, others include staff members, supervisor (s), and fellow student teachers. The staff members naturally may initiate one to teaching; fellow student teachers may advise and make one of them confident in his/her teaching. However, it is the supervisor whom the student teacher meets for the first time. The experience and expertise of the supervisor should be utilized in SP; although, in most cases, this is not always so.

2.7 Opportunity to utilize various teaching methods

The student teachers consider it a blessing to utilize various effective teaching methods. They try out all the methods¹³ taught while on training in classroom. This is done under constant supervision by staff experienced in teaching. Therefore, the period of school practice is an indispensable item in the life of a learner and lecturer/ instructor.

2.8 Exposure to professional activities

Various professional activities include those duties, in addition to immediate classroom work with students. Also, they take into account the preparation to teach well, being resourceful and creative under the guidance of the staff found at the school. In other words, apart from actual teaching, SP exposes student teachers to such professional activities that are part and parcel of teaching as a profession.

11 Roger Grower. (1995). Teaching practice p.2

12 ibid

13 Not every method can be employed during SP, except those that are relevant to the nature and environment of the school

2.9 To the faculty

School practice largely provides checks and balances as far as teaching is concerned. That is, through SP, the academic staff evaluates itself. To a greater extent, the way the student teachers teach reflects the way they were taught. The SP results and reports contribute immensely to the improvement in handling teacher education. It is also a learning experience, both for the student teachers and the supervisors. It exposes them to the nature of schools that the student teachers go to and, eventually, gives them a general picture of the field for their clients – student teachers.

3.0 STUDENT TEACHERS' EXPERIENCES AND DISCUSSIONS

From the findings, students enjoy SP because it is a time to go out of the University to practice what they have been taught and, especially, get used to actual teaching.¹⁴ The findings indicate both positive and negative experiences, but the positive ones outweigh the negative ones (59%). This paper discusses the challenging experiences for the University itself, the staff, the students and from the general teaching.

3.1 Uganda Christian University (UCU)

Uganda Christian University Faculty of Education and Arts sends out the student teachers to various schools in Uganda in 111 districts as of 2010. They go in the Month of February, in the first term of the Ministry of Education and Sports Calendar. However, other universities and institutions send their student teachers for SP in June, that is, during the schools Second Term. UCU chose to do SP in February when none of the other SP student teachers are in session to avoid the confusion and difficulty related to finding schools for SP.¹⁵ However, some students expressed desire to mingle with other students from other institutions to 'compare notes' in the areas of schemes of work, lesson plans and the general teaching experiences.¹⁶

3.1.1 Limited materials

In addition, 100% of the students did not have enough materials from the university, such as, manila papers for charts. They found out that they needed many for designing teaching aids. Also, they found out that they had poor quality materials. By mid SP period, they had almost used up the materials. They had to buy other materials, yet few could afford to do so. They could not teach effectively without using charts for illustrations.

14 Interview with the students, June 14,2011

15 Former Dean of Education, Prof. Christopher Byaruhanga, June 15, 2011

16 Interview with students June 16, 2011

3.1.2 General methods

The students found it very hard to apply all the teaching methods as taught by various lecturers. Each lecturer teaches the methods needed by students in his/her respective subject. However, they found out that General Methods, as a special course, was needed to boost their methodology and general knowledge about education as a profession. Each lecturer has his/ her own way of teaching and, for that reason, there is need to have a general course on teaching methods to cover part of what some lack.¹⁷

3.2 Supervision in the field

Supervision of SP is carried out by faculty staff; both those who directly teach the students and those who do not necessarily teach them. Discovery was made that whereas some were professional in their supervision, others were not. Many trainees praised various supervisors who assisted them greatly in improving their teaching and handling of students during SP. Ogunniyi (1990:25) stresses that “the supervisor is principally concerned with helping teachers to achieve the best outcomes of instruction by means of guidance and evaluatory activities; assisting teachers in overcoming their problems; organizing in-service programs...enforcing regulations...rewarding good performance of teachers...he is a friend, and advisor and not a judge to the teacher.” However, there were other experiences that were challenging and they deserve to be noted:

3.2.1 Little feedback from supervisors: conferencing

Revelation emerged that 48 % of the supervisors would enter the class, write a report and hand it to the students, and leave immediately. 'I would be keen to discuss with my supervisor but it seemed there was no time for me...I thought that that is how they do it, only to hear that elsewhere; some supervisors had time for their students.’¹⁸ Without conferencing with the student teacher at the end of the lesson, there is no supervision done. It is a time when a student teacher and the supervisor discuss the lesson taught pointing out strengths and weaknesses. It is a time when they agree with justifications, on the areas of improvement. A word of wisdom from an experienced person would be of great help at such material time in the teaching and learning exercise. It is also noted that: without feedback their performance does not improve. Feedback on a classroom performance frequently takes the form of a supervisor’s comments after the lesson is

17 At UCU, ‘General Methods’ course is not offered

18 Interview with students June 14, 2011

over.¹⁹ One student teacher commented that: 'It was as if I was teaching very well without any problem since my supervisor kept quiet but continued giving me very good grades'²⁰ To such a situation, supervisors need to discuss with the students and properly guide them. Assessment is not using a red pen and then you run away without conferencing with a teacher! Verbal communication is thus very significant. Supervision is in class and out of class. It is better for a supervisor to look for a convenient place and point out areas that need to be improved or appreciate, verbally the student teacher for the job well done.

3.2.2 Lack of professionalism

The study also reveals that there were some supervisors who would come at the end of the lesson but make a report. Everything must be done on schedule! The student teacher makes a lesson plan and scheme where time is a crucial issue. The student teachers found it very challenging and unprofessional for the supervisor to make such an assessment because she/he would have seen just a little part of the teaching. It is better to see the lesson from beginning to end. How has he/she introduced the lesson, how has she/he concluded? In addition, some 'kept away' and came at the end of the SP period, when there was little activity. "I would have preferred help at the beginning to that given at the end of SP."²¹ There were instances of some supervisors showing up at any time²². This implied that there would be conflicts between the time table master and the student teachers. Lack of seriousness and keeping time also points to the lack of foresight and planning on the part of the supervisor. One cannot promote professionalism and growth in such a manner.²³ The lecturers expected to supervise at any time they arrived in the school yet the schools have timetables to guide them. This calls for the supervisor to be rational, empathetic and objective in such an exercise. In this instance he/she should know that she/he is a liaison officer between the school and the university, and should be a good example to both the school and the sending institution.

3.2.3 Hurried reports

In relation to time keeping and other related issues, there were supervisors who turned up very early, within the first week after orientation, and "finished" within that particular week. "We were seen four times yet we still had more than four or five weeks ahead!" "We did not have an opportunity to be seen by our supervisor as far as the improvement that we

19 Perrott Elizabeth 1998 p.10

20 ibid

21 ibid

22 ibid

23 ibid

had made was concerned.”²⁴In connection to this, other supervisors hurriedly saw a student in all subjects, four times a day, and then never returned.²⁵A student teacher needs to be assessed; therefore, there should not be injustice in assessment. What does the student teacher learn in this ‘marathon supervision’? It also means that she or he will be demotivated and may not like entire exercise of supervision. In supervision, there should be a progression: a student is expected to improve day by day depending on what has been assessed. If one comes once and does all the assessment, there is no opportunity for the student teacher to improve progressively, owing to lack of constant assessment.

3.2.4 Biased and unprofessional supervision in some subjects

Some supervisors were very biased and unprofessional in some subjects. They would sit and award marks without any discussion, especially on the knowledge of the subject matter. Some were not objective, “yet I had taught with clear facts.”²⁶ It is either bias or they lacked relevant knowledge in that area, hence poor and unjust supervision. This can be exemplified in Fine Art, where some supervisors lacked real knowledge about it²⁷

3.3 STUDENTS’ EXPERIENCE WITH THE SCHOOLS

Within the schools, there was administration, the teaching staff, students and teaching. It was clear that 94% was not happy with accommodation related challenges: late coming, insecurity, slums, unhygienic conditions and very expensive charges. This had an effect on their teaching.

For teachers, many did not bother to recognize us as teachers. We expected an orientation where teachers were expected to assist us but unfortunately they did not bother to assist us as expected.²⁸ Grower (1995:4) asserts that in addition to the supervisor or the ‘attached’ teacher (cooperating teacher), other teachers can be of great help. They can also give a student teacher a good picture of what teaching is actually like. However, they are likely to be busy and preoccupied with their classes and should not be pestered unnecessarily.

It was also noted that many were given a big load: Instead, “we were given much work. They added more periods to us and we had no time of rest; that is what made me hate SP.”²⁹ “In some schools, especially private schools, we were not very welcome because the more

24 ibid

25 ibid

26 ibid

27 Revealed by the external examiner of education

28 It was as if we were a burden to them as far as orientation was concerned

29 Interview with student teachers

lessons a teacher teaches the more pay he/she receives. Therefore, our coming meant that their periods were reduced or taken away completely!"³⁰ This created a poor and challenging working relationship.

3.4 TEACHING EXPERIENCES IN SCHOOLS: REPORTS

Teaching in most schools went on well. However, there is need to point out that there were both the Second and Third years in SP, meaning that it was the first time for the Second Years to do SP. It was also noted that there were schools that had too many students with poor infrastructure. The student teachers reported that there were big rooms but with no clear demarcation between the classes. Some were separated by mere old cardboards, making the noise in the class room uncontrollable. There was a general lack of enough text books like in English and Literature yet such subjects need each person to have a copy. The use of teaching aids was a real problem since most of the comments were about it. Class control and management was another area that needed careful attention because classes were not easy for the trainees to manage, yet neither the staff nor the administration had showed willingness to help. Also, it was realized that there was a big challenge on the use of teaching aids as each supervisor had a different understanding on this matter. This therefore meant that there was need for a cooperating teacher act like a shock absorber of the teaching and learning exercise in SP.

4.0 CONCLUSION AND RECOMMENDATIONS

4.1 Conclusion

School practice is time for experiment in teacher education. It is one of the few opportunities one may ever have for trying out a new idea and having one or more critical but supportive observers. It contributes greatly to teacher education in that through a careful assessment, the university can improve its teaching and learning. Through SP, the supervisors assess themselves because it (SP) is a reflection of what has been theoretically taught. At the same time, the student teachers gain a lot by putting into practice the theoretical part taught in class. Students' school practice has a wide range of both positive and negative experiences. However, in order to improve, it is imperative that the negative experiences are improved on: from the sending institution, the schools where the student teachers go and hence a need for recommendations.

4.2 Recommendations

30 ibid

1. General Methods Course

There is need to teach General Methods as a course to all students who study education. Though each subject handles its methods, experience has shown that there is urgent need to handle such a course to reduce on the challenges students face in SP. This can cater for the use of teaching aids which is a must in SP. Problems with classroom management and control, lesson presentation, assessment and evaluation will also lessen. This course combines all the students and they can share many experiences. They can, as well, have a standard way of designing a scheme of work and lesson plan, thereby reducing on the problems encountered in SP. Having such a course increases effectiveness and efficiency in teaching

2. Need of Cooperating teachers

In order for the students to gain much from the field, a cooperating teacher is needed in every school where they go. Research indicates that the cooperating teacher is the most important person who influences student teachers and often leaves an indelible impression on the novice teacher.³¹ In addition, a cooperating teacher has two major roles: the mentoring and supervisory aspect. The mentoring aspect of the cooperating teacher's role requires that one is:

Encouraging, motivating, supportive, being an advocate, role model for professionalism and role model for appropriate teaching practices...and for the supervisory aspect, the cooperating teacher's role needs one to be open, firm, direct, constructively critical and honest.³²

The negative experiences arising from absence of a person to take the student teacher through orientation and take keen interest in them can lessen, with the introduction of cooperating teachers in the SP period. A cooperating teacher helps to nurture a student teacher in the profession once he/she is officially recognized by the sending university and the school. He/she can do that work efficiently and effectively. However, this is not to say that it is only the cooperating teacher who initiates or teams with the student teacher to get him/her familiarized to teaching; other teachers also need to take part in nurturing this novice.

3. Feedback/conferencing with the student teachers

Conferencing with the student teachers is vital. The supervisor can also share his/ her own experience of SP. The supervisor is a human being dealing with another human being; therefore, there is need for being humane and empathetic. Point out strengths and

31 http://www.education.eku.edu/fieldexperiences/fieldexpi/word/coop_teacher_guide.htm June 17,2011

32 <http://www.aahperd.org/naspe/careers/irc.cooperatingteacherrole.cfm> June 18, 2011

weaknesses openly, face to face, without rushing after the class! Have a time with them. Together, agree on areas of improvement. Periodic conferencing with student teachers about their lessons provides an opportunity to develop growth plans that lead the student teacher to develop or hone his/her teaching skills.³³ Weekly feedback on teaching performance is a good way for a student teacher on SP.

4. Need for several supervisors

The university should provide at least two supervisors per student teacher. For instance, one can supervise for three or four weeks, and the other can take the same period on the same student. There has been a tradition of having only one supervisor per student teacher throughout the entire SP. One supervisor may have his/her own biases and weaknesses, or may not be as professional as expected. Sometimes, she/he may not have relevant knowledge of the subject matter. However, this is not to say that two can offer the best in assessment but ideally, at least, they can present a balanced assessment. Therefore, having more than one supervisor in place can bring solace to student teachers who have already noted that one is not enough.

5. Need for a good supervisor-student teacher relationship

This is not to say that all supervisors are not professional, but this goes to those that do not have professional ethics for the teaching profession, such as, being impatient with the timetable, rushing through the assessment sheet and going away without conferencing with the student teacher. This also calls for the supervisors in question to be empathetic and humane as they work with their student teachers. However, there were a few (three) reports where some regular teachers were interested in sexual relations with the student teachers. Such a relationship is condemned because it is unethical and puts the teaching profession into disrepute.

6. Need to advocate for less load for student teachers

Many student teachers had a problem of work overload as attested by Directors of Studies in schools.³⁴ Many taught what the regular teachers would have taught. This is common in private schools because their expenditure on teachers' remuneration is minimized, since the student teachers do the donkey work.

7. Need for decent accommodation

The university needs to look into the challenge of accommodation for the student teachers and especially the females. Indecent accommodation affects their effectiveness in delivery.

³³ ibid

³⁴ Interviews with directors of studies in various schools, June 10, 2011

This goes hand in hand with their physical safety, hence a need for good accommodation during SP.

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HOW TO PREPARE RELEVANT SCIENCE EDUCATORS FOR THE 21st CENTURY

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ABSTRACT

In this era of information technology, the role of teachers is changing from providing information to organizing the entire learning process. This is mainly because, learners can easily access any information they need from Internet by use of their mobile telephones, unlike in the past where text books were the only source of information/knowledge. Hence, the current teacher educators/trainers should train teachers with special knowledge, skills, attitudes and values for the 21st Century.

This paper describes the 21st Century skills, curriculum, school, teacher and learner. It also compares the 20th Century against 21st Century classroom, and outlines the teacher skills/understanding required for reform based-learning. It goes on to discuss the necessary strategies for training the relevant Science teachers in this 21st Century.

Key words: 21st Century skills, Teacher Education/ training

INTRODUCTION

The creation of an educational system capable of preparing people to live in the changing world is one of the crucial tasks of modern society (Kenelev, 2000).

The rapid move over recent decades to a global knowledge economy, driven by constantly evolving information and communication technologies has created significant economic and social opportunities. Equally, it is creating enormous challenges, confronting, and countries with the need to rethink their educational and social systems (Kozma, 2005).

To participate in this global knowledge economy and improve their standard of living, Kozma stresses the need for students to leave school with a deeper understanding of school subjects and with the skills needed to respond to an unbounded but *uncertain 21st Century-*

skills to use their knowledge, to think critically, to collaborate, to communicate, to solve problems, to create and to continue to learn.

Increasingly, the onus is on Teacher Education Institutions (TEI) to “rethink” how they can most effectively prepare future teachers to teach these skills for success in a complex, rapidly changing world.

Just as the transition from oral to print literacy and book culture involved a dramatic transformation of education, as Marshall McLohan (1961 and 1964), Walber Ong (1988), and others have argued, so too does the current technological revolution demand a major restructuring of education today with new curricula, pedagogy, literacies, practices and goals.

Not a single day goes by without a new advancement in technology. This dynamic nature of technology, in turn, affects the way teachers teach and learn as well as their responsibilities in schools. As these improvements are getting more prevalent in teachers' and educators' professional lives, concern is already directed to the importance of colleges of education because these are the places where pre-service teachers should learn about technology and the ways to appropriately integrate it into their curricula.

Boaduo (1988) and Lawal (2006) concur that no nation develops beyond the quality of its educational system, which is highly dependent on the quality of its teachers. To them teachers should be given the most appropriate tools during training, including content knowledge and skills, to be able to do their work professionally.

In the new teacher education and training initiative for the 21st Century, teachers would be required to know and understand the characteristics of the 21st Century learner including aspects of pedagogical and content knowledge of students that they would teach the learners. These would include the incorporation of languages, cultures and traditions in community contexts as well as technology in the broadest sense (Darling-Hammond, 2006). Furthermore, the 21st Century teacher should understand learners and find a way to nurture their talents. To do this, teachers would need knowledge and skills to construct and manage their teaching and learning activities, communicate well, use technology efficiently and reflect on their practices, learn and improve continuously in order to keep them abreast in time perspective.

Science education in the 21st Century must be oriented to meet the challenges of covering the entire population in promoting scientific literacy. The Science teacher is the hub in this

endeavour and therefore, a thorough understanding of the nature of Science is a prerequisite in this educational process (Badha, 1995).

Lee Lacocca, an American motor industry leader, once commented, "*In a completely rational society, the best of us would be teachers and the rest of us would have to settle for something less, because passing civilization (learning) along from one generation to the next ought to be highest honor and highest responsibility anyone could have*". It is true that teachers are architects of the future.

One personal theory that many new teaching candidates hold about learning is that it amounts to a simple "transfer" of information from texts and teachers to students who acquire it from listening, reading and memorization (Feiman-Nemser and Buchman, 1989, Richardson, 1996). This shapes their thinking about what kind of teaching is appropriate and possible in classroom (National Centre for Research and Teacher Learning, 1991). When we consider the kinds of knowledge-building, problem-solving, meta cognition, and collaboration that are part of 21st Century learning, such as over simplified view of teaching seems a major impediment. These preconceptions developed in teachers "apprenticeships of observation", also condition what they then learn in training experiences (Linn, Eylon and Davis, 2004). If this initial understanding is not engaged/confronted during teacher preparation, they may fail to grasp new concepts about teaching and learning or they may learn them for the purposes of a test, but revert to their perceptions later (Darling-Hammond and Bransford, 2005).

We also know that even when novice teachers are exposed to powerful conceptual frameworks to help them think about organizing instruction and analyzing classroom events (Bransford and Stein, 1993, Grossman et al, 2000), they will either not know how or when to enact these ideas when they enter the classroom, or they will simply reject these frames and rely instead on conservative teacher-centered instruction (Abd-El-Khalik, Bell and Lederman, 1998; Appleton and Kindt, 2002; Brickhouse and Bodner, 1992; Melado, 1997; Palmquist and Finley, 1997; Simmons et al, 1999; Windschitl and Thompson, 2006).

Reform-based teaching methods are often fundamentally different from *how student teachers were taught and sometimes how teacher educators themselves learned as students* (Borko and Mayfield, 1995). Short term interventions have shown little capacity to change pre-conceptions (Wideen and others, 1998). In contrast, longer term approaches that explicitly seek to elicit and work with novice teacher's initial beliefs have shown some success in fostering reform-based teaching (Fosnot, 1996; Graber, 1996; Windschitl and Thompson, 2006).

In its 4th Annual Report on Teacher Quality (2005), the U.S. Department of Education (DOE) outlined the five areas of expertise that teachers will need when they enter today's classroom:

- i) Subject matter expertise;
- ii) Ability to use and interpret data;
- iii) An understanding of diverse learners;
- iv) Preparation in teaching in high need schools; and
- v) 21st Century skills

Universities may address these five areas in a myriad of ways, but these areas are key components for any teacher education programme that wants to transform its curricula.

WHAT ARE THE 21st CENTURY SKILLS?

In 2007, the National Academies held the *Workshop on Research Evidence related to Future Skills Demands* (Maria, A. R. P., 2009). The research discussed at that workshop highlighted five broad skills that appear valuable across a range of jobs, from low-wage service work to professional work: adaptability, complex communication/social skills, non-routine problem solving, self-management/self-development and system thinking.

The five 21st Century skills were adapted from a set of six broad competencies initially proposed by Janis Houston (2007), of which two (self-management and self-development) were collapsed into one. Hilton (2008) defined the five competencies from the workshop as follows:

i) Adaptability

The ability and willingness to cope with uncertain, new, and rapidly-changing conditions on the job, including responding effectively to emergencies or situations of crisis and learning new tasks, technologies, and procedures. Adaptability also includes handling work-stress, adapting to different personalities, communication styles, and cultures, and physical adaptability to various indoor or outdoor work environments.

ii) Complex Communications/Social Skills

Skills in processing and interpreting both verbal and non-verbal information from others in order to respond appropriately. A skilled communicator is able to select key pieces of a complex idea to express in words, sounds, and images, in order to build shared understanding. Skilled communicators negotiate positive outcomes with customers, subordinates and supervisors through social perceptiveness, persuasion, negotiation, instructing, and service orientation.

iii) Non-Routine Problem Solving

A skilled problem-solver uses expert thinking to examine a broad span of information, recognize patterns, and narrow the information to reach a diagnosis of the problem. Moving beyond diagnosis to a solution requires knowledge of how the information is linked conceptually and involves meta cognition – the ability to reflect on whether a problem-solving strategy is working and to switch to another strategy if the current strategy is not working. It includes creativity to generate new and innovative solutions, integrating seemingly unrelated information and entertaining possibilities others may miss.

iv) Self-Management/Self-Development

Self-management skills include the ability to work remotely, in virtual teams; to work autonomously; and to be self-motivating and self-monitoring. One aspect of self-management is the willingness and ability to acquire new information and skills related to work.

v) System Thinking

The ability to understand how an entire system works, how an action, change, or malfunction in one part of the system affects the rest of the system, and adopting a “big picture” perspective on work. It includes judgment and decision-making, system analysis and system evaluation as well as abstract reasoning about how the different elements of a work process interact.

My question is, are we equipping our Science teachers with the above 21st Century skills in their training? The fact is, for our Science teachers to remain relevant in the 21st Century, they will definitely need to be equipped with the above 21st Century skills in their course of training.

“SCHOOL”, “TEACHER”, “LEARNER” AND “CURRICULUM” FOR THE 21st CENTURY

How should education be structured to meet the needs of students in this 21st Century world? How do we define “school”, “teacher”, “learner” and “curriculum”?

Schools in the 21st Century will be laced with project-based curriculum for life aimed at engaging students in addressing real world problems, important issues to humanity, and questions that matter.

This is a dramatic departure from the factory-model education of the past. It is abandonment, finally of text book-driven, teacher-centered paper and pencil schooling. It

means a new way of understanding the concept of “knowledge” and a new definition of the educated person. A new way of designing and delivering the curriculum is hence required.

The following definition for “school”, “teacher”, “learner” appropriate for the 21st Century were obtained from:

http://www.21stCenturyschools.com/what_is_21st_Century_education.htm.

- School will go from ‘buildings’ to ‘nerve centres’ with walls that are porous and transparent, connecting teachers, students and the community to the wealth of knowledge that exists in the world.
- Teacher: from primary role as a dispenser of information to orchestrator of learning and *helping out students turn information into knowledge, and knowledge into wisdom.*

N.B. The 21st Century will require knowledge generation, not just information delivery, and schools will need to create a “*culture of inquiry*”.

- Learner: In the past, a learner was a young person who went to school, spent a specified amount of time in certain courses, received passing grades and graduated. Today, we must see learners in a new context.

First We must maintain student interest by helping them see how what they are learning prepares them for life in the real world.

Second We must instill curiosity, which is fundamental to life long learning.

Third We must be flexible in how we teach.

Fourth We must excite learners to become even more resourceful so that they will continue to learn outside the formal school day.

COMPARISON OF 20th CENTURY CLASSROOM AGAINST THE 21st CENTURY CLASSROOM

	20 th CENTURY CLASSROOM	21 st CENTURY CLASSROOM
1.	Time-based	Outcome-based
2.	Focus: Memorization of discrete facts.	Focus: Students know, can do and are like after all the details are forgotten.
3.	Lesson focus on the lower level of Bloom Taxonomy-knowledge, comprehension and application.	Learning is designed on upper levels of Blooms-Synthesis, analysis and evaluation (and include lower levels as curriculum is designed down from the top).

4.	Text book driven.	Research driven.
5.	Passive learning.	Active learning.
6.	Learners work in isolation – classroom within four walls.	Learners work collaboratively with classmates and others around the world – the global classroom.
7.	Teacher-centered: teacher is center of attention and provider of information.	Student-centered: teacher is facilitator/coach.
8.	Little to no student freedom.	Great deal of student of students' freedom
9.	“Discipline problems” – educators do not trust students and vice versa. No student motivation.	No “discipline problems” – students and teachers have mutually respectful relationship as co-learners, students are highly motivated.
10.	Fragmented curriculum.	Integrated and interdisciplinary curriculum.
11.	Grades averaged.	Grades based on what was learned.
12.	Low expectations.	High expectations – “if it is not good it is not done”. We expect, and ensure, that all students succeed in learning at high levels. Some may go higher – we get out of their way to let them do that.
13.	Teacher is judge. No one else sees student work.	Self, peer and other assessment. Public audience, authentic assessments.
14.	Curriculum/school is irrelevant and meaningless to the students.	Curriculum is connected to students interest, experiences, talents and the real world.
15.	Print is the primary vehicle of learning and assessment.	Performance, projects and multiple forms of media are used for learning and assessment.
16.	Diversity in students is ignored.	Curriculum and instruction address student diversity.
17.	Literacy is the 3Rs reading, writing and Arithmetic (Math).	Multiple literacies of the 21st Century – aligned to living and working in a globalized new millennium,(7-R's- Reading, Writing, Arithmetic, Rights, Responsibilities, Research & Recreation).
18.	Factory, model, based upon the needs of	Global model, based upon the needs of a globalized, high-tech society.

	employers for the industrial age of the 19th Century Scientific Management.	
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WHAT IS 21st CENTURY CURRICULUM?

Twenty first Century curriculum has certain *critical attributes*. It is *interdisciplinary, project-based* and *research-driven*. It is connected to the community – local, state, national and global. Sometimes students are collaborating with people around the world in various projects. The curriculum incorporates *higher order thinking skills, multiple intelligences, technology and multimedia*, the multiple literacies of the 21st Century, and authentic assessments. Service learning is an important component. The classroom is expected to include the greater community. Students are self-directed and work both independently and interdependently. The curriculum and instruction are designed to challenge all students, and provides for differentiation.

The curriculum is not text book driven or fragmented, but is *thematic, project-based and integrated*. Skills and content are not taught as an end in themselves, but students learn through their research and application in their projects. Text books, if they have them, are just one of the many resources. Knowledge is not memorization of facts and figures, but is constructed through research and application, and connected to previous knowledge, personal experience, interest, talents and passions. The skills and content become relevant and needed as students require this information to complete their projects. The content and basic skills are applied within the context of the curriculum, and are not ends in themselves.

Assessment moves from regurgitation of memorized facts and disconnected processes to demonstration of understanding through application in a variety of contexts. Real-world audiences are an important part of the assessment process, as is self-assessment.

Hence there is need for Science teacher trainers, to reform teacher training curriculum to match the attributes of the 21st Century curriculum, if the graduate Science teachers are to remain relevant in this 21st Century.

TEACHER SKILLS/UNDERSTANDING REQUIRED FOR REFORM-BASED LEARNING

While there are many skills and understanding one needs to teach Science well, *four broad abilities are crucial to reform-based learning and teaching 21st Century skills.*

1. *Deep interconnected content knowledge, ability to “see” big ideas in curriculum and understand how to teach these as big ideas.*

Teacher content knowledge is related to the Science teaching strategies they use (Carlsen, 1993; Cronin-Jones, 1991; Roth and Anderson, 1999) and to student learning (Magnusson, Burke, Krajcik and Layman, 1992). Teachers with stronger content knowledge are more likely to teach in ways that help students construct knowledge, pose appropriate questions, suggest alternative explanations, and propose additional inquiries (Alonzo, 2002; Brickhouse, 1990; Cunningham, 1998; Gess-Newsome and Lederman, 1995; Lederman, 1999; Roehng and Luft, 2004; Sanders, Borko and Loekard, 1993). Inquiry Science teaching also demands that teachers have specific knowledge of how to support students in developing researchable questions, planning an investigation, collecting and interpreting data and presenting results (Gess-Newsome and Lederman, 1999; Shulman, 1986). There is extensive support for both a focus on content knowledge in general and specific forms of content knowledge that best support teaching practice (Hill, Rowan and Ball, 2005). Research indicates (Windschitl, Thompson and Braaten, 2009; Thompson, Windschitl and Braaten, 2009) that specific forms of reasoning with content knowledge are critical to reform teaching, the most important being the ability to identify fundamentally important Science ideas underlying common curriculum topics. Because the content of teaching of 21st Century skills depends so heavily upon students’ sustained engagement with complex problems, it stands to reason that teachers can only organize such high quality curricular challenges if they themselves have deep and well integrated understanding of the content and practices of Science.

2. *Ability to engage students in specialized classrooms discourses aligned with reform goals.*

In considering the knowledge and skills necessary for laboratory work, it may seem intuitive to focus on the abilities of the teacher to design and manage activities for students. Recent scholarship, however, has emphasized that meaningful learning is a product not of *activity per se*, but of sense-making discourse aimed at developing conceptual understanding and the links between theory and observable phenomena (Mortimer and Scott, 2003). In this view, learning is not accomplished through the transmission of knowledge from person to

person, but rather through an on-going process of comparing and checking one's own understandings with those that are being rehearsed on the social plane of the classroom.

In addition to using dialogue to facilitate conceptual understanding, other researchers have employed classroom discourse as a way to engage learners in the canonical practices of Science – that is, “to formulate questions about phenomena that interest them [students], to build and criticize theories, to collect, analyze and interpret data, to evaluate hypotheses through experimentation, observation, measurement, and to communicate findings” (Rosebery, Warren and Conant, 1992, p. 65). Languages in form of purposeful talk, reading and writing mediates all these activities.

This emphasis on sense-making discourse is echoed in the policy literature aimed at clarifying what it means to get students to ‘think’ in classrooms. Thompson and Zeuli (1999) state that “By “think”, we mean that students must actively try to solve problems, resolve dissonances between the way they initially understand a phenomena and new evidence that challenges their understanding, put collections of observation or facts together into patterns, make the best conjectures, and build lines of reasoning about why claims are or are not true. Such thinking is generative. It literally creates understanding in the mind of the learner”. Because complex communications are fundamental to 21st Century skills, teachers’ understanding of how language and other representations are used to create meaning in classroom contexts is crucial.

3. Understanding the full range of assessment strategies, purposes and contexts within which they should be used.

Students’ conceptual learning and sophisticated disciplinary performance are achieved in part by eliciting information from them through assessments as a means of gauging where they are in their progress toward a goal (Duschl and Gitomer, 1997), and by providing on-going targeted feedback to them (Butler, 1987; Crooks, 1988). Research also suggests that understanding is supported when learners are asked to take an active part in determining what they understand and how they came to that understanding (National Research Council, 2000). Classroom practices that aid this kind of meta-cognition include peer and self-assessment, reflection on one’s progress and determining what needs further improvement, and activities geared toward allowing students to make sense of new concepts through talk or writing, which in turn allows teachers to gather information on student understanding to guide his or her next steps (Sato, Wei, and Darling-Hammond, 2008; Palincsar and Brown, 1984; Scardemalia, Bereiter and Steinbach, 1984; White and Frederickson, 1998). All these pedagogical skills support the 21st Century skills of student *self-regulation, self-monitoring and meta cognition*.

4. *Understanding how to learn from one's practice*

There is a growing consensus within the field of teacher education that equipping novices with a repertoire of competent classroom practices is no longer considered an adequate professional preparation. Because initial training can only begin new educators on the long trajectory towards expert teaching, it is equally important that these programmes help novices develop strategies and habits of mind to learn from practice as they enter the profession; laying the foundations for career long development (Darling-Hammond and McLaughlin, 1995; Fullan, 1993; Hiebert, Morris, Berk and Jansen, 2007; Lieberman and Miller, 2001; Nemser, 1983). Broadly speaking, learning from teaching is best achieved through systematic cycles of inquiry into practice and using evidence generated by these inquiries to re-shape instruction (Grossman and McDonald, 2008; Little, 2007). Some of the most promising of these types of inquiries draw upon records of practice from the participating teachers – in particular, samples of student work (e.g. Borko, Jacobs, Eiteljorg and Pittman, 2008; Cobb, Dean and Zhao, 2006; Jacobs, Franke, Carpenter, Levi, and Battey, 2007; Kazemi and Franke, 2004; Lewis, Perry and Murata, 2006; Sherin and Han, 2004). Learning from one's practice should begin in teacher preparation and extend into one's professional career. Because the teaching of 21st century skills is about *how* and *what* students learn, the regular examination of artifacts of student thinking or discourse may be the only way for teachers to ultimately judge and refine their own practice towards these ends.

THE TRAINING STRATEGIES REQUIRED TO TRAIN RELEVANT SCIENCE TEACHERS IN THIS 21st CENTURY

Constructivism in Teacher Education

It has been argued that the constructivist approach to teaching and learning should also be carried over into the realm of teacher education (Coble & Koballa Jr, 1996). The reason is that teacher education students construct knowledge through their own intellectual activities, and like the children who they will be teaching, are also learners and social beings who need encouragement and support in order to develop. Research carried out in methods courses during the late 1980s and early 1990s indicated the constructivist approaches were effective in helping pre-service teachers construct their own knowledge (Coble & Koballa Jr, 1996). Studies have shown for example, that the Learning Cycle approach can help pre-service elementary teachers develop a better perspective on Mathematics education (Grouws & Schultz, 1996).

An implication for teacher education programmes is that students must understand the need for restructuring children's existing knowledge, so they should learn as much as possible about the nature of children's prior experiences and the types of preconceptions which have grown from these experiences, and they should be able to design instruction based on an awareness of students' prior knowledge. There is therefore a need to provide prospective Science teachers with a model for constructivist learning situations and to help them develop the practical knowledge of expert teachers (Anderson & Mitchener, 1994). This implies that the types of interaction and communication expected of constructivist teachers should also be modeled by university instructors. For example, one study in a Mathematics methods course concluded that:

[Teacher educators] need to practice what they preach. In order for pre-service teachers to teach in a way that they may not have experienced before, teacher educators need to help them build an image of such teaching by modeling it in their methods and Mathematics courses.

Taylor (2000, p. 254).

However, reviewers have cautioned that much more remains to be learnt about constructivist teaching, and many things are still unknown about how to educate teachers to successfully teach in this manner (Anderson & Mitchener, 1994). Reviewers have concluded that:

The big advances in understanding about student learning have not been matched by equivalent advances in understanding about teaching it seems obvious that research in Science teacher education needs to move in this direction as well (i.e. researching how to teach teachers to teach in a constructivist manner).

Anderson & Mitchener (1994, p. 37).

Another issue is that some educators have suggested that if the teacher is a facilitator of learning, then there is need for him/her to have a strong subject matter knowledge. However, Schuk (1999) supported the view that:

People who are knowledgeable about a subject know more than just facts and ideas; they have also found the connections between these ideas and further understand how to approach new problems and produce new ideas within the subject.

Schuk (1999, p. 111)

Therefore, subject matter knowledge should not be downgraded in teacher education programmes, since extensive subject matter knowledge is required to present content in an

orderly, coherent and connected way. For example, Manouchehri and Goodman (2000) found that teachers' mathematical knowledge was the greatest influence on how they planned their instruction, interacted with students and used the text book in their classes.

A further issue is that implementation of the constructivist approach will require widespread change in certain ideas and practices. For example, most Mathematics students have had a traditional mathematical background. If they are to be able to help school students obtain more authentic and productive notions about Mathematics, then their own ideas must change (Lappan, 2000). This position has been supported by Grouws and Schultz (1996) who stated that:

Teacher educators must overcome their students' lifetime of experience in traditional classrooms in a culture that holds as valid a number of assumptions about Mathematics and Mathematics teaching. These assumptions are that doing Mathematics means following the rules laid down by the teacher; knowing Mathematics means remembering and applying the correct rule when the teacher asks a question; mathematical truth is determined when the answer is ratified by the teacher; ... unless teacher educators realize that making an impact on prospective teachers requires powerful interventions, it is unlikely that teacher educators will be able to alter the continuity of traditional mathematical teaching and learning.

Grouws & Schultz (1996, p. 449).

The sections below outlines some specific techniques which have been informed by the constructivist approach and which are directly relevant to the teaching of Science, Mathematics and Technology.

Specific Techniques which have been informed by the Constructivist Approach and which are directly relevant to the teaching of Science, Mathematics and Technology

1. Cooperative Learning

Peer interaction in small group work has become an important area of research in education (Brodie, 2000) and the opportunities for dialogue found in these cooperative learning situations are thought to provide a meaningful context for students to connect their new experiences to prior knowledge. Studies of cooperative learning in Science have indicated that:

Group dialogue permits students to present their notions about the world and have them challenged. The challenges can lead to cognitive development as individuals realign their

thinking as a result of having participated in the dialogue. Cooperative group work also serves to build peer relationships that foster learning.

Coble & Koballa Jr (1996, p. 466)

Similarly, small group interaction is seen to provide support for the construction of mathematical meaning by pupils, since it allows more time and space for pupil talk and activity (Brodie, 2000, p. 9).

Cooperative learning can also be an effective strategy in teacher education courses. One study which explored the group work model for Mathematics teacher education found that:

By working in groups, sharing ideas, and making and testing conjectures, prospective teachers gain confidence in their own ability to do Mathematics and develop a variety of useful problem solving strategies.

Spungin (1996, p. 73)

Similarly, studies have indicated that social interaction is necessary if learners are to be exposed to new ideas about Science teaching and learning and to coordinate their own ideas with those of others (Coble & Koballa Jr, 1996). A review of previous studies (Springer, Stanne & Donovan, 1999) demonstrated that various forms of small group learning were effective in promoting greater academic achievement, more favourable attitudes towards learning and increased persistence through courses and programmes. Cooperative learning has been shown to promote student interaction and communication in Science methods classes and to positively affect students' attitudes towards Science. However, Brodie (2000) pointed out that working with small groups is not unproblematic because pupils might struggle to communicate and learn from each other, and might reinforce rather than challenge mathematical misconceptions' (Ibid, p. 9) so teacher intervention is therefore central to the success of small group work.

2. Problem Solving

Problem solving has become the central activity in reform curricula in Mathematics (Lappan, 2000) and technology (Lewis, Petrina & Hill, 1998) because of its ability to facilitate students' construction of meaning. Previous studies in traditional Mathematics classes for example, have shown that much of the cognition is 'situated' in the classroom and is of limited use to students in the real world (Boaler, 1999). Mathematics curricula have therefore moved towards more problem-centered or inquiry oriented bases, and the application of Mathematics to real life situations is now firmly established in programmes (Lappan, 2000).

The implication is that teacher education programmes should allow ‘opportunities to actually be involved in doing Mathematics through interesting problem situations that embody important mathematical ideas’ (Lappan, 2000, p. 323). Posing mathematical tasks in this way creates new classroom roles for instructors. This impacts teacher education programmes (Lappan, 2000) because if learners are to have opportunities to explore rich mathematical problems, then the instructor has to be able to:

- a) Engage learners in problems in context;
- b) Stimulate learners’ thinking while their exploration is proceeding;
- c) Help learners to make Mathematics more explicit during group and whole class interactions; and
- d) Create a classroom environment in which all learners feel empowered to learn Mathematics.

In response to this need, some problem solving strategies have been developed. For example, one approach (Lewis, Petrina & Hill, 1998) for Mathematics problems is to:

- a) Understand the problem;
- b) Devise a plan;
- c) Carry out the plan; and
- d) Check the results and reflect.

However, such strategies are not always seen as desirable, and it has been argued that a constructivist perspective would suggest that ‘students must arrive at their own problem solving methods and strategies; they cannot rely on a communal strategy’ (Ibid, p. 10).

3. Problem-Based Learning (PBL)

Problem based learning is a constructivist approach, which combines problem solving and group work. It emphasizes the use of real life problems or scenarios as a stimulus for learning. The students are divided into groups of up to ten and meet (say) twice a week under the guidance of a tutor (Berkel & Schmidt, 2000). The process of PBL firstly involves presenting the students with a scenario, case, or vignette, which relates to real life, as a departure point for the learning process. The students then brainstorm themes and questions – this process is designed to allow them to clarify their preconceptions about the topic and to identify their learning needs (Dahlgren & Oberg, 2001). The advantages of this type of learning are that it is authentic (in that the problems are taken from real practice) and it involves cooperative learning. Studies have shown that PBL can be motivating for students and can develop their problem solving abilities (Berkel & Schmidt, 2000).

Although PBL has been used in medical and other tertiary courses, it has not been widely implemented in teacher education (Kiggins, 2001). However, Peterson and Treagust (1998) trailed a PBL approach in a primary science unit. The students worked in groups of three or four on each problem for a six-week period. The study reported that the pre-service teachers had developed their knowledge base and pedagogical reasoning.

4. Hands-on Inquiry

The shift towards a constructivist theory of learning has placed added emphasis on inquiry as a learning activity. Inquiry involves making observations, posing questions, obtaining information from books and other sources to establish what is known, planning investigations, using tools to gather, analyze and interpret data, proposing answers, explanations and predictions, and communicate the results (Keys & Kennedy, 1999).

Twyford and Burden (2000) have, in a UK study, shown how design and technology, with its creative components, can have the power to effectively engage students in learning. They argued that hands-on creation or experiment is a powerful tool that technology teachers can employ in the classroom even at primary level. The emphasis in Australia on engagement of students in hands-on tasks reflects this approach (Ginns, McRobbie & Stein, 1999).

The inquiry approach also holds promise for teacher education programmes. Authors of one study have pointed out that:

Teachers will be required to teach Science in ways that develop interest and positive dispositions in students. Student teachers therefore need to experience effective and fun science education programmes that encourage them to value science and the teaching of science.

Watters & Ginns (2000, p. 317)

McLoughlin and Dana (1999) found that an activity-based approach in a primary science method class helped students to better understand the content material and gain confidence to teach Science. The students reported that they were motivated by their own scientific explorations.

However, Keys and Kennedy (1999) argued that a lot needs to be known about how teachers can best implement inquiry in their classrooms. They identified problems such as lack of equipment, safety issues, management difficulties and the need to teach the 'basics' as being barriers to widespread teaching by inquiry. Another problem was that teachers felt frustrated when they could not just tell the students the answer.

5. Integration

Integration involves making links between different learning areas by studying the ways that each is relevant to a particular issue or theme. Burlbaw et al (2001) saw compartmentalization of knowledge as a concern in the sciences, where it has also been noted that narrowing or specialization of knowledge may be accelerating as scientific knowledge continues to grow at a rapid rate. However, by integrating between learning areas, it is impossible for learners to make important connections across disciplines. This involves a recognition that natural connections exist across subject matter areas, and that students' real life experiences do not reflect the sort of artificial barriers created by different subject areas.

Integration has been recognized as an important way to help students especially middle school students to make connections across the curriculum, develop situated knowledge and a broader understanding of concepts (James et al, 2000). Teachers working in integrated Mathematics and Science programmes have reported that their students have 'expanded their knowledge and skill in problem solving, teamwork, technical expertise, and creativity' (Ibid, p. 27). Curriculum integration and the learning of higher order technical and academic skills are also becoming more important in technology education (Herschbach, 1998) and one study of the classroom implementation of technology (Kirkwood, 2000) indicated that teachers had successfully integrated it with other curriculum areas.

Integration has also become an important aspect of teacher education programmes, as it is recognized that it will help pre-service teachers to avoid compartmentalizing the disciplines, and carrying this forward to the classroom. For example, in one study (McNaughton et al, 2000) teacher educators integrated Mathematics education with other education studies to produce a trans-disciplinary curriculum which was intended to help students see the connections between what they were learning and its relevance to real life. The researchers concluded that collaboration by University instructors as they teach together can have a positive impact on the experience of pre-service teachers. Integration of appropriate technology with Science and Mathematics in teacher education programmes is another aspect which is currently topical (Niess, 2001).

However, despite the popularity of integration, it has been pointed out that:

Few empirical studies exist to support the notion that an integrated curriculum is any better than a well-designed traditional curriculum. Some educators question integration across the curriculum, because in the effort to integrate topics, Science and Mathematics content becomes superficial and trivial.

Czerniak et al (1999, p. 42)

While studies have shown that pre-service primary teachers can have positive attitudes towards integration in their programmes, these same people can also have a lack of subject matter knowledge in Mathematics and Science, which means that their connections between disciplines may be superficial at most (Pang & Good, 2000). The successful integration of Mathematics and Science 'is one of the most daunting tasks educators face' (Ibid, p. 78).

6. Use of Computer Technology

Computer technology has been increasingly recognized as important in facilitating teaching and learning in Mathematics (Chinnappan & Thomas, 2000). This has involved an increase in the use of graphics calculators and computers, as well as the use of computers to 'access and evaluate information that is available on the Internet as well as to create new information that can be used in the Mathematics classroom' (Ibid, p. 173).

The use of new technologies provided opportunities and promise in Australian Mathematics teacher education in the same way that it did for the learning of Mathematics in the classroom (Arnold, 1996). The use of interactive multimedia resources for the development of both knowledge and practical skills of pre-service teachers has been one focus (Herrington et al, 1998).

7. Science-Technology Society

One development that has highlighted links between Science and society is the Science-Technology-Society approach, which emphasizes the coupling of Science with Technology and their relationship to issues in society (Anderson & Mitchener, 1994). One of the advantages of this approach is that it focuses on the relevance of Science in students' everyday lives, by integrating it with contemporary issues.

Relating Science and Mathematics to everyday life is one of the characteristics of innovative programmes for primary education students (McDevitt et al, 1999) and this approach has appeared in some teacher education programmes. For example, Burlbaw et al (2001) reported a project, in which pre-service Science teachers at Texas A & M University were required to develop an STS project in concert with social science student teachers. They concluded that the teamwork between disciplines helped to develop a broader world view amongst the Science education students.

However, many teacher educators have given STS a low priority (Anderson & Mitchener, 1994). The difficulties in incorporating STS issues into teacher education courses have been described, including:

... [the] often resistance of prospective teachers toward accepting multicultural STS issues as being a legitimate component of courses focusing on Science teaching methods ... and the general perception by teachers at both levels that the exploration of social and political issues have a limited role (if any) in Science teaching and learning.

Sweeney (2001, p. 1)

CONCLUSION

In this paper, I have tried to describe the 21st Century – skills, curriculum, school, teacher and learner. I have also compared the 20th Century against 21st century classroom. I outlined the teacher skills/understanding required for reform-based learning which includes:

- Deep interconnected content knowledge, ability to “see” big ideas in curriculum and understand how to teach these as big ideas.
- Ability to engage students in specialized classroom discourses aligned with reform goals.
- Understanding the full range of assessment strategies, purposes and contexts within which they should be used.
- Understanding how to learn from one’s practice.

I hence suggested the adaptation of constructivism in teacher education, if we are to train relevant Science educators for this 21st Century.

The techniques which have been informed by the constructivist approach and which are directly relevant to teaching of Science, Mathematics and Technology include:

- Cooperative learning
- Problem solving
- Problem-based learning (PBL)
- Hands on inquiry
- Integration
- Use of computer technology
- Science-technology Society

Hence, I suggest that, there is need for teacher trainers/educators to adopt the above techniques in their training institutions, if we are to train relevant Science educators/teachers for this 21st Century. Since it has been realized that, “teachers teach the way they were taught”, and also “action speaks louder than words”. There is no way we can continue utilizing the lecture method of content delivery, but we expect our teachers to teach with innovative teaching methods in their classroom. I think and hope that, if the above constructivism approach is adopted in all Teacher Training Institutions, we will be able to prepare relevant Science educators/teachers for this 21st Century.

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REVITALISING HIGHER EDUCATION FOR AFRICA'S DEVELOPMENT

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OUTLINE

1. The development vision
2. Centrality of Human Resource Development (and therefore higher education)
3. Proposed solutions: revitalisation of higher education (the Pan African University)
4. Other continental programmes

1. The Development Vision

Regular formal gatherings of the Heads of State and Government of the African Union, i.e. the AU summits, have made important landmark decisions that are helping to advance the development and integration agenda of the continent. The decisions address Africa's specific needs with a view of ending aid dependency over time. There is an acceptance of the fact that the bulk of Africa's numerous common challenges can best be tackled by collective efforts. These challenges include the marginalization of the continent in the international arena, weak infrastructure, weak performance in macroeconomic policies as well as regional commons such as the environment and natural resources utilisation

In spite of the challenges, the African Union retains a lofty vision of a peaceful, integrated prosperous Africa driven by its own citizens to take up its rightful place in the global arena. This vision is clearly anchored in Africa's human resources, as one of the major areas of capital asset in which Africa excels with its burgeoning youthful population.

What many Africans aspire for is that the 53 fragmented economies on the continent become integrated into one strong, robust, diversified and resilient economy, supported by a first-class trans-boundary infrastructure; highly educated, flexible and mobile workforce; financial capital that is highly mobile; sound health facilities; first class research and innovation systems.

A distinctive demonstration of the recognition by Africa's highest political level, of the value of higher education for Africa's development was in the declaration of the Second Decade of

Education for Africa in 2006, with a Plan of Action that prominently includes Higher Education as a special area of focus.

The Second Decade of Education plan of action is set in a period when Africa's higher education is segmented and under-funded; when the link between higher education and research on one hand and social and economic development on the other hand seems rather tenuous; and when at the political level it was difficult to justify increased expenditure, given the contrary advice given to Africa by leading international development agencies and donors; and in the face of a multitude of basic needs challenges.

2. Centrality of Human Resource Development

A key pillar for social and economic development, including industrialisation is anchored in human resource development, especially through a robust higher education and research facilities, and the development and retention of high level intellectual capacity. Nurturing this human asset, building it up, establishing enabling policy structures for continuing development and retention; building supportive frameworks to engender critical thinking, creativity and innovation- those are our drivers in the education sector, particularly higher education. No country has advanced without large numbers of university graduates. Indeed there's a particularly strong correlation between university enrolment and GDP.

Africa has a burgeoning youthful population- with over 60% under 35 years of age. Often, Africa's population growth is cited within the context of poverty and inability to meet Africa's social and economic needs. However, this is the very asset that can position Africa as an economic base of great potential, if strategically developed.

MDGs define basic minimum levels of development. For Africa, the biggest hindrance to achieving MDGs is human resources: scientists, engineers, doctors, nurses and teachers. And we are looking beyond MDGs. The solution lies in developing, attracting and retaining this vast resource.

In recognition of this, African countries have exerted much effort in improving access to education at all levels and in all forms. Enrolment in tertiary education is rapidly growing in Africa, with governments investing in ambitious expansion programmes. Private sector is providing increasing opportunities for market driven higher education services. Distance education continues to expand rapidly across Africa. Member States increasingly appreciate the value of collective visioning in higher education, as well as intra-African collaboration and mutual support towards a common African vision. Recognition of Diaspora as the sixth African region is also proving to be an incentive for brain circulation or brain gain, where

Africa is set to begin to reap some higher order benefit from its hitherto lost intellectual resource.

AU Member States have taken collective decisions to increase investment in education to at least 25% of government expenditure, increase proportionate expenditure on higher education, and ensure at least 1% of GDP invested in research. Recently, there has been a call for earmarking 10% of the national budgets for Agriculture to be allocated to higher education in agriculture and food security.

But still the challenges persist

In spite of high increase in enrolment in tertiary education, access is by far the lowest in the world, at 2 to 6%; against a world average of 27%. To meet current human resource needs, Africa needs to at least double this to 12% access.

Africa spends billions of dollars annually to recruit and pay expatriates to work in Africa, while hundreds of thousands of African professionals now work outside Africa. It is documented that some African countries have more doctors, nurses and professors abroad in developed countries, than at home. Indeed, the biggest threat to attaining Millennium Development Goals is to do with the inadequacy of qualified professionals, particularly in provision of health care and infrastructure development.

At the same time unemployment rates are high and increasing in most African countries, with growing restlessness among the youth. In contrast, there are still many unfilled vacancies in most essential services. Just to mention one- Africa needs over 2 million teachers in order to achieve universal primary and secondary education. There seems to be a mismatch between supply of intellectual capacity, knowledge and skill on one hand, and the demand in the demand in industry and society as a whole

Clearly, we are producing graduates who are attractive to the rest of the world. This means the quality of education in Africa is not all bad! Countries out there have successful programmes to attract Africa's intellectual talent.

3. Proposed Intervention: Africa-led solutions to African Challenges

This recognition places Africa is at a moment of opportunity. As long as Africa can clearly define its challenges, it is able to develop home-grown solutions, with new arrangements for intra-African sharing and pooling of resources towards a common vision.

Business as usual is not going to get us to where we want to be, where we ought to be: prosperous, peaceful and reclaiming Africa's place in the global knowledge community. I

know I am preaching to the converted when I say that we can only be what we are educated to be. Thus we must deliberately educate for peace, for prosperity, for industrialisation, for restoring an African pride in our youth, for creativity and innovation.

To what extent are our programmes for education and research responsive to the African development vision?

In light of the foregoing, Higher education and research in Africa need to be repositioned to contribute meaningfully to Africa's prosperity, peace and integration, anchored in the collective vision of the African Union. It must be challenged to produce African-centered knowledge with global appeal and reach, which, together with carefully selected knowledge developed across the world, should form the basis of education at all levels and in all fields in Africa. It must be challenged to produce graduates of highest level and quality; skilled and knowledgeable not just in technical and scientific know-how, but also in appropriate attitudes that compel them to contribute to Africa's human resource base rather than join Africa's brain drain. It must be challenged further to derive new definitions for ourselves and by ourselves, and for global concepts in the spheres of education and knowledge production, industrialisation, environmental management, politics, and economic development.

This repositioning must find expression in revamped curricula and research programmes. It must influence all we do among ourselves and with external partners.

There is need for enhanced access, relevance and quality in higher education and research in areas key to Africa's development. However, not every country is able to develop world class institutions at this level, in every important area.

For these reasons, the Commission of the African Union proposes the following approaches:

1. Enhanced collaboration and networking among member states and institutions in higher education and research
2. Enhanced differentiation and specialisation to optimise resource use
3. Focus on science and technology
4. Enhanced links between Higher Education and Research on one hand, and the private and public sector, to ensure relevance

The Pan African University

These approaches have culminated in the Pan African University, (PAU) project. The PAU aims to promote Science and Technology on the continent and link scientific research to economic development. It will enhance universities triple mission of education and training; research; and public service and assistance to the African community.

Furthermore, a crucial contribution of the PAU will be greater collaboration and mobility of scientists and students and staff amongst African universities. In addition, this collaboration creates a platform for collective formulation of policy inputs nationally, regionally and continentally; and provides a robust platform for Africa's contribution to the global knowledge economy.

The mission of the PAU is to exemplify excellence in African higher education in order to position African Higher Education as a driver for social and economic development, and attainment of Africa's collective vision- through the following functions:

1. Teaching and research at the post-graduate level in key areas
2. Developing and retaining world-class human resources in areas essential to Africa's development;
3. Stimulating fundamental and applied research of the highest quality in areas critical to African technical, economic and social development;
4. Supporting institutional capacity-building to enhance global competitiveness and African relevance of Africa's Higher education
5. Accelerating the exchange of research results within networks
6. Creating a distinctive African higher education space, able to attract the best resources globally, including from the African Diaspora
7. Enhancing Africa's contribution to the global knowledge economy

As such, the PAU vision must be in line with and supportive of the vision of the African Union, and take cognisance of relevant global developments and opportunities. This vision is indeed informing the frameworks for institutional planning, curriculum development, research and innovation and other activities of the PAU.

We are currently working on PAU curricula

OTHER RELEVANT CONTINENTAL PROGRAMMES

There is need for regional and continental systems for quality assurance and accreditation to support these approaches. There is therefore the African Quality Rating Mechanism, which will help to foster a culture of continuous quality improvement, and promote self assessment and positive peer pressure among African institutions. Current global rankings have not been able to encourage quality, as they are not designed for this purpose.

The Commission of the African Union also runs the Mwalimu Nyerere Scheme for Scholarship and Academic mobility. The scheme seeks to develop and retain young African intellectual capital, while also strengthening intra-African collaboration.

The situation of teacher provision in Africa provides opportunity for intra-African teacher mobility. A continental protocol to provide a supportive framework for this has been developed.

Finally a word to development and academic partners. WE appreciate the support Africa is receiving from local and international partners. It is our hope that partners begin to align their support activities to programmes that have been generated by Africans, based on articulated vision and priorities. This way there will be cumulative positive effect, as opposed to the traditional situation where we in our institutions respond to partner agendas in the hope that our needs will eventually somehow be met.

A PATH ANALYTIC STUDY OF STUDENT AND SCHOOL PERFORMANCE INDICATOR AS DETERMINANTS OF STUDENT MIDWIVES' PERFORMANCE IN ANATOMY AND PHYSIOLOGY.

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ABSTRACT

The study constructed and tested a seven variable model for providing a causal explanation of student midwives' achievement in Anatomy and Physiology in terms of student performance indicators of entry qualifications, academic self-concept and academic support seeking and school performance indicators of teacher quality, school type and teacher-student ratio.

The study adopted a non-experimental research design using survey type. The population was made up of 559 student midwives and 73 midwife educators in Nigeria. Four sets of instruments were used; these were Teacher Quality Questionnaire (TQQ), Student Midwives' Academic self concept Questionnaire (SMASCQ), Teachers' Perception of Student Midwives' Academic Support-Seeking Questionnaire (TPSMASQ) and Achievement Test in Anatomy and Physiology.

The result showed that only three (3) variables of School Type, Teacher Quality and Academic Self Concept had direct causal influence and were significant in determining student midwives' achievement in Anatomy and Physiology. Recommendations were made based on the findings.

Key Words: Student Midwives, Performance Indicators, Anatomy and Physiology

Background

The role of the midwives in recent midwifery practice is to take care of normal pregnancy, labour and after delivery. Midwives provide high proportion of the intra-partum care for women with pregnancy complication whose care is directly managed by an obstetrician. It

is essential that the care provided by midwives reflect an understanding of the risks involved, the knowledge and the experience needed to manage them. Skills required in managing clients are taught during a midwife's training. The skills are based on the students' knowledge of Anatomy and Physiology and the midwife is expected to apply or translate that knowledge into practice, hence the link between theory and practice needs to be established.

Performance indicator is the cornerstone of schools' accountability. In school programme, accountability is essential for the operation of the school (i.e. school board, administrators, and teachers). The school should be held accountable (answerable) for the learning and development of the students.

Literature Review

Lashway (2001) states that performance indicators (PI) do not only satisfy the demands of accountability, but also serve as a tool for school improvement. Indicators are either good or bad predictors of students' academic achievement at lower and higher levels of learning. Indicators such as student entry qualification, student academic support seeking, academic self concept, teacher student ratio, teacher qualifications and school type need to be focused on because the information obtained can help school interpret ambiguous statistics that comes from test scores and other outcome measures. It was found by Ofori and Charlton (2002) that good entry qualifications are not necessarily good indicators of performance and that academic support-seeking is a better indicator, accounting for a considerable proportion of the variance in student performance. Students are expected to gather ideas from experience and observation (inductive learning), as well as to test or apply ideas developed as theory (deductive learning). Learning is therefore, not one process, but many related processes, and each requires one to think in different ways; for example, learning to reflect, involves emotional work (Gelliffe, 1996). Learning requires a commitment not only to gain new knowledge, but to think differently.

Since learning can be achieved in a multifaceted way, it's been found that learning takes place also through academic support seeking. So what does academic support seeking involve? It is consultation of others in an educational set up. The consultation of others in education is associated with wisdom and experience. Effective academic support programme can capitalize on the power of peers. The power of peers for promoting student learning is highlighted by Mckeachie, Pintrich, Lim, and Smith (1986) who concluded after an extensive review of higher education research on teaching and learning that: "the best answer to the question of what is the most effective method of teaching is that it depends

on the goal, the student, the content and the teachers. But the best answer is students teaching other students”.

Self concept, a psychological construct which refers to cluster of ideas and attitudes an individual holds about self, is an important indicator of what goes on in student learning and academic achievement. It involves all the ways one uses to describe self, and the evaluation of self. Self concept has been defined in different ways (Pascarella & Terenzini 1991 as cited by Berger and Milem 2002) describes self concept as academic ability, achievement orientation, and psychosocial wellness. According to Berger and Milem (2002), academic ability describes students’ beliefs about their ability to perform a variety of tasks that are commonly used to assess their academic abilities, thus the academic description is how students view themselves with regards to the core tasks that are asked of them in the classroom. With respect to this conceptualization many studies (e.g. Haittie 1992, Marsh 1987) have supported the hierarchical and multifaceted model of self-concept developed by Shavelson, Hubner and Stanton (1976).

Another factor which significantly affects performance is teacher –student ratio, measured by the number of teachers to students in a school. In other words teacher-student ratio can be how large or small a school is in terms of overall resources including the number of teachers. Murphy (1998) states that pupil-teacher ratio is typically lower than average class size but often used as an appropriation. Mitchell (1999) is of the view that lowered pupil-teacher ratio contribute to higher achievement.

The performance of the different school types is an extremely important issue, as the main educational problem is not one of coverage but rather of quality, and how this relates to individual chances of gaining access to higher education (Mizala & Romaguera, 1999). It is important to analyze students’ academic performance in the three core courses of midwifery between the different school types as this study did; first because it provides evidence of the differences in educational quality that exist in society because effective education is a vehicle for social mobility, second, in a school system based on choice, it is important to have alternatives that offer education of at least the same quality for midwifery as a profession.

Teacher quality has been variously understood and ill – defined. Teacher quality is synonymous with personal traits like moral character and intellectual curiosity. Attributes such as teacher subject specialty, educational qualification, certification type, years of teaching experience or general academic proficiency measured by standardization test scores or the selectivity of the college from which teachers graduated, are often used as proxies for teacher quality. There has been argument over the years regarding which of

these attributes are important and the extent of their relationship to teacher quality. Studies on attributes of teacher quality have reached very different conclusions (Greenwald, Hedges and Laine, 1996); Hanushek, 1986; 1997; Hedges, Laine and Greenwald, 1994; Laine, Greenwald and Hedges, 1995). These authors found that the results are startlingly consistent in finding no evidence that teacher education, or teachers' years of experience have an expected positive effect on student achievement. Contrary to this, Greenwald et al (1996) conclude that variables like teacher academic ability, teacher education, and teacher experience show very strong relations with student achievement.

Anatomy and Physiology is a core Midwifery Course. The structure and physiological indices of how the body functions are used to explain pathological processes that may occur. The role of the midwife in the identification of anatomical landmarks in the mechanism of child birth is important. Anatomy and Physiology is a foundation, a pre requisite and a compulsory course in Midwifery. It is on this course that the act and science of midwifery is based.

Statement of the Problem

Many studies have examined the causes of maternal mortality and morbidity without recourse to the student midwives' achievement in Anatomy and Physiology, a core midwifery course and a foundation for other core Midwifery courses such as Normal Midwifery and Complicated Midwifery. However, it was also observed by the researcher that there have been many studies on students' achievement in other Nursing and Midwifery programmes but non focused on student midwives' achievement in Anatomy and Physiology. This study therefore examined critically the performance indicators of student midwives' achievements in Anatomy and Physiology by constructing and testing a seven variable model for providing an explanation of student midwives' achievement in Anatomy and Physiology.

Research Questions.

1. What is the most meaningful causal model for providing an explanation of the performance of student in Anatomy and Physiology?
2. What are the (i) directions (ii) estimates of the strengths of causation (path coefficients) of the variables in the model?
3. What are the (i) direct (ii) indirect effects on the students' achievement in Anatomy and Physiology?
4. What proportion(%) of the total effects is (i) Direct? (ii)Indirect?

METHODOLOGY

This is a non-experimental research which considered the variables of school type and teacher quality as exogenous variables on its path analytic attempt of factors that determine student midwives' performance in Anatomy and Physiology. The endogenous variables considered are teacher - student ratio, students' entry qualification, academic self concept and academic support seeking.

Population and Sample

All final year student midwives in the schools of midwifery in Nigeria were chosen because of their broad knowledge in the subject of focus for the study, as well as their teachers constitute the population for this study.

The sample for the study was chosen from five zones of the Nursing and Midwifery Council of Nigeria, namely Abuja, Enugu, Bauchi, Kaduna and Lagos zones. The Lagos zone was sampled because it is the largest of the five zones consisting of eleven (11) states and thirty one schools of Midwifery that are either owned by the Federal Government, State Government, Missions or individual. The schools run either basic or post basic type of Midwifery programme.

From among the eleven (11) constituent states of the zone, eight (8) were purposively sampled since they are the states that are before the River Niger. The only school in Ondo State was not included because the students were not preparing for the final qualifying examination.

The sampled schools and the states where they are domiciled are shown in Table 1.

Table 1: Sampled Schools for the Study.

States	No. of Schools in Each States	School Type	Chosen Schools	Type of Midwifery Programme	No .of Schools Chosen
Lagos	3	2 Federal 1 State	2Federal	P B M P B M	2
Oyo	5	1 Federal 1 State 3 Missions	1 Federal 1 State 3 Missions	P B M P B M P B M	5
Osun	2	1 Federal 1 State	1 Federal 1 State	P B M P B M	2
Ogun	2	2 State	1State	P B M	1
Edo	5	1 Federal 1 State	1 Private 1 State	BM B M	4

		2 Missions 1 Private	2 Missions	B M B M	
Delta	2	2 State	2 States	PB M	2
Ekiti	1	1 State	1State	PBM	1
Kwara	1	1State	1State	PBM	1
8States	21 Schools	5 Federal 10 State 5 Mission 1 Private	4 Federal 8 State 5 Mission 1 Private	4 P B M 1B M & 7 PBM 2 B M& 3PBM 1 B M	18 schools 14PBM & 4 BM

Key: PBM----- Post Basic Midwifery BM----- Basic Midwifery.

INSTRUMENTATION

The instruments for the collection of data are: Teachers' Perception of Student Midwives Academic Support-Seeking Questionnaire (TPSMASQ), Student Midwives Academic Self Concept of Anatomy and Physiology (SMASCAP), Teacher Quality Questionnaire on Anatomy and Physiology (TQQAP) and Achievement Test in Anatomy and Physiology (ATAP). Each instrument's reliability apart from the achievement test was statistically determined using Cronbach Alpha and was 0.74, 0.84, 0.8 respectively. The reliability of the Achievement Test in Anatomy and Physiology using KR 20 formula was 0.79

School Records

Analysis of records in the school on students' grades in SSSCE, school type, number of students in the school, number of lecturers (including guest lecturers) was obtained from available records in the schools.

DATA COLLECTION PROCEDURE

The research instruments were administered directly on the students and the teachers in the 18 selected schools after fulfilling ethical procedures. Data collection lasted six weeks.

Data Analysis

The data collected were analyzed using multiple regressions and path analysis. A total of six (6) backward regression analyses was run using SPSS computer programme to obtain the path coefficients of the hypothesized model.

The researcher's decision for ordering the variables are based on research literature, formal and informal theories, personal observations, experiences with the phenomenon of interest,

expert opinions, common sense and logic (Tate, 1992). Therefore, the variables in this study were ordered on the above premises.

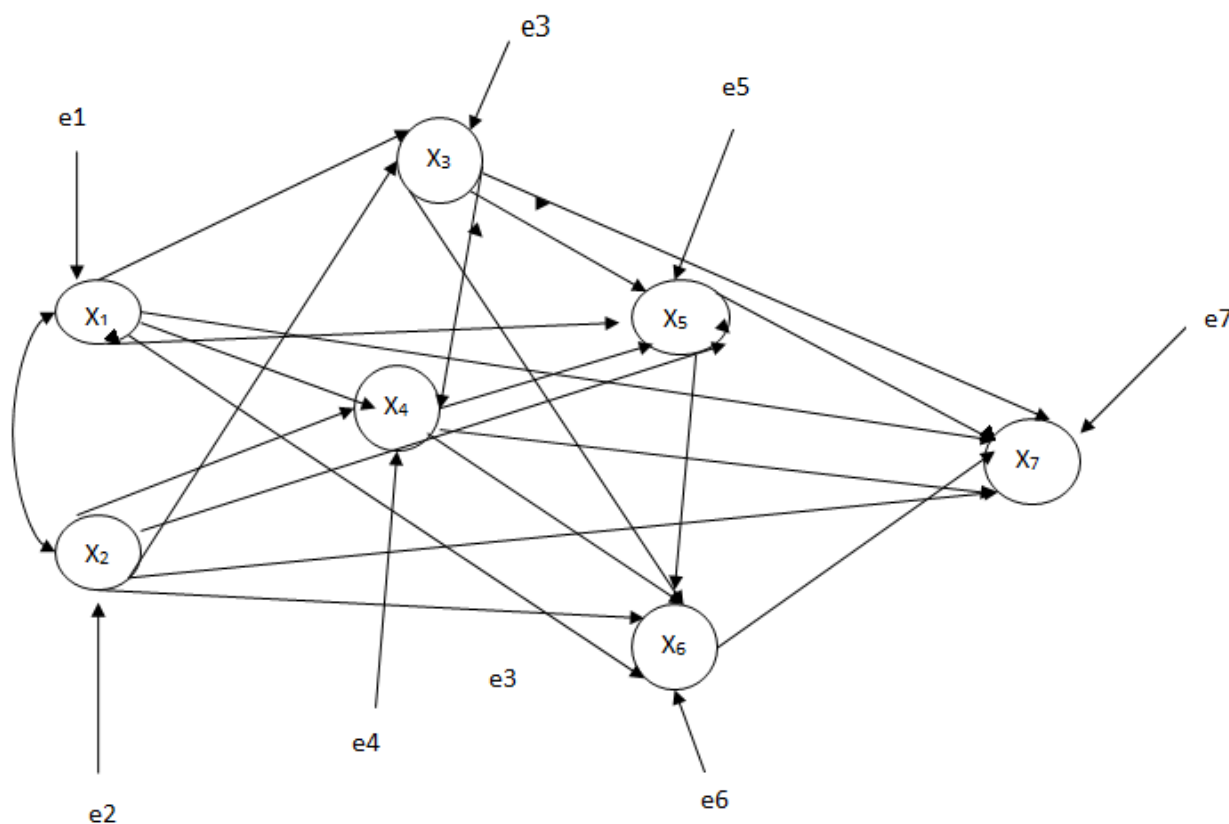


Figure 1. Hypothesized Causal Model of the Seven Variable Systems.

X₁=School type X₂= Teacher quality
 X₃=Entry qualification X₄= Teacher student ratio
 X₅= Academic self concept X₆= Academic support seeking
 X₇=Achievement in Anatomy and Physiology

RESULTS

RESEARCH QUESTION 1

What is the most meaningful causal model for providing an explanation of the performance of student midwives in Anatomy and Physiology?

Results

The most meaningful causal model that involves student variables, school variables and students, achievement in Anatomy and Physiology is shown in Figure which was derived

from trimming the hypothesized model in Figure 1 based on statistical significance and meaningfulness of 0.05 as recommended by Land, 1969. In verifying the efficacy of causality among variables (Figure 2) the original correlations were reproduced using path coefficient on the parsimonious model is as shown in Table 1.

The discrepancies between original and reproduced correlations are considered minimal (discrepancies < 0.05). The pattern of correlations in the data is therefore considered tenable with the parsimonious model (Figure 2). Figure 2 is therefore considered to be the most meaningful causal model in explaining student midwives, achievement in Anatomy and Physiology.

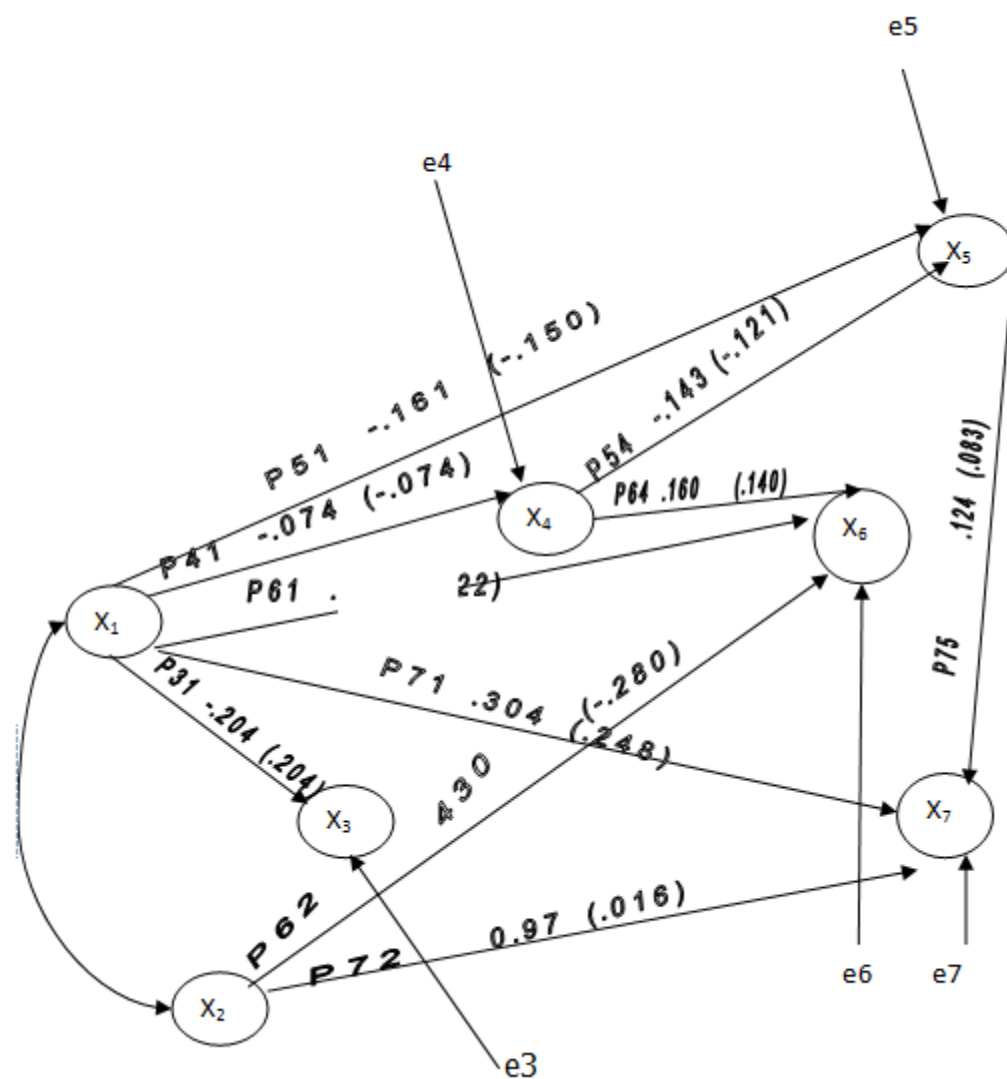


Figure 2. The New Path Model Showing path coefficient and zero order correlation coefficient in parentheses

X1 = School Type

X6=Academic Support Seeking

X2 =Teacher Quality

X7=Achievement in Anatomy and Physiology.

X3 = Entry Qualification

X4 =Teacher-Student Ratio

X5 =Academic Self Concept

Research Question 2:

What are the directions as well as the estimate strengths of causation (path coefficients) of the variables in the model?

Results

The directions of the causal paths of the variables in the model are shown in the pathways which are (i) Significant (ii) meaningful and (iii) have a link with the criterion variable. The paths are shown in Table 2

Table 2: Original and reproduced correlation matrix for variables 1, 2, 3,4,5,6, and 7

Variables	School Type	Teacher Quality	Entry Qualification	Teacher Student Ratio	Academic Self Concept	Academic Support Seeking	Achievement in Anatomy & Physiology
School Type		.367	-.204	-.074	-.150	.222	.248
Teacher Quality	.367		-.135	-.002	-.025	-.287	-.016
Entry Qualification	-.204	-.074		.034	-.025	-.287	.027
Teacher-Student Ratio	-.074	-.027	.015		-.121	.140	-.074
Academic Self Concept	-.152	-.056	.031	-.122		-.086	.080
Academic Support Seeking	.223	-.076	-.046	.150	.039		.031
Achievement in Anatomy & Physiology.	.251	.008	-.052	-.035	.083	.097	

N.B. Entries above the diagonal are the original correlation coefficient.

Entries below the diagonal are the reproduced correlation coefficient.

Table 3. Discrepancies between the original and the reproduced correlation values for variables 1, 2, 3, 4, 5, 6 and 7

Correlation	Original Value	Reproduced Value	Differences
r12	.367	.367	.000

r13	-.204	-.204	.000
r14	-.074	-.074	.000
r15	-.150	-.152	-.002
r16	.222	.223	-.001
r17	.248	.251	.003
r23	-.135	-.074	-.061
r24	-.002	-.027	.025
r25	-.025	-.056	.031
r26	-.287	-.276	-.011
r27	.016	.008	.008
r34	.034	.015	.019
r35	-.025	.031	-.056
r36	-.287	-.046	-.241
r37	.027	-.052	.079
r45	-.121	-.122	.001
r46	.140	.150	-.010
r47	-.074	-.035	-.039
r56	-.086	.039	-.125
r57	.080	.083	-.003
r67	.031	.097	-.066

Total Difference = .449

Mean Difference = .021

Table 4: Analysis of Significant Pathways in Anatomy and Physiology

Pathways through which xi (1-6) caused variations in the dependent variable x₇ at p < 0.05

Normal Equation	Direct Path	Indirect Paths
R13`		1: p31
R14		1:p41
R15		3: e.g p51,p54 r14
R16		5:e.g p61.p62,r12,p64r14
R17	P17	7: e.g p71,p72r12, p75r15
R23		1:e.g.p31r21
R24		1:e.g.p41r21
R25		4:e.g.p51r21,p54r24
R26		5:e.g.p61r21,p62,p62r24
R27	P27	7:e.g.p71r21, p72,p75r25
R34		2:e.g.p41r31
R35		4:e.g.p51r31,p54r34

R36		9:e.g.p61r31, p62r32,p64r34
R37		12:e.g.p71r31, p72r32,p75r35
R45		2:e.g.p51r41,p54
R46		5:e.g.p61r41, p62r42,p64
R47		7:e.g.p71r41, p72r42, p75r45
R56		10:e.g.p61r51, p62r52, p64r54
R57	P57	10:e.g.p71r51,p72r52.p75
R67		28:e.g.p71r61,p72r62,p75r65
Total	3	134

The variables that have direct significant paths to achievement in Anatomy and Physiology were regarded as having direct effect. Also, an indirect path (compound path) is considered significant and meaningful, if the constituent single paths are significant and meaningful. . Out of these pathways, only three were direct while the remaining 134 were indirect.

The result shows that out of the three variables that have direct effect on students' achievement in Anatomy and Physiology , school type (var 1) contributed most ($\beta = .304$) ,academic self concept(var.5) contributed $\beta = .124$ and teacher quality's (var. 2) contribution is $\beta .096$. Their respective contributions are significant and meaningful.

Research question 3: What are the direct and indirect effects on the students' achievement in Anatomy and Physiology as predicted by the causal model?

Table 5
Effects of the Predictor (Variables 1-6) on Achievement in Anatomy and Physiology

Predictor Variables	Total Effect (TE) a	% b	Direct Effect(DE) c	% D	Total Indirect Effect(TIE) a-c= e	% f
School type	.248	75.61	.304	46.84	-.056	-17.45
Teacher Quality	.016	4.88	.096	14.79	-.080	-24.92
Entry Qualification	.027	8.23	.071	10.94	-.044	-13.71
Teacher student ratio	-.074	-22.56	-.013	-2.0	-.061	-19.00
Academic Self concept	.080	24.39	.124	19.11	-.044	-13.71
Academic Support Seeking.	.031	9.45	.067	10.32	-.036	-11.21
Absolute Total	0.328	–	0.649	–	-.321	–

% of proportions	-	100	197% = 66.9%	100	-97%= 33.1%	100
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- Total Effect =Original correlation Coefficient
- Direct Effect = Path Coefficient
- Total Indirect Effect =Total Effect – Direct Effect

Results:

The total effects (direct and indirect) of all six (6) predictor variables consisting of students and school indicators) and criterion (student achievement in Anatomy and Physiology) are shown in Table 5. The total effects of all the predictor variables on the criterion variable (students’ achievement in Anatomy and Physiology) obtained from regression analysis of the data collected from this study is 0.328. This was decomposed into direct and indirect components and is presented in Table 5. Therefore, the direct effect is 0.649 and indirect effect is -.321

Research Question 4: What proportion (%) of the total effect is

- i Direct
- ii Indirect

Results.

Proportion of the total effect of Direct to Indirect was calculated from Table 5. Therefore, the table shows the proportion of the total effects (100%).Direct =66.9%; Indirect= 33.1%

DISCUSSION

The result of the study showed that out of the hypothesized causal links to achievement in Anatomy and Physiology (Figure 2 refers), only ten significant pathways survived trimming in relation to the hypothesized linkages.

The pathways were derived from 6 structural equations for producing the most meaningful causal model (figure 2) involving student and school indicators as determinants of achievement in Anatomy and Physiology (a core midwifery course). The efficacy of the new model which was verified by reproducing the original correlation matrix of the variables shows that the original correlation data is consistent with the new model. Hence, the new model is retained.

It was found that variable 1 (school type), exogenous variable contributes 75.6% of the total effect on students achievement while endogenous variable of teacher-student ratio has the least contribution of -22.56% total effect on students achievement in Anatomy and Physiology. The results of students achievement in Anatomy and Physiology shows that out of the 3 school indicators, only 2 of the hypothesized school indicators (school type and teacher quality) and the only student indicator (academic self concept) significantly determine students achievement in anatomy and physiology directly and indirectly.

Furthermore, Table 5 shows that out of the total variation in the criteria measure that is accounted for by the 2 exogenous and 4 endogenous variables (when taken together) direct and indirect components accounted for 66.9% and; 33.1% respectively. Again, since the magnitude of the beta weight is taken to be directly proportional to the degree of effect of the influencing variables, it could be seen (from Table 4) that only 5 variables namely school type (var1), teacher quality (var2), entry qualification (var 3), students academic self concept (var5) and students academic support seeking (var 6) have direct causal influence on students' achievement in Anatomy and Physiology.

In considering school performance indicators, school type which made the highest direct contribution to student midwives' achievement in Anatomy and Physiology. It accounted for 75.6% of the total effect of the three school indicator variables and 17.44% of variability in the criterion measures in students' achievement in Anatomy and Physiology.

There are many studies on school type and its effect on students' achievement. Obong (2004) found that school type has a significant direct influence on academic achievement in Anatomy and Physiology. Obong considered school type in terms of ownership, i.e., federal, state and mission and found that federal schools performed better than the state or mission owned schools. In this study school type is considered as either basic or post basic types of midwifery schools. It was found in this study that post basic schools performed better than the basic schools. This finding may be so because students in the post basic schools had earlier training in nursing, i.e. they are registered nurses. This shows that previous knowledge or exposure in nursing training has influence on the academic achievement of students in that they are not just out of secondary schools. It could therefore be concluded that school type has significant effect on students' achievement.

Teacher quality (var2) has direct influence on students' achievement in Anatomy and Physiology with a path coefficient of -0.097 at 0.05 levels while its direct effect is 14.79% of the total effects of the variable on achievement in Anatomy and Physiology. The indirect effect accounts for 24.92% of the total effect. It was found that this variable is the most significant of all the variables in the study. Teacher quality as found by Goldhaber(2002),

Goldhaber and Anthony(2003) is the determinant of students' achievement. The indices of teacher quality have been singly studied in various studies (Goe, 2007; Clotfelter, Ladd and Vigdor, 2007) and the totality of these indices (such as teacher quality, teacher experience, teacher's clinical experience) buttress the importance of the teacher quality as an indicator of students' achievement in Anatomy and Physiology.

In this study, teacher - student ratio accounts for 22.56% of the total effect of the six variables on students' achievement in Anatomy and Physiology, and its direct effect accounts for 2.0% while the indirect effect is 19.0% of the total effect. Numerous sources (such as Hanuchek 1999, Hruz,2000, Becker,2007) argue that lower student to teacher ratios are better at teaching students complex subjects such as physics, mathematics and chemistry, than those with a higher ratio of students to teachers. There are many arguments and controversies on student-teacher ratios and these have been the basis for a multitude of studies and debates. (e.g. Harris and Plank.2001; Becker, 2007) In this study, teacher-student ratio is significant but has no direct linkage with the predictor variable, but has direct linkage with academic self concept and academic support seeking. Wikipedia (2007) opined that the teacher assists students to reflect on past events, analyze present perceptions and shape future experiences. Logically from the aforementioned opinion by Wikipedia and if the teacher student ratio is low, the teacher would be able to identify students that could be helped to develop self concept which in turn would assist student to achieve academically. Thus, teacher –student ratio could affect academic achievement indirectly.

A low student-teacher ratio is often accepted by the professional regulatory body to the accreditation of schools for midwifery education while high student-teacher ratio is often cited for criticizing the stakeholder especially the school proprietors. The effect of variability in teacher student ratio on academic achievement and other related outcomes remains a subject of scientific inquiry and debate.

Students Entry Qualification has a direct effect of 10.99% and indirect effect of 13.7%. This has no direct causal link with the criterion variables of Anatomy and Physiology. The findings in this study supports the findings of Jeffery(1998), Merriel-Hutton(1998) and Ofori(2000) that student nurses entry qualifications are not the most useful predictors of academic performance and that they should not be relied upon for selecting potential nurses. Students who were qualified registered nurse at entry performed at an average level, while students who were not registered nurses performed well below average. Also, from this study entry qualifications were not significant predictors of academic achievement..

Student academic self concept has a total effect of 24.39%, direct effect of 19.1% and indirect effect of 13.70%. It was found in this study that academic self concept (var5) is significant and has direct effect on the students' achievement in Anatomy and Physiology. Students with positive self concept evaluate their own performance positively and are likely to be more successful than students with negative self concept. This finding corroborates the findings of Rhoda (2006) which states that academic self concept is crucial concepts for understanding students' academic achievement. Self concept of students plays important role in the success or failure of a student in the learning process. Several studies (e.g.Bandura 1997, Marsh 2000) indicate that the major factors in determining whether a student passes or fails are self concept, motivation and willingness to engage in the range of learning activities provided for them. It can therefore be concluded that academic self concept is relevant in determining student midwives' achievement in Anatomy and Physiology.

The sixth variable is student academic support seeking. It has a total effect of 9.45%, direct effect of 10.3% and indirect effect of 11.21 %. (Table 5) Academic Support Seeking according to Ofori(2000), Ofori and Charlton(2002), is a good determinant of student nurses achievement in a psychology course. This variable is not a good predictor of student midwives' achievement in Anatomy and Physiology although there are direct linkages to this variable from other variables in the study. Kraus et al (2005) found that while mature students might be new to study, they generally have a clear purpose motivating their study and are more likely to seek assistance from tutors. Students who attend schools in which more students engage in supporting activities will also be more likely to have higher achievement. (Ma & Klinger, 2000, Williams,1992).

Recommendation:

The stipulation of the Nursing and Midwifery Council of Nigeria on Teacher -Student-Ratio must be strictly adhered to in order to measure its significance with all the criterion variables.

Although the relationship between entry qualifications and academic performance was not statistically linked, it could be recommended that previous academic performance is to be used in student selection.

Other extraneous variables such as teacher expectation, maturity that are not considered in this study may affect this variable.

Midwifery course should be made a post basic course.

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RE-ENGINEERING AFRICAN HIGHER EDUCATION TO COMPETENCE BASED EDUCATION

Nyambura, Salome., Kombo, Kisilu. & Anzoyo, Alice.

Abstract

The 21st century has been referred to as the knowledge society due to the propensity of the production of knowledge as a result of the learning revolution. As a consequence, focus has been drawn to the education models and the effectiveness in producing a citizenry that is able to keep abreast with the dynamism of the times.

This paper offers a critical examination of our education model, in view of the fact that recent literature has indicated that most of our school graduates do not learn much (KNLAR, 2010; MOEST, 2003 & Mamdani, 2007). We propose the use of a competence based model of teaching and learning, where by, the learning products are defined explicitly, the delivery options are varied and the level of learning is what drives the assessment model rather than the evidence of credit points usually captured in the traditional teaching and learning model.

The competence-based model has been said to be the bridge between the traditional education paradigm and the learning revolution that has beset the 21st Century, since, learning can be described and measured in ways that are apprehended by all parties. The student is able to return to one or more competencies that s/he has not mastered in the learning process, rather than repeating a whole unit, as would be in the traditional model (Voorhees, 2001).

Using a case study of the DePaul University/Tangaza B.A. degree programme, which is based on the competence-based model, this paper will outline the critical elements that underline the effectiveness of the model and why it would be useful as an alternative to re-engineer our traditional model of teaching and learning at institutions of Higher Learning in Africa.

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Introduction

The traditional functions of Universities world over have been identified as research, teaching and learning and public service. However, as Sifuna and Sawamura (2010, 105) contend the role of the University in an African context needs to be reviewed since it is different from the institutions in Europe and North America, on which they were modeled. They identify the following tenets as critical to the role of a University in an African context:

- To develop, advance, preserve and disseminate knowledge and to stimulate intellectual life
- To train and prepare high-level human resource needed for development;
- To promote cultural development and the highest ideals and values of society; and
- To provide, through research and consultancy, knowledge, skills and services to the community by helping solve problems facing the society.

Indeed, the universities in the South have a critical role in the transformation of the African society to relevance in the 21st century. The communities look up at the tertiary institutions for high skilled professionals who will fill in positions in both the public and private sector; they also expect generation of new knowledge and innovation through research that will improve on the livelihoods of the people. Critical to the African experience, is a populace who are well grounded in the culture of the people and who are keen to connect the indigenous knowledge with new understandings, whilst still preserving the cultural heritage. However, the narrative on the ground is disturbing since the quality of higher education in Africa is poor compared to other institutions elsewhere. This is as a result of a variety of factors, such as the colonial impact which as we have noted the University in Africa was

modeled on Universities in the North. According to Nyambura (2010), the curriculum, pedagogical approaches, publications, language of instruction and research approaches in education institutions in the south, are still based on Western models thus inadvertently affecting the identity of the African student. Another factor is that, African governments are the lowest investors in research world over and thus institutions of higher education have the least scientific publications in the world. Tijssen (2007) has illustrated through research that Africa in 2007 had only 3499 scientific publications compared to 265,506 from East Asia and the Pacific; it had also the lowest global scientific output at 0.3%. Mamdani (2007) through the case of Makerere University has illustrated the negative effects of marketization of university programs and their detriment to the quality of education. Other factors that militate against the quality are: poor graduate training, since most Universities still use the traditional model of teaching through the banking system; high student teacher ratio, the massification of secondary school graduates without an increase or expansion of facilities and personnel; bad governance practices; corruption; lack of sufficient funding to support research.

There is a great concern that our fresh graduates do not have the core or specialized competencies to succeed in school, work and life. Illich (1979) observed that for many in the developing world, education has become an opiate; this is evident from many of our graduates who continue to dream of getting white collar jobs, in spite of the fact that due to the socio-economic changes, chances of getting these jobs are rare. These youths can be forgiven because their schooling does not offer them with the skills necessary for them to become job creators. The philosopher Alfred Whitehead, is famously remembered for having said that, there is nothing more useless than a merely well informed man, thus as much as institutions of higher learning continue to lay more emphasis on the reproduction of knowledge from the North there is an inadvertent effect on the development of society. Fresh graduates from our institutions of higher learning, find themselves in awkward situations when, they are unable to meet the expectations of their employers. Indeed, there are now many corporate organizations that have developed bridging programmes for their new employees so that they can be inducted into the labor world.

Gibbons (1998) made two distinctions of knowledge production, the first mode referring to school-based, disciplined-based knowledge which is typically produced in traditional based universities and the second mode where knowledge development is the production of knowledge in the context of application, that is it arises in the process of solving particular complex problems in collaborative trans-disciplinary teams and partnerships situated both within and outside the institutions of higher learning. As Maamori and Wagner (2001) contend many universities in the South operate on the first mode, which impedes on the quality and relevance of education. It is evident that the global developments in Science,

technology and social sciences also affect the South and thus the quest for a relevant education is critical to African Higher Education. In the past year, the suspended Kenyan Minister of Higher Education, Mr. William Ruto, was condemned for airing the view that there was a need for institutions of higher learning to be reviewed and restructured in order to be relevant to the needs in the society. The Ministry of Education in Kenya has embarked in setting a higher standard of measurement for Universities, through ranking tertiary institutions based upon the rate their graduates are employed or create employment. Indeed, they have requested the Federation of Kenya Employers to provide the Ministry with data on hiring graduates. This new pedestal, according to Dr. Mwiria, the Assistant Minister, will turn Universities into centers of innovation, enterprise and knowledge (Daily Nation, 2011).

Indeed, Universities in Africa, have to rethink the purpose of the University in the 21st century, if it has to become relevant and meaningful in enabling Africa transcend the challenges of marginalization in the age of globalization. It is our contention that the means for institutions of higher learning to achieve quality in its teaching and learning processes, will be through bridging the gap between the society and education. As is evident in most Universities in Western societies, this link can be addressed through a competence based education.

The Competence Based Education model

The competence based education (CBE) model is the latest development from the five disciplines of learning which includes behaviourism, cognitivism, experientialism, and constructivism. It is based on the work of Mager (1960), who build upon Bloom's taxonomy (1956) on the need to use learning outcomes in terms of expected performance, the conditions under which it is attained and the standards for assessing quality.

The first discipline largely focused on behaviours, how people conduct themselves in relation to the environment. The second discipline took note of the mental – cognitive influences on our behavior. Experientialism on the other hand attempted to explain some of the learning behaviours that cognitivists could not. It is sensory based and looks at self-reflection and meaning-making of peoples behaviors. Constructivism came up later, whereby learning could be created through sharing and exchange of ideas with others. It heavily relies on the interpretation of individuals through logic and analysis of learning experiences. CBE model is based on three critical aspects, namely performance task, criteria and standards. It aims at getting learners to think and go beyond the information they are given in class, through an integrative skills of bringing knowledge, skills, understanding and experience together in problem solving activities and environment, which provides them

with the best kind of preparation for life long independent learning (Waghid, 2000). In essence, the CBE model, emphasizes a hands on, and do it to learn practice.

Spady (2001) has developed further thinking on CBE, through his total learning for total learning thesis, whereby, he contends that learning is an inherent part of living, and since, living is a continuously unfolding array of new input and experience, things have to be assimilated, interpreted and used in some useful way in order for one to function. Thus, whatever, one learns becomes a new resource for living, whether one chooses to live the same way or differently. He identifies the four domains of total learning as, competent learning, creative learning, conscious learning and collaborative learning.

Competence based education was introduced in the US in the 1960s due to the concerns that students were not taught the skills they needed in life after school. The CBE model has also been popularly used in the United Kingdom, Australia, New Zealand (Faris, 1995) and Malaysia. In Africa it is gradually gaining ground, in Mozambique, Ghana and South Africa, where some graduate programmes have been developed. The US office of Education defines CBE as, 'a performance based process leading to demonstrated mastery of basic and life skills necessary for the individual to function proficiently in society.' Other definitions include: an instructional system in which a performance based learning process is used; a form of education that derives a curriculum from an analysis of a prospective or actual role in modern society that attempts to certify student progress on the basis of demonstrated performance in some of all of the aspects of that role. In essence, all these definitions touch on the focus of CBE which is guided by the needs of the society, and the quest to produce a competent and relevant graduate of the education system.

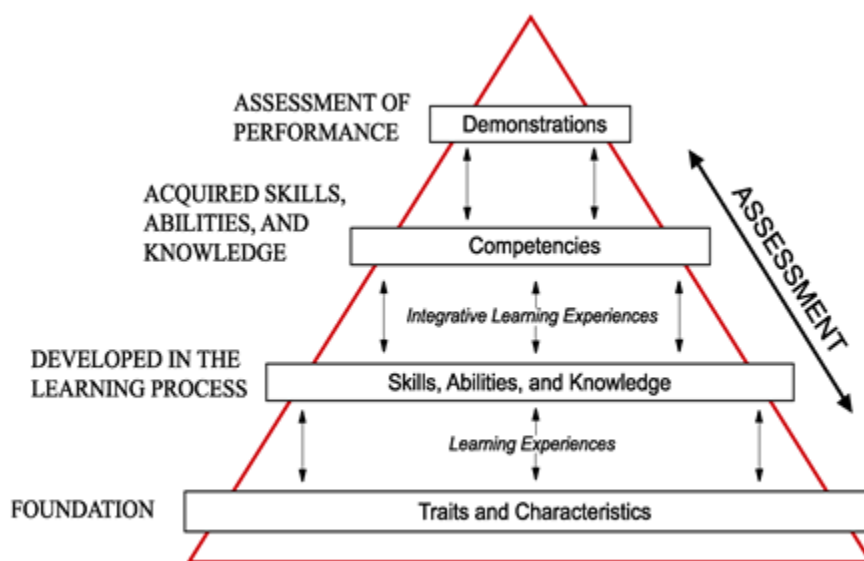
A competence on the other hand is defined as a statement of learning outcomes for a skill or a body of knowledge. When a student demonstrates a competence, they are demonstrating their ability to do something; they are showing the outcome of the learning process. The competence statement is written in a 'can...statement...', making it easier for the student to recognize the competence s/he has to demonstrate.

The competencies are distinguished between the generic or core and the domain specific competencies for the given course. The generic competencies are those set of appropriate competencies needed in all content domains and can be utilized in new professional situations such as, IT skills, Numeracy skills, Communication skills etc. The domain specific competencies are based on the clusters of knowledge, skills, attitudes within one specific content domain related to the professional. In curriculum development therefore, a variety of competencies cutting across various disciplines are identified in order to holistically equip the student with all skills and knowledge critical for a competent professional.

According to Van der Horst and Macdonald (1997), CBE is based on the following six critical elements:

- Explicit learning outcomes with respect to the required skills and concomitant proficiency (standards of assessment)
- A flexible time frame to master these skills
- A variety of instructional activities to facilitate the learning
- Continuous and criterion-referenced testing of the required outcomes
- Certification based on demonstrated learning outcomes
- Adaptable programmes to ensure optimal learner guidance

The following figure illustrates the conceptual model for CBE, whereby learning is viewed as an integrative process, and assessment as an integral aspect in the achievement of competencies.



Source: U.S. Education Office (2001)

According to Vorhees (2001), the bottom rung, constitutes the foundation of all learning as it shows the innate makeup of individuals on which further experiences can be built. The variation in traits and characteristics explains why students pursue different learning experiences and acquire different levels and kinds of skills, abilities and knowledge. The second rung is developed through the learning experiences at the school, community and in the work place. The third rung is a result of the integrative learning experiences in which skills, abilities, and knowledge interact to form learning bundles that have currency in relation to the task for which they are assembled. The top rung, on demonstrations is the

results of applying competencies. At the end of the learning experience, the learners should be able to demonstrate the required competencies.

CBE is adaptive to the changing needs of students, teachers and the community as the competencies describe the students' ability to apply basic and other skills in situations that are commonly encountered in everyday life. Competence is a point on a continuum and becoming a professional means going through a predictable sequence of qualitatively different patterns of knowledge, skills and abilities.

In the traditional model of education, a student learns what the teacher chooses to teach them, s/he moves through the curriculum through the requirements of the curriculum by taking a course and being assessed at the end of the semester on how well s/he has done in meeting the requirements of the course. The assessment says how well the student has done in the class, but it doesn't necessarily assess what the student has actually learnt. When the Semester ends the student is done with that learning and moves on to the next level. In the CBE model, the student knows from the beginning what the expected learning outcomes are and each student is expected to fully demonstrate all the competencies. It is thus not enough to just have the knowledge; one must be able to demonstrate a given competence. The student from the traditional model, graduates with packages of knowledge necessary for a teacher, lawyer, doctor etc, some of these packages may be retained after graduation but some will be deleted or forgotten. But those graduating from a CBE model will not only have the knowledge but also the necessary skills needed for them to be qualified or rather competent teacher, lawyer, doctor etc. This is because the CBE curriculum is based on a set of outcomes that are derived from an analysis of tasks typically required of students in life role situations and then provides a sequence of defined learning experiences for the students. In a CBE model, the statements of competence define what learners are expected to be able to do. These statements also define the standards expected to confirm that the required learning has been achieved. When the outcomes of learning are clearly specified, assessments must logically be based directly on these outcomes. Such assessments tend to be continuous and comprehensive rather than end of course exams, with more emphasis being placed on assessing performance and demonstrations of skill or competence rather than simply of knowledge.

Methodology

This study has used the qualitative research paradigm, whose focus is to have an in-depth understanding of the case under study. Purposive sampling was used to identify the case study due to the fact that, the DePaul/Tangaza programme offers an interesting and unique CBE case for study in Africa. The fact that it is a joint collaborative study that has brought

together two Catholic Institutions of Higher education, one from the North and another in the South was also an impetus towards this research. Some of the other main reasons for the choice include: the excellent student performance as indicated in the academic awards, publications and implemented projects; evident transformation of students from timid to confident, book worm to pragmatic thinkers; the elaborate, exciting & enriching teaching and learning experiences by the facilitator, learner, peer, mentor, PA, and finally the unique assessment modes, the weekly assessments with less focus on summative assessment

The methods used for data collection included, content analysis of the DePaul/Tangaza Academic Handbook and guidelines plus other relevant materials; we had a few interviews of the graduates of the program and finally we largely depended on our own personal experience of the programme as co-ordinators of the programme, facilitators of some of the courses and mentors to the students.

DePaul/Tangaza B.A. program in Leadership and Management: Case of a CBE model in Africa

In the design of the DePaul/Tangaza degree programme, the School for New Learning which offers the degree program and the Tangaza team noted that leading and managing others in any kind of professional or ministry requires the learners to develop and apply a set of very specific competencies which we called domain-specific competencies and also generic competencies. The School for New Learning has developed a set of competencies for its programmes, based upon research on the needs of the society and the requirements for competent professionals in the area of their academic programmes. It is from this large database of competencies that the DePaul/Tangaza team selected and developed in designing the programme.

We shall illustrate the tenets of CBE as illuminated in the DePaul/Tangaza model, through the following main areas:

Curriculum design

The CBE approach does influence curriculum development and design. As we have noted earlier the content is not the starting point for the curriculum, but rather the competencies which are critical for a professional in the field of study. Thus, curriculum development in CBE is a backwards approach which is more informed by the occupation practice, rather than a body of knowledge. For the B. A. programme with a focus in management and leadership, the SNL team had to work together with the Kenyan based team, in identifying

competencies necessary for a leader and manager in the African context and more so, for one who would also be working in church ministry, since at the beginning the program was being designed for women religious.

As a result of the concerted efforts of both DePaul faculty and the Kenyan faculty, several competencies were identified, which were organized in the following three areas:

- **The life long learning area** – Learners should develop into independent, critically minded leaders capable of directing their own learning and the learning of others and of creatively adapting to new challenges. The students would thus develop the essential competencies in adult learning, including self-assessment, goal-setting, connecting their experiences to the experience of others, critical and appreciative thinking, college level writing, quantitative reasoning, formal research and experiential learning.
- **The Liberal learning area** – Learners should develop the ability to understand the complexities of Africa, the Church and the World from many different perspectives. In this area the students learn about ethics, creativity, social injustice and globalization in ways that they can apply in their professional work. The competences acquired in their diploma work are taken into cognizance and augmented through new learning on Information technology, environmental science and public health. This ensures that the students are broadly educated and able to understand the complexities of the world from multiple perspectives.
- **The Focus area** – Learners should develop the ability to be competent professional able to foster human and faith development in a particular form of ministry. This enables the students to customize the program to fit in with their individual differences and interests. They build on and broaden what they learned in the diploma program and complete an advanced level independent project focused in concrete leadership challenges they are likely to face in their professions. This project allows the students to demonstrate that they are competent professional prepared for a lifetime of leadership and service

Under these three areas, a set of 50 competencies were developed that would describe a broad range of knowledge and skills critical for manager and leader. Being a completion degree programme, a student would have to demonstrate 18 competences from his/her diploma study so that from the degree he could acquire the remaining 32 competencies.

As we can note, the content in the B.A. programme is not just based upon one discipline but rather it has an inter-disciplinary approach cutting across other fields e.g. environment, IT, Math's etc

Course design

As is evident in the following example from a course syllabus, the competence statements inform the learning outcomes that are important for one to be able to demonstrate the given competence.

Course: Critical and Appreciative Thinking

Competence Statement: Can analyze issues and reconcile problems through critical and appreciative thinking.

Learning Outcomes:

- Analyze, critique and evaluate different forms of thinking and reasoned discourse
- Construct well-reasoned arguments in the context of real-life experiences and issues
- Identify claims and assess their reasonableness and distinguish between reports, inferences and judgments.

Thus rather than use instructional objectives, which are based upon content, the CBE approach provides the learner with an environment where they are required to be pragmatic in their thinking. The facilitator of the course has to keep finding relevant materials and cases happening in the world, as he helps achieve the competence.

Teaching and Learning

The CBE approach as we noted above is not based upon what Paulo Freire called the banking system, whereby the students just load knowledge which later they vomit in the exam. The CBE approach dictates a joint partnership in the teaching and learning between the teacher – who is referred to as the facilitator and the students.

The facilitator is challenged to keep focused on what students must be able to do when they begin to work. S/He is thus not limited by the curriculum, but rather challenges the students to be more critical in assessing the contexts of their professional practices in pursuit for relevance. S/He thus encourages integrative learning, through using various delivery modes such as: Lectures, experiential learning, discussions and presentations, projects, directed study, prior learning evaluation etc.

The students on the other hand are not just passive in the learning process, but rather actively involved. In the DePaul program, right from the beginning the students go through a Learning Assessment Seminar, whereby they have to reflect upon their prior learning experiences. There are several exercises such as using a time frame, whereby they have to look back and recognize some of their major learning's. Then they also have to develop their individual and professional goals. The students own their learning and since they already identify the competencies they want to achieve through the program, then it becomes a meaningful learning experience, with no rote learning. The students' prior work is recognized and appreciated in the learning experience, thus augmenting the learning process through the shared experiences; this is portrayed in their writings and projects which have mostly been original, unique and quite relevant in their fields of practice.

Assessment

The assessment in the CBE approach is not merely based on the end of course assessment or just on the packages of knowledge acquired. The assessment is continuous, criterion-based and comprehensive cognizant of the competencies. Since the competencies are already identified upfront, the focus is geared at both assessing performance and the demonstrations of competence. For instance in the Course College writing, whereby the competence is:

L4 Can write clearly and fluently

The students have several assignments where they have to demonstrate the following competence. They write several essays, demonstrate their competence in referencing system, and also prepare a public speech. These assignments make the formative and summative assessment of the course. What we have observed is that students put a lot of effort in doing and re-doing their assignments until they feel they have attained their optimum in demonstrating the given competence.

The program is also designed on the basis of a self-assessment and course evaluation. In the self-assessment, the students are given an assessment form for that particular course at the beginning of the course, together with the course syllabus. This gives the students an opportunity to assess their level of competence in the meeting the identified outcomes for the course. This is a useful exercise since it enables the learning and teaching to be a shared experience, when students inform the lecturers on their areas of weakness, thus enabling a facilitator to lay more focus on the mentioned areas.

The course evaluation is geared towards students giving their views regarding the content of the course and the role played by the facilitator. This enables the administration to improve on the course content in their review, and also to advise the facilitator on how to improve on the teaching/facilitating skills.

As indicated, assessment in the CBE approach is a learning experience not only for the students but also the facilitators. The pressure of vomiting packages of knowledge is not there and students work through a self-directed and motivated assessment which is an integral aspect of their development of the required competencies.

Academic Rigor

As we mentioned earlier, the CBE approach entails both domain specific and generic competencies. In this regard therefore, the academic rigor is unquestionable as students and the facilitators strive for excellence and relevance in their different areas. The CBE approach is based upon the constructivist paradigm, whereby the quality of acquired knowledge is gained through an active construction between the facilitator and the students in view of their environment, rather than a passive gaining of knowledge as exacerbated in the traditional model, where faculty over-use their yellow notes.

For instance, the course on Leadership in a World of Conflict and injustice whose competencies are:

H-4: Can analyze power relations among racial, social, cultural or economic groups

FX: (written by the student)

While the facilitator will work with the students to achieve H4, the students on their part have to demonstrate an FX, whereby through research they have to construct new knowledge based on their context and experiences. In this way, they have to be actively involved in developing a piece of work that will be relevant to the given course.

The students' assessments are assessed not only by the facilitator but also the peers, as they all work towards achieving the desired competence. Through reworking their assignments several times, with the support of peers and faculty, the quality of the students work is greatly enhanced. This is evident in the number of students who have won academic awards for excellence from DePaul Univ., having undergone an international panel of examiners; one work is already published, while there are a few considered for publication; there are also several projects that have been implemented by the students after their graduation a recent example being a student who is giving seminars on personality to religious leaders, so

they may improve their leadership skills; some of the students are already enrolled for a Masters program both locally and internationally. We have also received success stories from the alumni who are working in the field, some have been promoted due to their excellence in performance.

Project- based learning

One of the critical aspects for CBE is that since it is based on the future occupational practice of the graduate it seeks to establish partnerships with the practitioners in the field. These practitioners are major stakeholders as they offer their expertise and continue to inform the teaching and learning experience.

The B.A. program works in consortium with these partners in various ways. First, through a course called Externship whose competencies are:

L-10: Can reflect on the learning process and methods used in an experiential project

L-11: (written by the student)

In this course, the students are required to assess their own learning ability and the strengths and weaknesses of their learning styles. They do this in an environment of best practices in leadership and management, where they are also expected to reflect upon leadership and management practices, which they have to demonstrate in L 11, through their learning and experiences of the context. These contexts are provided to the program by our partners in the field, thus our students have been to CBOs and NGOs in their locality.

Secondly, these partners also support our students when they have to work through their Advanced project, which is a bigger project based upon the students focus area. Once the students identify an area of interest for this project, we identify from our partners, what we call Professional Advisors (PA) – these are professionals who have demonstrated expertise in their field of specialization. The PAs, know the aptitudes, skills and body of knowledge practiced by professionals in the specific area, they know the developments and trends in the area, and they have a demonstrated professional mastery through academic work and achievements. For instance, in the past, we have had managers of successful CBOs to mentor our students interested in management of projects, Child rights advocates to mentor students interested in child issues and also Counselors to mentor those students interested in a variety of issues under psychology. From experience, we have observed that the mentoring given by the PA's greatly adds value to the students Advanced project through bridging the gap between theory and praxis. Besides, the research work, the students also have to achieve an F-12 competence which is a practical project addressing

the needs that emerged from the study. Some students after graduation still move on to attempt to implement these projects.

In view of the above discussion, some of the advantages that we have observed from our experience of the BA program are:

- The fact that it is based on the constructivism approach ensures the learner is active throughout the learning process and thus reduces the typical passive dependence on lectures.
- The students performance is enhanced due to their active engagement in learning through problem solving
- The program encourages critical assessment of theory and praxis through the various learning tasks and projects.
- There has been an improved inter-disciplinary understanding through the range of courses offered.
- There is an improvement in research and writing skills and thus improved quality of students work.
- An established liaison with community partners at different levels.
- Through working on their individual and professional goals from the onset, there is more focus and purpose on what students must be able to do when they complete their studies.
- focuses the minds of lecturers through the integration of teaching, the disciplines are broadened and enhanced through the inter-disciplinary approach.
- The students view learning as continuous and holistic.
- An improved culture of teaching – since it strives for creativity and ingenuity.
- A student who is self-aware and capable of facing their weak points with courage and desire to improve and to be better.
- An improved learning environment, where peer review is enhanced – the students build partnerships with their peers who are critical in their learning process.
- Relevant and viable projects that are of benefit to the community.

Challenges of CBE model

When the DePaul program was being implemented, it received a lot of challenges, for instance that the entry requirements of the students were low and that thus the quality of the program and thus the model were poor. However, we all understood that the opposition the program encountered was from the ignorance or lack of knowledge on the CBE approach of education by the critics most of whom believed in the traditional model of education. Indeed, those students whose grades were low demonstrated competencies of

prior learning, this is considered in CBE model, but not in the traditional model. Since as we noted the students are encouraged and directed to own their own learning experience, they become honest on their weak areas and are ready to work hard in order to demonstrate the needed competencies. This is contrary to their previous learning models, which were largely based on the banking system and had great emphasis on exams. We observed a steady transformation and improvement on their academic work, such that some of them won International awards due to their academic excellence.

Another related critic to the above challenge was that, this program was not discipline based, in that one would not find the traditional approach towards curriculum design and development. The courses in the program were drawn from a cross-section of disciplines which would be important for any leader and manager in the African context. Some of the courses included public health issues, Information Technology, Spirituality and Quantitative Reasoning. Some of the students who lacked the traditional courses on leadership and management in our programme, decided to go to other institutions. But, as we have noted previously, the CBE model is largely shaped by the needs in the field, and thus all the courses are relevant, timely and comprehensive. Those who have graduated from the programme have gone on to the communities more professional, competent and all-rounded, with a lot of zeal to transform their communities through their focus area.

The other challenge encountered in the implementation of the program at Tangaza was the aspect of faculty remuneration. Since, this was a new program, in an institution that already had a culture of teaching, learning and remuneration of faculty; any new programs were measured according to this pedestal. The faculty felt that they were doing more than the peers, since for them, there was a great demand to be relevant and student focused. In other countries, such as the US, to be more precise, DePaul University, where this model had become a culture, the faculty did not measure themselves to others, since, they grew into that system and thus, felt whatever attention being given to the students, was normal if they had to demonstrate the desired competencies. At Tangaza, however, in order to encourage and motivate our faculty we developed other forms of remunerating their efforts.

In general, the CBE model has also been criticized as being more appropriate for vocational education than general education, since much focus is geared towards the acquisition and demonstration of skills. However, as we have been able to illustrate the emphasis on knowledge, skills, values and behaviors is all important for any competent professional.

Where the policies are not clear and appropriate, for instance in the case of massification of students and marketization of university programs, with poor remuneration of the faculty,

or lack of good will in the current political leadership, it may be difficult to implement the CBE model.

Conclusion

We noted in the beginning that it is important for our teaching and learning experiences in the African Universities to be reviewed, so that they can be relevant and capable of addressing the four critical aspects of a University in Africa. We argued that, it is important to focus our attention on the needs of the society in our design of a relevant education system.

It is our belief that it is time Africa took responsibility of the quality of education provided to its citizenry. The attention that is being given on quality control and assurance mechanisms in institutions of higher learning is an important aspect and its success will be based upon what Prof. Zimba (2005) denotes as excellence, improvement and enhancement of educational processes at tertiary institutions leading to transformation, liberation from inadequacy and empowerment. The Delors report (1996) to UNESCO on education for the 21st Century, points out that in order for graduates from education institutions to be competent in coping and addressing the needs of this century, they should be well prepared to learn to think, learn to create, learn to do things, learn to live with others, learn to change the world of things and people, learn to respond to change, learn to mentor and learn to understand.

It has been our contention that the CBE model would enable us to refocus our attention to the society and thus improve on the quality of our education system, through ensuring that our graduates are competent professionals capable of living and coping with the dynamism of the society. Through the use of the DePaul/Tangaza model, we have been able to illustrate how relevant and successful the program has been in training leaders and managers who are competent to address the current societal needs and challenges. The students' choice of research works was deeply rooted in their communities, and thus the product from their work would improve on the people and environment.

It is time, we stopped being more Roman than the Romans themselves, most Universities in the North reviewed and changed the traditional model of teaching and learning, we in the South, have no reason to still continue upholding systems that have long become superfluous. It has been our contention, through this case study, that the CBE model offers us the framework to rethink African Higher Education, in the attempt to ensure and enhance the quality, relevance and competence of our graduates in the 21st Century.

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DEVELOPING GLOBAL SCIENTISTS AND ENGINEERS: ENGINEERING SUSTAINABLE BUILDING SYSTEMS

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Abstract

A broad range of “green” construction techniques and technologies has been developed in several countries. However, it must be stressed that before any strategy is to be put forward as a model for global application, its proponents must demonstrate its suitability for specific characteristics, trends and challenges of geographically, economically, culturally and politically diverse countries. Such performance requires global competency. The training of students who will assume professional jobs in developing economies such as Kenya must therefore be coupled with such demands for global scientists and engineers. If students are to really embrace a global outlook to professional issues, they must be exposed to the challenges of operating in diverse cultures. It is the contention of this paper that such an experience can be attained more effectively within the context of international research. The author is the PI for a National Science Foundation International Research Experiences for Students (IRES) program that gives US students an opportunity to enhance their global competence through addressing these challenges within the East African context. Through working closely with University of Florida and University of Nairobi professors, the students acquire a global perspective on innovations that can make design and construction more sustainable. The paper draws lessons from the IRES program and uses these to make a case for creating parallel programs that would give African students a similar experience.

1. Introduction

This paper reports an NSF-funded program for International Research Experiences for Students (IRES) in science and engineering. The focus of the program is giving undergraduate, Master’s and Ph. D. students an opportunity to acquire a global perspective on developing innovations that can make construction processes, products and services more sustainable within the global context. Sustainability is used here in a wide context to include the so-called ‘triple bottom line’ of environmental, social, and economic perspectives. The specific research objectives are:

1. To characterize the differences in approaches to sustainable construction engineering between developed countries such as the USA and developing countries such as Kenya and define a framework for cross-country learning;
2. To investigate the appropriateness of construction engineering approaches used by the different types of “builders” in developing economies using suitable assessment models;
3. To contextualize innovative and low cost use of building materials, water and sanitation systems that are both sustainable and affordable;
4. To demonstrate sustainable building systems that exploit cross-fertilization of ideas across the different regions in the research.

The IRES is directed at improving the students’ ability to construct sustainable built environments through investigating construction practices in international settings. In addition, the students were supported to continue their research and analysis after the time spent in the field, extending the lessons learnt to other regions. This enabled them to more concretely synthesize their experiences in the US and East Africa. All participants were also required to disseminate their findings through lectures and workshop presentations.

The subsequent sections provide background information on the key issues that were addressed within the internal research training program, the structure adopted to facilitate student learning and a discussion of the impact of the program on the students. The paper concludes with recommendations that can facilitate the setting up similar initiatives to develop global scientists and engineers in countries such as Kenya.

2. Contextual Background

Although a broad range of construction techniques and technologies has been developed in several countries, it must be stressed that the suitability and success of all strategies relies on these solutions being applied within the boundaries and constraints of these countries. Many of the existing approaches often require high capital and resource investment making it difficult to implement them as globally applicable sustainable construction engineering solutions.

New technologies clearly have a role to play in providing environmental benefits. These need not be complex, and in terms of availability, affordability and acceptability, must be appropriate for the particular area and use available resources. There are examples of sustainable construction engineering strategies being implemented in some developing countries. However, the availability, affordability, acceptability and degree of success of such technological solutions in the developing world remain a key issue. For example although Building Integrated Photovoltaic (BIPV) is at the forefront of innovation in green

buildings, it has varying levels of success and achievement in different programs and projects (Shaban, 2000).

There have are some examples of people in the developing countries being influenced by trends in the US that build on traditional technologies. One such example is straw bale construction, which uses from wheat, oats, barley, rye, rice and others in walls covered by stucco. This technique for constructing walls has been recently revived as a low cost alternative for building highly insulating walls (Kennedy, 2004). It has been applied to several facilities including homes, farm buildings, schools, commercial buildings and churches. Influenced by the trend in the US, some people in South Africa have adopted straw bale construction. Several benefits make straw bale construction a particularly attractive construction building strategy to green builders developing economies. However, as was evident from the deployment of straw bale construction in South Africa, several contextual issues require systems devised in “foreign” countries to be further engineered. In this particular case, the main technological challenges revolved around South Africa having tropical climate. Resulting systems were not adequately engineered to prevent vertical moisture penetration. In addition, the unplastered walls provide an excellent habitat for the many insect species found in sub-Saharan Africa. Other problems that emerged included leaking from wet services and inadequacy of damp proofing between the foundation and the first straw bale courses.

Clearly, if any technological strategy is to be put forward as a model for global application, it is important to demonstrate that the proponents have considered the particular characteristics, trends, and challenges of the geographic, economic, cultural and political contexts in which they are located. The NSF funded “Engineering sustainable building systems’ was established to give students to enhance their global competence through addressing these challenges with the East African context using selected case studies from Kenya and Tanzania.

3. The Research Training Approach

The sustainability of technologies for construction-specific engineering practices was analyzed through investigating vernacular, self-built systems, which often use readily available, local, and recycled materials; systems erected by and through the efforts of community-based organizations, which rely on close ties to a community but may import materials and techniques from outside of the region; and modern or “conventional” systems, i.e., systems designed and developed using international and often cutting-edge design and construction techniques. The research required the students to assess the current state of practice and propose sustainable strategies based on the needs of low

income communities. The goal was identifying the potential for cross-fertilization of strategies across sectors, and the transferability of the ideas and strategies across countries.

The actual research was undertaken by 3 cohorts of students during summer in 2008, 2009 and 2010 based on the program shown in Figure 1. Although the actual research was done at selected sites in Kenya and Tanzania, the students learning experiences were augmented by other activities to be funded using matching funds from the University of Florida. As funding from the National Science Foundation was limited and only covered the costs incurred abroad, institutional commitment through supplementary financial support was necessary for the successful creation of an international learning environment for the students.

The program was also designed to provide several opportunities for peer-to-peer learning in a multi-disciplinary setting. For example, the first IRES cohort had 2 undergraduates, 3 MSc students and one early-stage doctoral student. The doctoral candidate was a University of Florida student with some research experience in sustainability thus able to take on a mentoring role and lead the others. Because the research questions required answers cutting across, the different professional disciplines, the project welcomed applications from students in different departments. The program has supported students from different disciplines including architecture, building construction, civil engineering, industrial engineering major and even business administration.

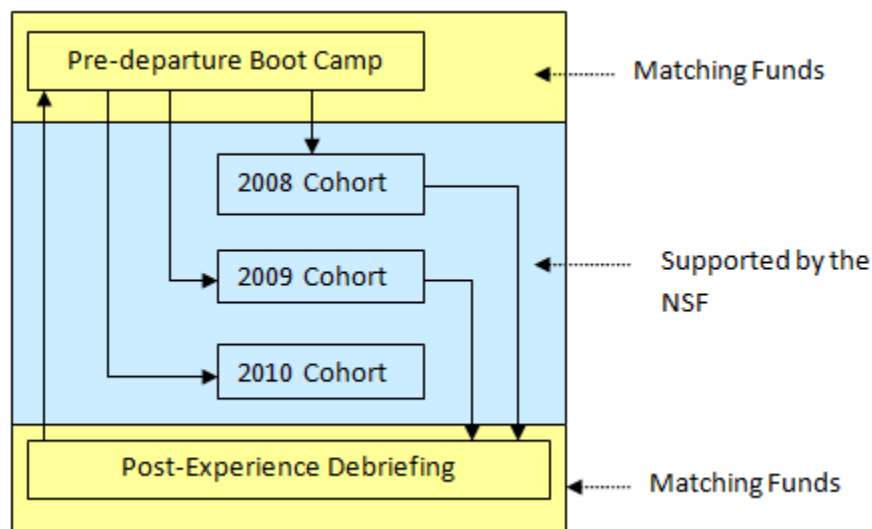


Figure 1: The Research Training Strategy

All students were required to participate in a 4-week Pre-Departure Boot Camp to prepare them culturally and practically for the international setting. During the camp, students took a course in International Sustainable Development and cultural sensitivity in collaboration with the University of Florida's International Center and the Center for African Studies. During Pre-Departure Boot Camp, the students also worked with the investigators to develop individual goals for the international research experience. In addition, the students received hands-on training in selected experimental techniques.

After participating in several orientation sessions and completing of several reading assignments, the students departed for a 9 week-long field experience in Kenya or Tanzania where in addition to working in the university, they were also exposed to practice-based approaches through the partnerships that exist between the Universities and local companies and organizations. At the end of the fourth week, the students made formal presentation of their progress and submitted a mid-term report outlining their proposed solutions. They spent the next 4 weeks finishing the documentation of their research and refining their proposal.

Research mentoring for the students was achieved through several strategies. During the 9-week field experience, the students interacted with and learnt from collaborating partners in host institution, as well as other professionals and researchers in the area. The primary mentors for the research were professors from the University of Nairobi. This program is distinctive in that it gave the students a support structure emulating the studio-like mode of instruction in which they developed and demonstrated their proposed solutions as they continued to adapt to a cultural context that was very different compared to what they are accustomed to. The students were required to spend at least 4 hours each day developing and discussing their research with their mentors in the studio-like environment. In addition to the mentoring offered by the foreign collaborators, the author who was the principal investigator for the project accompanied the students to offer secondary support.

During the post-experience debriefing, the students developed final reports for the research. Because of being at different points in their respective degree programs, there was flexibility in how the requirements were fulfilled. Each student also showcased their enhanced international perspective on sustainable science and engineering practices through presentations to other students. In addition to providing students who did not travel a chance to learn from the program's experiences, the presentations also served as a recruiting tool for subsequent cohorts. Some of the students packaged their findings into reports for securing university academic credits for independent studies and MS.c thesis.

4. Examples of Specific Research Projects

Topic 1 - Cradle to Grave Analysis of Fired Clay Bricks with the built context of Tanzania:

The goal of this study was assessing the role of clay fired brick within the Tanzanian context. Issues regarding the use, or lack thereof, include availability of natural resources as it pertains both to the composition of the brick and the fuel source used in the firing process, availability of the necessary infrastructure or equipment to facilitate construction, and perceptions and or stigmas associated with brick construction. The student's investigation included a study of the linear manufacturing progression of fired clay bricks from the first extraction of the raw materials through to the mixing, forming, drying, and firing. The study included the manufacturing of burned or fired clay brick in small scale local production and an analysis of the fall of large scale factory production of brick and the various efforts to revitalize that industry.

Topic 2 - Networks for collaborative action in low income housing: case studies from Dar es Salaam:

This topic was assigned to two students. Their research brief included investigating: 1) how technologies in low income housing areas are developed, disseminated and used by various small scale contractors; 2) how practical physical sustainability knowledge in terms of materials, construction styles, and building design could be infused in the work of small-scale builders; 3) how the current level of knowledge and support of engineering sustainable construction systems within stakeholder groups (informal construction labor), and; 4) how groups access various housing resources, namely: finance; land; building materials; technology; labor and resources. The students identified key players in housing and construction focusing on their operations in the social marketplace. The investigative tools used by the students includes literature reviews, library research, on-site surveys of housing communities, consultations with local university researchers, interviews with members of various government agencies, interviews with administrators of participating local NGO's, interviews with members of community based organizations (CBO's), interviews with members of community working groups, interviews with various members of the housing construction community such as architects, quantity surveyors, urban planners and construction labor.

Topic 3 - Passive design strategies used for ventilation and cooling in relation to building openings to achieve thermal comfort in the coastal cities of Eastern Africa:

The student assigned to this topic focused on identifying and analyzing passive design strategies that were implemented to openings to achieve thermal comfort at multiple scales of residences, shading and screening techniques and materials, orientation and location of openings and daylighting strategies used to control thermal gain. The student developed a checklist for passive design strategies for residential projects in East Africa focusing on the use of openings. He used the checklist to compare and contrast the passive design strategies used

for openings in traditional houses and historical buildings in Bagamoyo, Tanzania and modern and recent residential projects in Dar es Salaam, without the use of mechanical conditioning systems for thermal comfort.

Topic 4 - Assessing the use of Sand Cement blocks in Tanzania: The undergraduate student working on this topic focused on analyzing the life cycle of sand-cement blocks as a building material using selected case studies of commercial and residential construction from Dar es Salaam and Bagamoyo. Her life cycle assessment included the extraction of raw materials considering cost, time, transportation, labor, environmental impact, transportation and their location. She also studied the production process assessing things such as the cost of materials is again studied, as well as labor, fuel, forming and curing, and quality control in the measuring of sand-cement ratios. When the blocks are used in construction, it is important to investigate the craftsmanship and the quality control in the use of sand-cement blocks. It is also important to consider what type of construction is done with blocks, and the types of supplemental materials. She also assessed options for salvaging sand-cement blocks after the life span of a building is complete.

Topic 5 - Rain Water Harvesting: The graduate student working on this topic focused on analyzing the potential for rainwater harvesting in Tanzania using selected case studies from Dar es Salaam and Bagamoyo. Her analysis included considering the gaps in the supply of water to meet domestic water needs demands as well as the potential for using rainwater to fill this gap. The student was able to identify a number of case studies demonstrating that there are some people already benefiting from the use of rainwater. She assessed the materials and technologies used for existing rainwater harvesting in the existing applications and used this to identify the challenges that would have to be overcome to extrapolate this practice particularly within the low income community. The student used this to identify the social and economic barriers preventing the widespread adoption of rainwater harvesting in Bagamoyo and Dar es Salaam.

5. Discussion and Summary

The preceding sections have described a 3-year international research training program funded by the National Science Foundation. The focus of the project is giving undergraduate, Master's and Ph. D. students an opportunity to acquire a global perspective on developing innovations that can make construction processes, products and services more sustainable using East Africa as the deployment context. The students spent 9 weeks in Tanzania or Kenya working closely with East African professors. The motivation for the initiative was creating a service learning platform that would prime future scientists and engineers for the challenges associated with globalization by 1) improving their

understanding of contextual issues through international experiences 2) facilitating problem-focused and team-based learning and (3) developing new educational materials based on the students' experience.

The program provided research training for 3 groups of US students between 2008 & 2010. The core of the training during each year of the program was a well-defined 9 week summer research activities hosted by professors from East African Universities. The foreign collaborators are presently engaging in research work in sustainability in the built environment within the context of low-income housing. The IRES students are hosted by these projects. Participation in the program also requires the students to propose sustainable low-income engineering solutions, given a budget typical for slum upgrading initiatives in East Africa. It was expected that because of financial resource constraints, the students learn techniques from local professionals and respond to local constraints through evaluating alternatives and making several trade-offs. Three cohorts of students have gone through the program. Their research findings demonstrate that they have learnt that if any scientific or engineering strategy is to be put forward as a model for global application, it is important to demonstrate that the proponents have considered the particular characteristics, trends, and challenges of the geographic, economic, cultural and political contexts in which they are located.

The approach adopted in the program can be replicated to provide international learning experience for science and engineering students from developing countries. A key constraint to providing international learning activities in any country is funding. It will be difficult for African universities to successfully create such programs without financial support from the government. In the author's program external funding was provided through a program run by the Office for International Science and Engineering within the National Science Foundation (NSF, 2004). Although visits to neighboring countries could be a good place to start as it requires a small budget, there is great value in exposing students to radically different professional cultures. Even where external funding is provided, the budget is usually small. The author's successful execution of the program described in this paper could not have been possible without her institution's support. In addition to being given matching funds from the department, she was also able to tap into other university-based resources such grants from the International Center and the Center for African Studies. Any African institution's commitment to globalization of higher education would greatly benefit from such instruments. The internal university grants actually played a key role in increasing the chances of securing external funding through enabling the author was able to conduct preliminary research reported in Honig and Obonyo (2006), Obonyo and Omenya (2006), Obonyo and Omenya (2006) and Obonyo and Wei (2007).

The author continues to work with the foreign collaborators and they are cautiously optimistic that in future they will be able to provide internal research training opportunities for East African undergraduate students. Immersing these students in a problem solving setting within an international context will enable them to develop a global perspective on techniques that will greatly fast track them to success in the work as future professionals.

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PERSONAL ATTRIBUTES AS CORRELATES OF USE OF INTERNET BY TEACHERS IN MAKERERE UNIVERSITY

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Abstract

The study intended to establish the extent of use of the Internet by teachers in Makerere University and how that use was related to personal attributes, namely interaction with information and communication technology (ICT) change agents, training in ICT, cosmopolitanism, age, gender and income level. The study which was co-relational and cross-sectional, involved 145 respondents who filled a questionnaire. Analysis using summary statistics (means and standard deviations), t-test, analysis of variance and correlation, established fair levels of use of Internet, and that only interaction with ICT change agents was a significant positive correlate of use of Internet while age was a significant negative correlate of use of the same. The study thus concluded that departmental ICT change agents were necessary, and hence the call to relevant stakeholders such as the University's Directorate of ICT Support to encourage respective departments to appoint such agents. The study also concluded that aged and ageing teachers need preferential assistance and/ or encouragement with regard to use of Internet say via exposure, from relevant stakeholders such as the University's Directorate of Information and Communication Technology Support.

Keywords: Higher Education, ICT, Innovation Adoption

Introduction

Organizations wishing to survive have to foster adoption of innovations among their members (Mullins, 2002). One innovation that is particularly important for academicians

these days is the Internet, given its innumerable benefits such as making them access knowledge in any place in the world, faster and at minimal cost. Unfortunately however, use of the Internet by teachers in Makerere University has consistently been reported to be very low (e.g. Agaba, 2003; Niwe, 2003; Nsobya, 2002). This failure to fully use the Internet by teachers in the University leads to several undesirable outcomes such as wastage of funds by the University and donors have sunk on underutilized or even unutilized Internet facilities (Njiraine, 2000).

It is therefore appropriate to isolate the reasons why teachers in Makerere University are slow to embrace use of the Internet. While there could be several contributory factors, personal attributes may have played a major role (Rogers, 2003). Hence the need for this study appraising the relationship between each of six personal attributes, namely interaction with ICT change agents, ICT training, cosmopolitanism, age, gender and income level with use of Internet by teachers in Makerere University. Taking the Internet as an innovation, literature is hence reviewed on how each of the said personal attributes affects use of innovations:

Interaction with Change Agents as a Correlate of Use of Innovations. Osuji (1988) gives six definitions or conceptions of a change agent including that of Lippitt, Watson and Westley (1958), who according to Osuji (1988), first used the term change agent to refer to all helpers, no matter what system they work with. Osuji (1988) also quoted Beckhard (1969) as defining change agents as those people, either inside or outside the organisation, providing technical, specialist or consulting assistance in the management of a change effort. Kibera (1997) asserts that a potential adopter who has more contacts with a change agent is more likely to benefit from the technological or technical knowledge of the agent and therefore to be more ready to use the innovation in question than those with fewer contacts.

Training as a Correlate of Use of Innovations. Ntulume (1998) defines training as “the systematic modification of behavior through learning which occurs as a result of education, instruction, development and planned and unplanned experience” (p. 11). Training is directed at changing people’s knowledge, experience, skills and attitudes. It enables employees to be more adaptable, and as technological advances continue it is training that enables employees to cope with the changes (Wamala, 1996). In particular, ICT literacy defined as the degree to which an individual possesses mastery over ICT symbols in their written form and contributes to the process of adopting new technology by providing the means for ICT print media exposure and facilitating the retrieval of ICT print messages for later use (Kibera, 1997).

Cosmopolitanism as a Correlate of Use of Innovations. Cosmopolitanism which refers to the degree to which an individual is oriented outside their immediate social system or has urban influence is positively related to innovativeness (Kibera, 1997). Rogers (2003) contends that cosmopolitanism affects readiness of an individual for innovations such as educational, agricultural innovations, health and/ or demographic ones such as contraception because urban residents tend to have more education than rural dwellers and have better access to services. Urban dwellers also have better access to media like television and Internet, which are useful in communicating innovation gospels, such as condom use and other forms of contraception.

Age as a Correlate of Use of Innovations. Schiffman and Kanuk (2004) observe that age of a consumer innovator is related to the specific product category in which the consumer innovates, with consumer innovators tending to be younger than either late adopters or innovators. This is because many of the products selected for research attention, such as fashion and automobiles are particularly attractive to young consumers. Age is also theorized to be important in adoption of health and/ or demographic innovations such as family planning, contraception and health service utilization (Rogers, 2003). Age is also theorized to be important in the adoption of agricultural innovations, although there are two conflicting explanations for this. For example Basisa (1999) points out that while older farmers may have more experience, education and farm resources which factors can be an incentive to try out technology, young farmers tend to have more schooling and exposure to new ideas that may help to adopt a technology, which suggests an inconclusive debate and hence gap on this issue.

Gender as a Correlate of Use of Innovations. Gender comprises a range of differences between men and women extending from the biological to the social roles a woman has to play like caring children, cooking, fetching water and firewood, in addition to cultivation. Ssekiboobo (1995 cited in Basisa, 1999) argues that such roles may hinder women from easily adopting technology. According to Kato (2000), the marginalization of women in regard to technology adoption and transfer is reinforced by the African cultural system which requires women to remain at home while husbands attend seminars, yet they do not always teach women what they have learnt in those extension meetings.

Women tend to have less access to key productive resources such as capital, as well as being underprivileged in education and knowledge. Mwebesa (1997) observes that technological changes are not usually aimed at women at all, and that large scale development projects and their attendant technology rarely include policy regarding women. Mwebesa adds that sexist bias was the most important factor explaining the inability of women to take advantage of new technology offered; that appropriate

technology programmes reveal that many projects do not achieve positive results for women's lives; that in many projects, even technology introduced for the benefit of women has been co-opted by men for their own use.

Income Level as a Correlate of Use of Innovations. On the importance of income in innovation adoption, Schiffman and Kanuk (2004) observe that "consumers innovator have... higher personal or family incomes, and are more likely to have higher occupational statuses... than late adopters or non-innovators" (p. 538). According to Morales-Gomez and Melesse (1998), access to Internet and other ICTs is only open to a small fraction of the population, a phenomenon which is a function of income; Internet users tend to have above average income. They further assert that the situation is even more dramatic in developing countries where the income gap is exorbitant; where literacy rates are remarkably lower; and where the users of telecommunication technologies are likely to belong to modern elite.

Hypotheses. From the literature, it was hypothesized that each of interaction with ICT change agents, ICT training, cosmopolitanism and income level, significantly positively related to use of Internet. However, age was hypothesized to be inversely related to use of Internet, while gender was postulated to relate to use of Internet, in such a way that males were better.

Methods

Using a quantitative, correlational survey design, data were collected using a self-administered questionnaire with items of relevance in this paper, namely on use of Internet (eight items: $\alpha = 0.8748$); on interaction with ICT change agents (one item on whether a given respondent's unit in the University had a noticeable ICT change agent); on ICT training (one question on whether a respondent possessed any ICT qualification); on cosmopolitanism (five items: $\alpha = 0.7789$); and one item on each of three demographic factors, namely age, gender and income level. According to Cronbach's Alpha Coefficient Test (Cronbach, 1971), the questionnaire was reliable for the study as both relevant alpha coefficients were above 0.5. Using the questionnaire, data were collected from a sample of 145 teachers in Makerere University, and analysed using summary statistics (means and standard deviations), t-test, analysis of variance (ANOVA) and correlation analyses.

Results and Discussion

Profile of Respondents. In terms of age, 45.6% were aged between 30 and 40 years, followed by those above 40 years (41.2%), and the rest (13.2%) were below 30 years of age. In terms

of sex, males (76.2%) dominated the sample, leaving 23.8% for females. Regarding perceived income level, the medium income (72.9%) took a lion's share, followed by 16.4% of low income and the rest (10.7%) were of high income. Regarding possession of qualification in ICT, the majority (65.5%) held none vis-à-vis 34.5% who had one. With respect to academic rank, the modal categories (each with 36.2%) were lecturers and assistant lecturers, followed by senior lecturers (17.4%), then professors (5.8%) and associate professors (4.3%).

Use of Internet. Use of Internet, the dependent variable in the study was a multi-dimensional variable made of eight items, each scaled 1 = Very rarely or never, including never heard of it; 2 = Rarely use; 3 = Neither rarely nor regularly; 4 = Regularly; and 5 = Very regularly. Pertinent summary statistics are given in Table 1:

Table 1: Summary Statistics on Use of Internet

Indicator of Use	Mean	Standard Deviation
Email	4.60	0.85
Web surfing	4.34	1.12
Bulletin board, mailing lists and discussion groups	2.74	1.46
Computer conferencing systems	1.72	1.08
Video conferencing systems	1.51	0.91
Electronic journals and newsletters	2.76	1.39
Electronic databases	2.44	1.35
On-line library catalogs	2.27	1.32

According to Table 1, the only Internet facilities with appreciable levels of regular use were e-mail and web surfing in that order. An overall average of use of Internet ("Intuse" from the eight items in Table 1) had a mean = 2.82, which suggested that overall, teachers in the University were only fair users of the Internet, that is neither rarely nor regularly used the same. This finding greatly corroborates earlier researchers who found minimal use of ICT by teachers in Makerere University. For example, both Agaba (2003) and Niwe (2000) found teachers in Makerere poor at utilisation of the Internet as a source of information, while Nyakoojo (2002) found them poor at utilisation of ICT as a pedagogical tool. Following are bivariate analyses of the respective personal attributes and use of Internet:

Interaction with ICT Change Agents as a Correlate of Use of Internet. The first hypothesis in the study was that interaction with ICT change agents positively related with use of Internet. Respondents were thus prompted to state whether or not, in their observation, their department had at least one ICT change agent, that is a person promoting the cause of ICT. Table 2 gives pertinent summary statistics and Fisher's ANOVA:

Table 2: Statistics and ANOVA on Use of Internet by Interaction with ICT Change Agents

Any Departmental ICT Change Agents?	Count	Mean	Std Dev	F	p
No	35	2.54	0.70	5.862	0.004
Yes	64	3.01	0.91		
Not observant	26	2.47	0.76		

Sample means in Table 2 suggested differentials in use of Internet facilities, which were indeed supported by the large F- value ($p < 0.01$), leading to acceptance of the research hypothesis that use of Internet significantly positively related with interaction with ICT change agents at the one percent level of significance. Post hoc tests established that those who claimed to have departmental ICT change agents scored higher means than the other two categories. The finding, though not corroborating some researchers (e.g. Luwedde, 1997) was consistent with many others (e.g. Ezati, 1998; Kato, 2000).

The finding also supported theoretical assertions such as that by Kibera (1997) to the effect that a potential adopter who has more contacts with a change agent is more likely to benefit from the technological or technical knowledge of the agent and therefore to be more ready to use the pertinent innovation than those with fewer contacts. The finding leads to one major conclusion namely that interaction with ICT change agents positively related to use of Internet by teachers in Makerere University. Hence the call to relevant stakeholders such as the University's Directorate of ICT Support to encourage respective departments to appoint such agents.

ICT Training as a Correlate of Use of Internet. The second study hypothesis was that possession of ICT qualification positively related with use of Internet. Respondents were thus prompted using one item to state whether or not they possessed any ICT qualification. Pertinent summary statistics and t test results are given in Table 3:

Table 3: Statistics and t Test on Use of Internet by Possession of ICT Qualification

Hold any ICT Qualification?	Count	Mean	Std Deviation	t	p
No	84	2.70	0.87	1.902	0.059
Yes	47	3.01	0.87		

According to means in Table 3, holders of ICT qualifications were more frequent users of Internet than those who did not. However, the small t value ($p > 0.05$), led to acceptance of the null hypothesis that possession of an ICT qualification and/ or training did not significantly relate with use of Internet at the five percent level of significance. The study

finding was not in support of the pertinent hypothesis, in addition to being at variance with such past studies as Fedorowicz and Gelinas (1998). It was also against theoretical assertions such as that by Kibera (1997) who argues that adaptability to technological advances is a factor of training.

This anomalous finding could be as a result of not probing deep enough to know which kind of ICT qualifications teachers in Makerere hold. May be they hold too low ICT qualifications to enhance use of the Internet as expected. In the mean time, the study has enough ground to conclude that mere possession of ICT qualifications was not adequate to enhance use of the Internet by the teachers. Hence the recommendation that relevant stakeholders such as the University's Top Management and Directorate of ICT Support give all teachers in the University equal exposure and/ or encouragement with respect to Internet, irrespective of differentials in ICT qualifications.

Cosmopolitanism as a Correlate of Use of Internet. The third hypothesis in the study was that there was significant positive correlation between cosmopolitanism and use of the Internet. Cosmopolitanism was taken as ranging from the worst case scenario of "rural poor" to the best case scenario of "urban elite". Thus respondents were asked to do self-rating as to the places where they were, at different levels in life, using a scale ranging from a minimum of 1 = rural poor, through 2 = rural but elite, 3 = urban poor, to a maximum of 4 = urban elite, and the resulting summary statistics are in Table 4:

Table 4 Statistics on Cosmopolitanism at Different Levels in Life

Level in Life	Mean	Standard Deviation
Childhood place	1.96	1.12
Primary schooling place	2.08	1.09
O-level schooling place	2.69	1.02
A-level schooling place	3.11	0.96
Current place of abode	3.67	0.64

Table 4 reveals that on average, respondents' cosmopolitanism rose with education level. An overall average index ("Cosmos", acronym for "cosmopolitanism" from the five items in Table 4) had a mean = 2.69, which suggested that overall, respondents rated themselves as urban poor. Pearson linear correlation between the cosmopolitanism and use of Internet indexes (i.e. "Cosmos" and "Intuse" from Tables 4 and 1 respectively) gave $r = 0.141$, $p = 0.121$, which suggested a positive ($r > 0$) but insignificant relationship between cosmopolitanism and use of Internet, at the five percent level of significance ($p > 0.05$). Thus what was hypothesized in the study, was not supported by the finding.

Although in agreement with some studies (e.g. Van de Ban and Hawkins, 1996 cited in Sseguya, 2000), the finding was at variance with others (e.g. Nafuna, 2002). The explanation for the finding could be that while innovations are expected to start from urban or cosmopolitan areas and spread to other areas (Bisaso and Visscher, 2005) both rural and urban areas in Uganda have equally low levels of use of Internet to the extent that urban or cosmopolitan ones do not enjoy any advantage. The study thus concludes that a cosmopolitan background did not positively correlate with use of the Internet by teachers in the University. Hence the recommendation that all teachers, whether with a cosmopolitan or rural background be given equal exposure and/ or encouragement by change agents such as Directorate of ICT Support with respect to the Internet.

Age as a Correlate of Use of Internet. The fourth hypothesis in the study was that age was inversely related to use of the Internet. Respondents were thus prompted to state their ages to the nearest years, yielding a mean and median of 40.5 and 40.0 years respectively. Age had a range of 45 years that is from a minimum of 24 to a maximum of 69 years. Pearson's Linear Co-relation between age and the use of Internet index ("Intuse" form Table 1), yielded $r = -0.187$, $p = 0.037$, leading to acceptance of the research hypothesis namely, that age was significantly inversely related ($r < 0$) with use of Internet at the five percent level of significance ($p < 0.05$).

The study finding was consistent with several past studies (e.g. Turyahebwa, 2000) but inconsistent with others (e.g. Ehikhamenor, 1999). The finding concurs with theoreticians such as Schiffman and Kanuk (2004) who observe that age is an important correlate of use of innovations, with early users tending to be younger than late users. In conclusion, age having proved an important negative correlate of use of the Internet by teachers in the University, it is being recommended that stakeholders in Makerere University such as Top Management and Directorate of ICT Support give preferential encouragement with respect to the Internet, to the aged and ageing teachers.

Gender as a Correlate of Use of Internet. The fifth hypothesis was that gender related with use of Internet, with males being better. Summary statistics and t test results there from, are given in Table 5:

Table 5: Statistics and t Test on Use of Internet by Gender

Gender	Count	Mean	Std Deviation	t	p
Female	33	2.78	0.82	-0.265	0.792
Male	99	2.82	0.90		

Means in Table 5 suggested that males were marginally more regular users of the Internet than females. However the pertinent t value was small ($p > 0.05$). Thus at the five percent, we accept the null hypothesis that gender did not significantly relate with use of the Internet. This finding which was contrary to what was initially hypothesized, was similar to that of Ehikhamenor (1999), but disagreed with others (e.g. Mburu, Massimo and Mutua, 2000). The possible explanation for the study finding is that levels of use of Internet are so low among teachers in the University that they cut across the gender divide. In other words, both male and female teachers are equally poor at use of the Internet. The study thus concludes that both males and females needed equal training, exposure and/ or encouragement with respect to Internet resources, and hence the call to Directorate of ICT Support to offer the same without gender discrimination.

Income Level as a Correlate of Use of Internet. The sixth hypothesis in the study was that income level positively related with use of the Internet. Respondents were thus asked to rate themselves on income level on a scale where 1 = Low; 2 = Medium; and 3 = High. Table 6 gives pertinent summary statistics and ANOVA results:

Table 6: Statistics and ANOVA on Use of Internet by Income Level

Income Level	Count	Mean	Standard Deviation	F	p
Low	21	2.65	0.82	0.493	0.612
Medium	97	2.86	0.85		
High	13	2.77			

Sample means in Table 6 suggested that use of the Internet rose with income, which however was not supported by the small F value ($p > 0.05$), leading to acceptance of the null hypothesis that income level did not significantly relate with use of the Internet at the five percent level of significance. This was not only inconsistent with the hypothesis in the study, but also inconsistent with findings of several other studies (e.g. Matovu, 2003; Nafuna, 2002; Njiraine, 2000). The finding challenged the theoretical assertion that the higher the income, the easier it is for an individual to acquire personal ICT facilities, and to get informal exposure to ICT through ICT magazines and newspapers (Moralez-Gomez and Melesse, 1999).

The possible explanation for this could be that teachers with more financial ability to access internet tend to be older, making their advanced age to militate against eagerness to go in for the resources (Schiffman and Kanuk, 2004). The opposite may be true for less financially able teachers. This inconclusive debate raises a gap for future researchers to consider. In the interim however, the study concludes that income was not a significant correlate of use of the Internet by teachers in the University. Hence the recommendation that Directorate of

ICT Support and other relevant change agents give all teachers equal exposure and/ or encouragement with respect to Internet facilities, regardless of their income levels.

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MANAGEMENT AND EVALUATION AS A CONFLUENCE

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ABSTRACT

Management and Evaluation had from primitive times always converge at some point in the decision-making process and never to be separated until they compositely terminate at the realization of the objective, which they were set out to achieve. A careful analysis of the management process, which is principally decision-making and execution of the import of such a decision, reveals that evaluation is inherently in-built in the management process. No effective management can take place if the process fails to take cognizance of evaluation as its major tool. The main objective of the process is organizational/institutional effectiveness ensuing from its responsiveness, which is informed by the in-built evaluation mechanism in the management process. Therefore, the import of this paper was the examination of the management process is-à-vis the evaluation mechanism it utilizes to achieve its objective as well as discuss their interrelating roles, where divergence and convergence occur and the terminal of both processes after they had converged. It must be noted that organizational/institutional objectives berth the management process and the desire to effectively achieve these objectives with little or no deviation is the driving force for inclusion of evaluation as an indispensable element of the process. Convergence occurs the moment the need for evaluation of the process is realized. The paper concluded that they both converge even though they individually begun their journeys at different points hitherto and then continue together both terminating as one entity at the point when organizational goal is achieved.

Key words: Management, Evaluation, Confluence, Decision-making, Evaluation mechanism.

MANAGEMENT AND EVALUATION AS A CONFLUENCE

Introduction

Management and evaluation are two seemingly inseparable human-life processes that cannot be ignored in the process of our individual or corporate daily living, except at one's or an organizational peril. Seemingly a twin element of living, they could be said to have

been separately conceived, but had to join at some point in time in our daily living process, thereby becoming inseparable twin tool of life. Their meeting point is the confluence from which one cannot separate them or detangle them. Their confluence can be viewed as the point when management decision making is enhanced by the outcome of evaluation.

Management has been viewed as the process of forecasting or estimation the elements of planning, planning, budgeting, organizing, implementing, monitoring and evaluation, feedback and revision in decision-making and the concomitant action (Onuka, 2010a). It is also known fact that basically the twin basic objective is information provision and judgement giving on a project/programme performance for the purpose of improving the programme being managed for enhanced achievement (Onuka, 2010a & b, Alkin, 1972; Odinko, 2010). The confluence of management and evaluation could also be described as the accountability of a programme, because programme management and evaluation converge at the accountability outcome of programme as determined by the evaluation of the management quality of the programme. Management would normally precede evaluation, as without management, nothing will be there to evaluate. Both evaluation and management derive their being from the desire to effectively and efficiently achieve organizational/institutional objectives.

Management

Management is essentially using people to achieve the desire organizational results (Onuka and Durowoju, 2010). Management is a discipline on its own right that has to be learnt even though everybody is engaged in one act of management or the other, since it is not everyone that has the mastery of the principles and practices of management. It is scientific, because it is systematic and analytical (Onuka, 2004). Therefore, it is not everyone that attempts to manage one thing or the other is a manager and everybody cannot be a manager (Onuka and Durowoju, 2010). Onuka (2009) believes that the definition of management could be extended to include not only forecasting, planning, budgeting, organizing, implementation, monitoring and evaluation, but also feedback and revision of programme for improvement which implies continuous improvement, the essence of total quality management. Therefore, the acronym now reads: ***FPBOIMEFR, instead of just FPBOIME.***

The figure below illustrates this management process graphically:

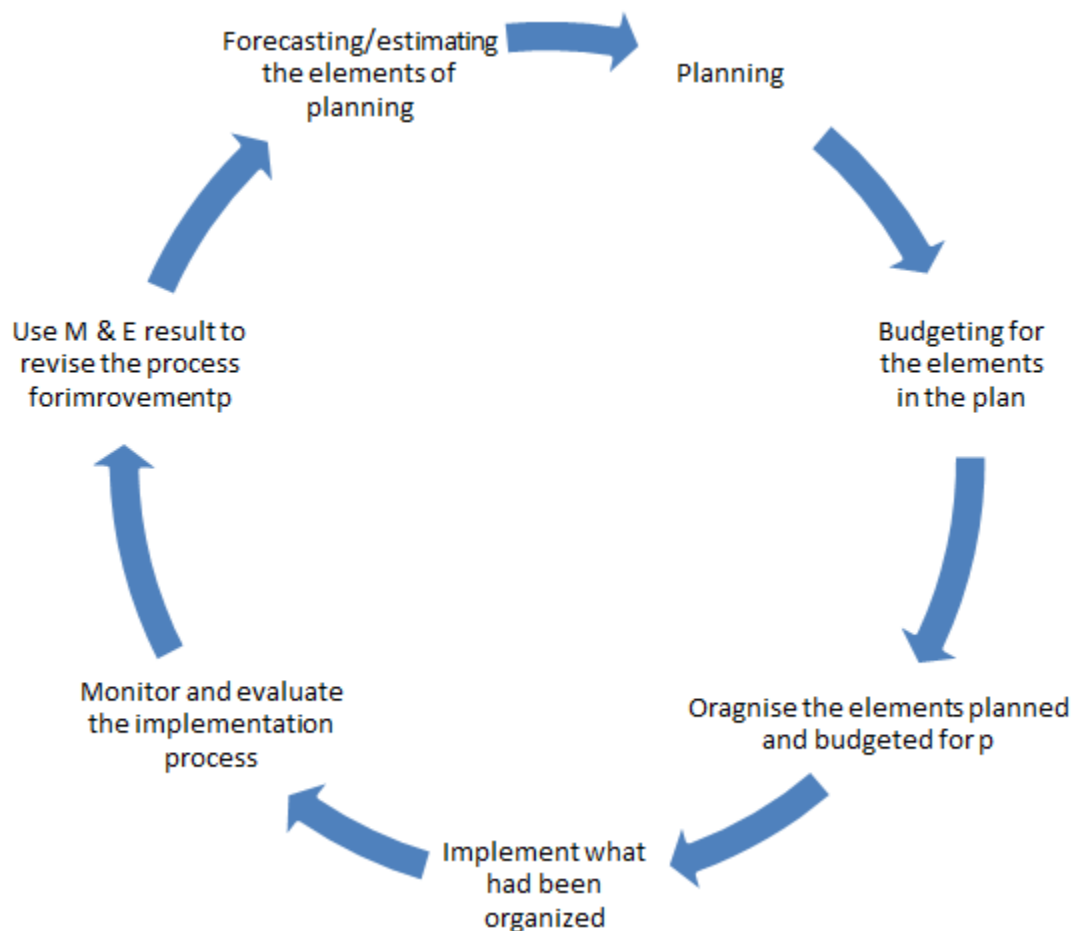


Figure 1: the management process

The import of figure 1 is the fact that the management process is incomplete without evaluation which in fact subsumes monitoring as monitoring is actually the same as the formative evaluation which in modern parlance is also called *evaluation for learning*

From its Latin origin management simply means ‘leading by the hand’ which implies giving direction which is stronger than just a passing suggestion (Onuka and Durowoju, 2010). According to Onuka (2004) management is a communicative profession. Implying that with effective and efficient communication, management becomes a mirage and of little effect. Adeleke (2001: 75) posits that ‘communication in organizational management is purposed to relay information, sell ideas, educate the receiver, acknowledge, review plans, link people together and achieve goals among others’. Evaluation provides the information for review of plan and sometimes the decision-making process. Essentially management is a decision-making process, since it principally uses people and other resources to achieve a predetermined end (Adeleke, 2001; Onuka, 2004). Hence the need to evaluate one’s style of management and how you have related to those you are managing in order to get them committed to the task you are using them to get done. You also must evaluate the input, the level of commitment and the dexterity of the people whom you are using to do the work

and then use the feedback from the evaluation exercise to improve your management style, techniques and approaches as well as those involved in achieving the organisation's goal/objective. It should be made clear that management is not only an everyday and every person's phenomenon or business, but it is also every group or organisation's duty to have management process in place for its successes. Management is applicable to and applied by all organisations who wish to accomplish its objective/goal.

Evaluation

Evaluation, as in most social science disciplines, has legion definitions. However, the acceptable definition of evaluation is informed by the motive behind its use or the situation under which it is to be used. Umoru-Onuka (2001) observes that evaluation is better defined by the purpose it is meant to fulfil. In fact, Yoloye (1978) likened its definition to six blind positioned at different parts of an elephant, who when asked to define it, each describe only from perspective from which they each held as if that was all the elephant was. Nevertheless, evaluation can be defined from two points of view namely: judgemental or information provision, hence, according to Umoru-Onuka (2001), while Alkin (1970) chose the information provision view, when he implied that it is the sourcing and processing of information to provide summary data for the decision-maker (the manager). Odinko (2010) states that it has been also postulated that it is valuing, pricing or passing judgement. Hence according to her "a simple straightforward dictionary definition of evaluation is: *'to put a value on something after thinking'*"p8. This definition is very important in that it looks at evaluation from a positive perspective that seeks to put a value/judgement on activities rather than devalue them. Evaluation does both, depending on the stage at which, it is being employed. If it is being undertaken during the developmental stages of a programme (formative evaluation or evaluation for learning) it provides information for the decision-maker to improve his programme and if it is at the end of a project, evaluation pronounces judgement (summative evaluation or evaluation of learning or programme ie accomplishment of the programme). In either case, its output assists in improving a system or programme. According to Umoru-Onuka (2001), and Onuka (2010d) evaluation is an everyday and everybody phenomenon, thus, it cannot be over-stressed and as such must clearly understood and indeed utilized by all. Evaluation is an essential ingredient for all persons and organization/institutions, if the individual were to survive and make the requisite progress. Therefore, no area of human endeavours can be an exemption to this development. It is, therefore, unequivocally clear that evaluation is utilised for several purposes. An evaluation undertaking is invariably defined by its goal. Obviously, there are two major forms of evaluation with several variants of each of these two main types of evaluation. These major types of evaluation are namely: **Formative evaluation** which critically examines whether or not a programme is approaching the accomplishment of the

objectives/goals for which it was designed and if not, why not? And how did what happen happened as well as how could it be ameliorated and improved? This implies that evaluation must be part of every stage of the management process.

These and much more questions can asked and answers sought for, when carrying out formative evaluation. Formative evaluation can be in the form of diagnostic evaluation like training needs assessment to determine deficiency at the commencement of training or learning programme so that the programme can bridge the perceived gap that exists between what should be known and what is known. It can also be used to decipher deviation from the tract that should lead to the accomplishment of an on-going programme in order to improve the programme performance. It should be understood that no programme can plan and execute itself unless human beings are involved. Thus evaluating a programme or a part thereof definitely implies evaluating the contribution of those operating the programme. Invariably, therefore, evaluation is a means of accountability as it connotes responsibility and answerability, in the sense in that evaluation fully understood, and well taken, becomes a feedback mechanism which results in both programme and its operators' improvement (Onuka, 2010b).

The second type is known as **Summative evaluation**, which usually takes place after a completion of a project or programme like a course or a completed segment thereof. For instance Certificate/Degree Examinations are a summative evaluation for the learners. End of year or promotion appraisal of academic staff of a university can be regarded as summative evaluation for that year or stage of his/her career development. This can be seen as an impact or ex-post evaluation. Though both formative and summative types provide the level to which programme outcome or product met the accountability level (how much of the programme objectives were actually realized) expected of the programme. Each type also gives feedback mechanism on the success or otherwise of the object of evaluation i.e. the programme/project.

Evaluating a distance learner could be in terms of his/her suitability, achievement, aptitude or the impact he is making where he works as result of his participation in the distance learning programme. However, in doing so, we are invariably and obviously evaluating the effectiveness of the programme and its operators as well as the learning materials and the effectiveness of those who put the materials together. This is done so that the programme and its operators as well as its operations might become better if and when the feedback resulting from the evaluation process is taken in account and completely utilized to make both the human capital and material resources on the one hand, and their utilization on other, innovative or inventive as may be deemed necessary to enhance programme improvement/quality for the benefits of an organisation's/institution's clientele as well as

those of its other stakeholders. It could be merely trying to know the level of achievement of the learner in his course of study or a worker in the course of his learning or duty.

Techniques/models in the Management Process and Evaluation

The several techniques are applied in the management process either qualitatively or quantitatively. They can be regarded as paradigms or models or quantitative analysis techniques (Onuka, 2010c). Most management models/paradigms are quantitative in nature. For instance, Network analysis which include Critical path method or analysis is a management planning tool, queuing models, Delphi technique, programme planning, budgeting system (PPBS), Project Evaluation and Review technique (PERT), Gantt charts etc. are others of such management. Most of these and other management apply mathematics or statistics in the analysis (Owolabi, 2006; Onuka, 2010a) and some are also evaluation as in SWOT or SCOT. A model actually conceptualizes a framework for carrying out a management in some pre-determined sequential or for executing an evaluation plan (Onuka, 2010c). One outstanding fact about management and evaluation is the fact both aimed at quality production/service, while the former has global goal of *satisfying* i.e. that ensuring break –even in the production or service provision enterprise, the recipients must not benefit, it must be at minimal cost and the latter (evaluation) ensures that such product or service is of high quality or standard. There are both similarity and congruence in the models they use in planning or in the determination of what and how it has transpired to produce the outcome. Similar ones are models such critical path analysis when determines the most feasible route or plan of alternatives available to achieve an objective in management or business while evaluation uses path analysis/structural modeling to determine variables or routes that determine an outcome both directly or indirectly or independently. The congruent ones include the input-process-output/output model, the strengths, weaknesses (challenges) opportunities and threats model. The model in both management and evaluation conceptualizes the process of achieving the set of an organisation/institution’s objectives and determining whether or not these were or are being achieved respectively. Thus, the point of occurrence of the confluence of management and evaluation can be obviously seen to be manifesting. The following table testifies to the fact management and evaluation are twin process that should go *pari-pasu* for effectiveness and efficiency of any system involving the management process and all systems do. The table below depicts the components of management including evaluation as an integral part.

Table 1:

STRATEGIC MANAGEMENT EVALUATION MODEL: SPECIMEN

Component	Characteristics/elements	Data Required	Analytical tool(s)	Remarks
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Forecasting	Determined by the management and management goal	The objectives of the institution/organisation whose management process is in question determine the data, for instance, in a university system, such data include personnel requirement, student enrolment growth rate, facility incremental rate, IT requirement and more	Simply statistics, Cost-Benefit Analysis, Financial ratios, Critical Path Analysis and Network Analytical methods.	The result of the analysis provides basis for decision-making and implementation after thorough examination to ensure they are in proper shape or are authentic for action
Planning	Organisation's needs and objectives are the determinants of the elements to be included in the plan	The above data are the used in planning	Review of the analysis done earlier to confirm feasibility.	Evaluate these to ensure they would lead to programme failure
Budgeting	Budgeting is based on the proposals set out in the plan	Estimate monetary value against item in the plan by undertaking market survey to source current prices with adjustment for possible if it is a long run plan	Review for confirmation before concluding	Re-evaluate to make assurance doubly sure before moving to the next stage in the management process
Organising	The elements put together in the plan and budgeted for, are sourced, harnessed and made ready for implementation	Items in the budget are sourced and put together for the commencement of programme implementation	Just a review of whether what ought to be sourced had been properly sourced in the appropriate proportion	Proceed to implementation
Implementation	Actualizing the objectives of the organisation's management vision, mission and goal	Stage by stage implementation as put together in the plan and budgeted for	Review of what has been concluded at stage to make the next better	Evaluate each stage of the implementation process to improve the next
M & E	Here data on performance at the levels of forecasting/estimating what are needed to be planned for, how they were forecasted for, planned, budgeted,	Comprehensive period evaluation of the process to determine systemic management efficiency and effectiveness by gathering on the performance of the	All appropriate analytical tools – statistical or otherwise	Provision of Summary as feedback

	organized, implemented, interrogate the data and analyse them to provide a clue to how, what things were done or not done and who were responsible for how and what were done.	entire system		
Feedback	The result of M & E exercise provides the information what went right and / or wrong with a view to re-examining the management process in order to use the information to improve the system. M & E is done at every stage and at the end of each management process.	The information provided by the activity of the preceding section is used as feedback to the system for necessary	Analysis not necessary here	Feedback review for further action
Revision	Decision on management is taken and implemented for systemic improvement and improved performance as an aftermath of M & E.	Feedback information is considered by management	-do-	Decision to use revision feedback information for programme improvement as deemed fit or necessary

This is the modified and improved form of Onuka's SMEM (2010c: 51-52)

In fact, every segment in this table has evaluation mechanism imbedded in it; in line with what God did Genesis 1 & 2. A careful examination of these two chapters of the Bible, reveals that the confluence of management and evaluation has already begun to show, as we begin to see the meeting and merging point of the two. What goes on in each component is determined by the overall goal and objectives of the organisation/institution as well as those of its individual components.

The Confluence of Management and Evaluation

A confluence is the meeting point of two rivers which took their sources from two entirely different and perhaps opposite directions, the one becomes subsumed by the other, and thus from that point become one river. In like manner management and evaluation were

differently conceived or conceptualized at different points in time but soon merged such that one becomes indispensable tool for the other (Umoru-Onuka, 2003). He avers that both were first conceived at different points time during creation by God as can be inferred from the Bible in Genesis Chapter One. Therefore, management precedes evaluation, however, along the line when evaluation came on board; it becomes an indispensable tool of management. Since management is the art and science of using people to accomplish corporate or personal objectives, it follows that God used the three Divine Persons of the Triune God to accomplish the creation goal, hence, Genesis 1 in most part shows that both management and evaluation undertaken with such statements as 'let there be and there was or let us make ... and it happened'. Genesis 1: 1ff shows that management took place in God's act of creation involving the Father, Son and Holy Spirit and after every act of creation when evaluation also took place, hence 'and God saw that it was good' (Genesis 1: 1ff), so the confluence of management and evaluation took place with one closely following the other, in this first part, it could be regarded as evaluation for improvement (learning) or formative (developmental) evaluation and Genesis 1: 26-31 & Genesis 2: 18-25) shows that God also did summative evaluation (Ex-post evaluation). Thus, management and evaluation are not just something modern but also ancient. They have from ancient times met and have continued to achieve management objectives together.

Table 2:

Some Proofs of the Confluence of Management and Evaluation

S/No	Management	Evaluation
1	Planning	Planning
2	Uses Models	Uses Models
3	Depends on data for decision-making	Provides data for decision-making
4	Utilizes Evaluation e.g. performance Evaluation, Personal Evaluation	It is a tool for management decision and performance improvement
5	Utilizes Statistics, Mathematical Modeling, Linear Programming	Utilizes Statistics and Mathematics
6	Utilizes feedback	Provides feedback for management decisions
7	Aim at and work at objective accomplishment	Check objective accomplishment and recommend improvement of achievement of objective
8	Strive to achieve accountability	Determine whether or not accountability was achieved

Source: Conceptualized by this researcher

Table 2 above provides some proofs of the confluence nature of management and evaluation, if cognizance is taken of the confluence, it can be seen from three dimensional-point of similarity, feeder role and congruence, which, three dimensions are succinctly depicted in the table above. Management and evaluation are similar in their origin, evaluation is a feeder to management in the sense that it provides information for management decision process for better performance and they are congruent because they use same models in some instances and aimed at quality production system or service provision. Obviously, therefore neither can dispense of the other, while no system or even individual can be sustained without both of them. Even in the medical world, for instance, evaluation is carried out to manage a patient. In school, you do evaluate to manage the system more effectively and efficiently. The two can thus be regarded as inseparable twin process. Invariably, it can be inferred that, since both concepts are driven by the desire to achieve one's or corporate goal effectively and efficiently, they both complement each other and sometimes work *pari-pasu* to realize their main purpose of achieving the goal/objectives of the organisation/institution.

Conclusion

Management and evaluation have been proved to originate at different points in God's creation process, and the one is a feeder to the other just as River Benue in Nigeria is a feeder to the Niger also in Nigeria. It has also been proved in this study that as they merge at Lokoja and then continued as River Nigeria, so management and evaluation merged at the point management begins to evaluate its actions and programmes as well as aimed at the same end result: Quality programme outcome/product or service as shown in the models/paradigms of achieving the same end results. Therefore, the difference lies in where each begins while their confluence surfaces at the level of the models and/or quality product/outcome or service. It follows that they are actually twin process which cannot be divorced from each other. Thus, it can be concluded that if you take away evaluation from management, the latter becomes a leper. In the same carry an evaluation exercise without management, it remains an orphan, as its product becomes useless because it won't be utilized at all, when one realizes the fact that management is germane to the continued existence of both the individual and the organisation or institution. It is, therefore, imperative that every management process must have an in-built evaluation component and while no evaluation should be undertaken without giving consideration to the management that will utilize its result as feedback for systemic and individual or individual component's improvement and sustainability. Conclusively, management and evaluation meet at the confluence of making decision that will lead to accomplishing organizational/institutional goal/objectives effectively and efficiently for the benefit of both the organisation/institution and all its stakeholders including the clientele.

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IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGIES ON DISTANCE LEARNING PROGRAMMES IN SOUTH WEST, NIGERIA

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ABSTRACT

Education is a veritable tool for the emancipation of people from the shackles of ignorance, poverty and deprivation and a vital propellant in the engine of growth and development. Distance Learning programmes would simply become impossible tasks without information and communication technologies (ICT's) as well as internet based instructional strategies. These programmes are characterized by learner-centredness, life-long learning, independent learning and recognition of prior learning. Although, the University of Ibadan Distance Learning Centre (UIDLC) is well known for the use of ICT's, more advanced technologies are not prevalent feature of the programmes. This study therefore evaluated the impact of ICT's and internet facilities on University of Ibadan Distance Learning programmes with respect to their availability and adequacy. The Input- Process-Output evaluation model was employed to guide the study. A sample of 200 participants, selected through multistage sampling procedure was involved in the study. Three research questions guided the study. One validated instrument was used to collect data and its reliability index was 0.86. Data was analysed using frequency counts and percentages. In terms of availability, usability and adequacy of Information and Communication Technologies: Radio programme service 147(73.5%); Overhead projector 105(52.5%); Video tapes 147(73.5%); Audio tapes 119(59.5%); Computers 145(72.5%); Internet facilities 175(87.5%) and Electronic board 118(59%) were available and in use in the programme, while Interactive television programme service 13(6.5%); Fibre optics 59(29.5%) and Electricity supply were in short supply in the programme. The distance learning institution (UIDLC) is striving to make impact of ICT's and Internet facilities on its programmes. However, impact of ICT goes wider than just the structure and presentation of courses, it must also aim at improving teaching-learning resources, staff capacity development, learner support services, and increase the number of courses available to prospective candidates in order to position distance education in Nigeria for global competitiveness.

Key words: Distance learning, Information and Communication Technologies, Internet Based facilities.

Introduction

Education is a veritable tool for the emancipation of peoples from the shackles of ignorance, poverty and deprivation. It is also a vital propellant in the engine of growth and development, hence, education is liberation. The role of education in the socio-political and economic development of a nation is indispensable. Economists and educationists have shown that there is interdependence between economy and education. To this end, education is perceived as investment in human capital and thus a vehicle for national development, since human beings hold the key to all forms of development. According to van de Sand (2005); Almazan-Khan (2005) and Abdulaeva (2006), the world had reached an agreement to ensure education for all by 2015 (UNESCO). To this end, nations of the world are devising appropriate policies and relevant programmes that would facilitate its realization on target. In this direction, the Association for the Development of Education in Africa, ADEA in its 2002 & 2003 reports (ADEA, 2004), revealed that in spite of the ever-increasing demand for education, funding of the sector in Sub-Saharan Africa, SSA is declining in real economic terms.

The issue of providing access to education through distance learning has therefore, gained unprecedented prominence. There is no doubt that, distance education is gradually finding its way through a competitive terrain by providing suitable alternative solutions to the ever growing needs of the world, particularly in the developing countries of which Nigeria is one. Although, it may seem to be novel, the idea of distance learning is a creation of the inability of formal educational institutions to meet the educational needs of the teeming populace. It thus provides easy access to education. It is, therefore, a veritable tool in that direction because it is generally believed that education reduces ignorance (FRN, 2004).

Higher Education is expected to produce a critical mass of sufficiently skillful, knowledgeable and competent human resources to drive national developmental efforts. Human capital development objectives are not possible solely through the conventional Face-to-Face mode. Knowledge is power and appropriate application of such knowledge is more powerful. In order to achieve the competency level to participate effectively in today's knowledge economy, higher education institutions of learning must play a significant role in making their programmes accessible to majority of Africans. The distance education process is an effective supplementary and complementary initiative to create wider accessibility to quality tertiary education.

The year 1990 marked the initiative of the International Literacy decade which was adjusted at UNESCO's World Conference in 2000 as Education for All (EFA) by 2015. Despite some gains made in eradicating illiteracy, the 2008 statistics indicate almost 800 million of the world's adults are illiterate (<http://stats.uis.unesco.org>). There has been a visible explosive demand for quality tertiary education which the current traditional higher institutions of learning cannot effectively cope with as a result of the realization among the population of the role education plays in poverty reduction; the changing needs of employers; the embracing of education, by governments and the population of the world, as a basic human right; and the declining cost of receiving education as a result of distance learning. Prospects of distance learning in tertiary institutions in sub-Saharan Africa are numerous. Among these are: exchange of staff and students; wider accessibility; learning and earning going simultaneously; massification of output (EFA-UNESCO); no disruption to social, family and economic life of learners; affordability due to reduced cost of education; adaptability for different purposes (skills development and capacity building); no barriers to accessing quality education (age, geographic), synchronously or asynchronously; fluid but demanding (learners responsible for managing their time profitably) and employs blended learning approaches including high tech artefacts (Braithwaite, 2010).

However, available statistics as shown in table 1.1 indicate that in sub-Saharan Africa, a relatively small percentage of the population gains admission into tertiary institutions

Table 1.1

Country	Enrolment in tertiary institutions by 2008 (% of population)
Botswana	7.6%
Burkina Faso	3.1%
Cameroon	7.8%
Cape Verde	11.9%
Central African Republic	2.3%
Chad	1.9%
Democratic Republic of Congo	5.0%
Madagascar	3.4%
Namibia	8.9%

Nigeria	10.1%
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Source: The World Bank: Education Statistics Version 5.3

Despite the glowing virtues of distance education, this mode is still looked down upon by some people as inferior to the conventional teaching and learning processes (Braithmoh and Lekoko, 2005). Currently in the Nigerian university system, the delivery of quality university education by the open and distance learning mode is encumbered by capacity gaps at the institutional and regulatory levels (Ramon-Yusuf, 2008). Among these are: *inadequate & inappropriate Course Wares; weak Learner Support systems; inappropriate delivery mechanisms; and regulatory capacity gaps which are: standard setting; quality assurance & accreditation*. Quality Assurance challenges of distance learning have the propensity to cast doubts on the basic quality of open distance learning programmes with dire consequences on the coherence of higher education communities (Eaton, 2000).

Braithmoh, (2010) in his own contribution highlighted the problems of distance learning for tertiary education in Africa as: inadequate government funding; poor technological development; lack of open distance learning national policy framework; unreliable electricity supply; commercialization of knowledge; poor quality of staff; stiff competition by private institutions to challenge the status quo of public universities; lack of effective coordination of open distance learning activities at the following levels:

- Institutional level,
- National level, Regional level, and
- Continental level.

In addition to these, inadequate learner support; exploitation of learners by profit seeking fake institutions; lack of infrastructural support; inadequate staff professional development programmes; high dropout and poor throughput rates in distance learning institutions; technological illiteracy and restricted access to functional technological systems among ODL staff; lack of adequate quality assurance and monitoring processes as a result of high student to staff ratios; openness of distance learning institutions leading to questionable practices; temerity with which the public perceives products and programmes of these institutions and cheating in various forms (masquerading identity, plagiarism etc.) (Braithmoh, 2010).

Use of Information and Communication Technologies (ICT's) assist the achievement of distance learning faster especially because it is provided on-line. The essence of the concept of distance learning is the mode of instructional delivery to its students from a distance

whereby the teacher and the taught are separated from one another most of the time, except during short contact sessions on few occasions. It is this essence that informs the increasing level of importance being given to it because it thus creates access to education for many who would have otherwise not had such opportunities.

Thus, quality is an essential ingredient of distance learning if it were to compete favourably with the regular programme. According to Osasona (2005), in Nigeria, maintaining quality in the university system is not new. It started with the University of Ibadan from inception in 1948. Quality maintenance was through both internal and external processes. Such processes include student admission requirements, curriculum reviews, external examining system and accreditation by professional bodies as well as by National Universities Commission.

The University of Ibadan Distance Learning Centre (UIDLC) was conceived as an external studies programme of the department of adult education in 1972 but started operations in 1988. By 1993, it graduated its first set of students. The Centre was established with the goal of providing university education to students who are too busy, working or live too far away to attend lectures on a regular basis. It got transformed to Centre for External Studies in 1993 when more departments in the faculty of education started the programme, and by the year 2002 the programme got upgraded to become distance learning centre with the status of a faculty (UIDLC prospectus, 2006 edition) The UIDLC does not have academic staff of its own, but relies entirely on those of the participating departments. The vision of University of Ibadan in embarking on distance learning programmes is to expand the frontiers of knowledge and transform society through motivation (Egbokhare, 2006). The specific objectives of the Distance Learning Centre are to:

- bridge the capacity gap by delivering programmes of global standards in areas of national needs;
- deliver skills-based programmes in order to promote employment and productivity;
- collaborate with communities and private sector to create requisite synergy for quality and competitive education;
- collaborate with reputable foreign institutions in order to deliver global educational graduates to Nigerians;
- key into the global education market by positioning the University of Ibadan as an exporter of knowledge and intellectual resources;
- become the primary centre for learning resources in Africa and provide a platform for reengineering the African consciousness; and
- provide an avenue for forging global cooperation, harmony and understanding through education.

Source: (www.dlcui.org)

According to the University Official Bulletin, September 29, 2006, it was reported that all the academic courses of the University of Ibadan Distance Learning Centre (UIDLC) were fully accredited by the National Universities Commission as at June 2006. The Distance Learning Centre has information centres in Lagos, (Lagos State); Abeokuta (Ogun State) and Ile-Ife (Osun State). It also runs diploma courses in the Faculty of Education and in Departments of Theatre Arts and Statistics. University of Ibadan Distance Learning Centre (UIDLC) uses printed materials, face-to-face lectures and tutorials during contact sessions as the major media of instruction but has not been able to perfect the use of multimedia instructional strategy. It also makes use of audio and video media which are distributed to students as parts of course materials. University of Ibadan Distance Learning Centre has 'Diamond F.M' as its Radio Station which covers Ibadan and its environs.

In addition, it also has her Local Area Network (LAN) installed which linked to the University Service Provider so as to make it programme fully web-based and enhance service delivery. Also, the distance learning institution has links to the university internet services through radio connectivity by proposing fibre optics connectivity to UIDLC as part of the University's ICT expansion programmes. The institution has a resources centre and has moved online for admission, application, entrance examination, payment and registration of distance learning students. It has also decentralized process of distribution course materials with the introduction of online downloading of course materials by her distance learners which invariably has boost her e-learning facilities and programme delivery.

The University of Ibadan Distance Learning Centre has its administrative building outside the University of Ibadan Campus, and uses lecture rooms on the main campus for its contact sessions until year 2009, when it acquired more buildings outside the main campus for lectures during contact sessions. One problem that becomes obvious to the discerning observer of the programme is the reluctance of many departments of the face-to-face university (conventional) to participate in the programmes; even though the programme has a long history behind it. This is unlike the situations in other countries such as South Africa, India, The United States of America (USA), Argentina, The United Kingdom, Indonesia and Japan. However, from 2005/2006 academic session, faculties of Arts, Social Science, Agricultural Science, and Science have since joined the distance learning programmes. Summary of students' admission from 1988/89 up to 2007/2008 academic sessions is presented below on table 1.2.

Table 1.2: Summary of Students' Admission from 1988/1989 to 2007/2008 (UIDLC)

Academic Year	Matriculated Students	Cumulative No
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1988/1989	1,222	1,122
1989/1990	625	1,747
1990/1991	1,101	2,848
1991/1992	732	3,580
1992/1993	269	3,849
1993/1994	183	4,032
1994/1995	260	4,292
1995/1996	*	4,292
1996/1997	227	4,519
1997/1998	287	4,843
1998/1999	320	5,014
1999/2000	*	5,014
2000/2001	618	5,632
2001/2002	326	5,958
2002/2003	348	6,744
2003/2004	388	6,732
2004/2005	361	7,093
2005/2006	413	7,506
2006/2007	2,082	9,588
2007/2008	4,934	15,522
Total	15,522	

Source: Records Office, UIDLC (2008).

* indicates no admission.

The above table shows the enrolment figures of UIDLC students for all programmes from 1988/1989 to 2007/2008 academic sessions respectively.

Information and Communication Technologies (ICT's) have positive impact on distance learning. Ivala (1999) opines that television and video recording have a great influence on distance education. These technologies with personal computer and internet have reinvented the way students learn at a distance and aided the development of virtual classrooms and libraries. He thus argues that these technologies should be properly integrated into distance learning to widen its scope, to strengthen the capacity of distance education providers to meet the needs of its clientele. ICT's include print media, audio-visual method, multimedia or interaction television, cable, microwave, satellite lineages and fibre optics (Agunga, 1997). However, Butcher (2001) posits that the use of technology in distance learning programmes is fraught with problems which confront education globally. The problems outlined by him can be summarized thus: broadening the learner base of educational institutions to give access to those hitherto excluded for whatever reasons and

emerging crisis of confidence in the conventional approaches to education. These problems gave rise to focusing on the use of ICT to enhance educational efficiency and effectiveness. To Mackintosh (1999) distance education is simply an impossible task without Information and Communication Technologies. Dhanarajan (2001) calls for greater expatriation of the use of ICT's as well as internet-based instructional strategies in distance learning programmes. For Perraton and Potashaik (1997), more advanced telecommunications technologies are not prevalent feature of distance programmes in the third world. Saint (2000) observes that although internet connectivity is rapidly expanding yet unevenly available mostly because internet usage on the continent is concentrated in urban centres.

However, Mwagiru (2001) suggests that if information technology is appropriately adopted and utilized in the areas of teaching and learning, it will facilitate reform and transformation of the African educational system to provide opportunities and accessibility at all levels. Gibson and Berge (2006) posit that e-learning initiatives possess the ability to provide just-in-time and just-in-case training, developed to bring about performance improvement and creativity, while David (2006) believes that e-learning strategy can make immediate impact on the learner. However, Rosenberg (2001) and Weaver (2003) are of the view that the humans are social learners, thus instructor-led face-to-face session does satisfy them more than web-based training can. At present, e-learning moves in the direction of personalizing e-learning products and services, because that is what the learners' desire (Barron, 2003; Brockbank, 2006).

Botswana has a national policy to integrate the use of Information and Communication Technology in education provision, and equally possesses a good technological infrastructure for the same purpose. Botswana College of Distance and Open Learning, provides such services as well. It also uses Radio broadcasting in its educational services. Jegede (2001) reports that Botswana is an example of an African country successfully using ICT's in distance and teacher education.

Government policy and initiatives support the development and use of ICT's in education (Naidoo and Schutte, 1999). The University of South Africa (UNISA), which is the oldest distance learning institution in the world, has its main campus in Pretoria and subsidiary campuses in Durban, Cape Town, Nelspruit and Petersburg, through which it provides distance education to its South African clientele. It also has study centres across that country. The rural areas, which it also covers, lack facilities for ICT's usage. It also has a sizeable number of foreign students. Naidoo and Schutte (1999) opine that telemetric enhancement will play an increasingly important role, since it is so very expensive to provide buildings and tutors.

According to Wiechers (1996), even though UNISA has a modern computing system with telecommunication and other required information facilities at its Pretoria campus, it still needs to place greater emphasis on the utilization of technology, to further enhance learning. UNISA is progressing towards, a "virtual University" whereby it uses modern communication and education technologies to improve administration of education and training services for the convenience of tutors and students. Students can at any time on their own access the University massive data -base. It is equally involved in tele- and video conferencing at four of its campuses. Thirdly, UNISA provides audio version of the learning materials for distant learners in order to help blind students (Naidoo and Schutte, 1999).

Gibson and Berge (2006) assert that assessing a learning programme is important to long-term success of such a programme because implementation of a programme is only a beginning. By implication, assessment and feedback are twin-tool for performance improvement in the learner (Murray and Smith, 2006). In addition, Murray and Smith (2006) suggest that assessment of feedback properties in learning process have proved successful in several programmes. To them feedback is a means of validating the learning of the user of an e-learning package, which could be deceitful if feedback resulting from assessment is not regularly and constructively given on the programme, and to the learner.

Smith-Grau (2006) expresses the view that all over the world universities are increasingly multiplying the number of course offered through the World Wide Web (www) because on-line courses afford both the universities and learners some great opportunities, The on-line environment must be made to meet the needs of learners if it were to meaningfully impact on them. On-line instruction should be meaningfully designed to create an effective web-based learning environments, On-line instruction should be so designed to provide communication of instructional objectives clearly and squarely. Danielson, Locke and Burton (2007) express the opinion that on-line courses should also be so developed to make them user-friendly.

Technology adoption is a key issue in determining the success or failure of a distance education programme everywhere, Nigeria inclusive. In promoting quality and ensuring sustainability of the distance learning education in Nigeria, the possibilities of ICT's and other appropriate techniques would have to be fully exploited in order to meet up with the objectives of the programmes as it would reduce the physical and psychological distance between the tutor and the tutee in distance education programme. The introduction of ICT's has revolutionized all aspects of human endeavour; has occasioned innovations in the generation and dissemination of knowledge; changed the balance of power between the teacher and student, effectively eroding the traditional "power" of the teacher; broken the monopoly of knowledge; uses search engines such as Google, has keys to unlock and demystify any subject; made available the use of e-journals and e-books which have fast-

tracked knowledge dissemination; and serves as digital device between the students(*ICT natives*) and their teachers(*ICT immigrants*)

In addition, compared to distance learning programmes being run by other countries such as South Africa, Zambia, Botswana, China, the United Kingdom, and the United States of America, the UIDLC has not been able to perfect the use of Multi-Media Instructional Strategy. Some of the constraints to ICT's and internet facilities' penetration in education in Nigeria are epileptic power supply, low bandwidth and lack of experienced personnel in distance learning programmes (Ramon-Yusuf, 2008 and Junaid, 2010). The "Analog" distance learning teacher is observed to be ICT-phobic, petrified by ICT, uses and relies mainly or solely on "talk and chalk", inextricably tied to his dated lecture notes typed or hand-written on the good old A4 or quarto sized paper and the notes are hardly updated, whereas, the "Digital" distance learning teacher has his lecture notes in digital format and available on the WWW., is comfortable with new technologies and new media, and can meet *ICT natives* on their familiar turf i.e. the internet, communicates with his students by e-mail, chats, twitters and has his own blog site on the institutional website or even has his own website.

The digital teacher can also deliver knowledge to students in mixed media (a blend of paper, USB sticks, DVD, e-books etc), interact with students synchronously via videoconferencing, and asynchronously via e-mail, efficient facilitator to scores of students using appropriate mix/blend of technologies and media including social networks such as facebook, and twitter, can chat with students online and offline, is eager to exploit the potentials of Mobile learning (M-learning) via SMS texts- bulk or group SMS, closed user groups (CUGs) and Phone links. The only way distance learning institutions in Nigeria can meet up with global best practices is to convert her "Analog" teachers to "Digital" teachers.

Therefore, it becomes imperative to carry out an evaluation research on impact of Information and Communication Technologies and Internet facilities on Distance Learning Programmes in Southwest, Nigeria, using UIDLC as a case study. The utilization of the results of this study would further move the institution closer to the achievement of her set objectives as well as improve the quality of process (instruction), teaching staff, outputs (graduates) and financial standing as self-financing units of her university. Making a meaningful impact on the society will equally enhance access to distance learning programmes in Nigeria and further reduce the level of illiteracy in the country.

Statement of the Problem

Distance learning has become an alternative means of education globally. Yet, its enrolment is not encouraging in Nigeria, as the programmes are yet to catch up in terms of some

aspects that can enhance quality, especially, in the variety of instructional strategies employed and the provision of the various components of learner support to the distance learner, the use of Information and Communication Technology and internet facilities among others. Since constant power supply facilitates the use of modern technologies, the constant power outage in Nigeria also constitutes a problem for quality distance education. There is a need therefore, to seek ways of assessing the impact of Information and Communication Technologies on distance learning programmes of at least a distance learning institution in Southwest, Nigeria. It is against this background that the present study undertook the impact of ICT's on the University of Ibadan distance learning programmes with respect to the programmes' inputs, process and outputs.

Research Question

Based on the stated problem, the study provided answers to the following research questions

1. What are the levels of availability of ICT's and internet facilities in University of Ibadan distance learning programmes?
2. What are the levels of usability of ICT's and internet facilities in University of Ibadan distance learning programmes?
3. What are the levels of adequacy of ICT's and internet facilities in University of Ibadan distance learning programmes?

Methodology

This study is an ex-post facto survey research and it adopted Input-Process-Output evaluation model. The target population for the study comprised all UIDLC distance learning students from 2006/2007 to 2010/2011 academic sessions. Proportional sampling technique was employed in this study. Distance learning students (from 200 to 500 levels) were clustered according to all participating faculties of the institutions. Students from each of the five faculties namely: Education, Arts, Agriculture, Sciences and Social Sciences of the University of Ibadan Distance Learning Centre, were chosen using probability proportion to size as sample for the study. The sample comprised 200 distance learning students of the institutions. The instrument constructed by the researcher for data collection was Inventory on Information and Communication Technologies Learning Materials and Facilities (IICTLMF). This instrument was developed by the researcher. It was used to solicit information on availability, usability and adequacy of distance learning materials from students of the programme. It has four sections A, B₁, B₂, and C. Altogether, Inventory on distance learning materials, has 30 items. Validation exercise was conducted on 100 student's sample of a similar distance learning institution, after necessary corrections had been effected and the reliability co-efficient of 0.86 was established. Data were collected

with the help of six trained research assistants and analysed using frequency counts and percentages.

Results and Discussion

Research Question

Table 3. Levels of Relevant Information and Communication Technology Learning Materials in terms of Availability

Variables	Level of Availability	Name of Institution
Learning Materials		UIDLC
ICT's i.e. delivery of instruction through:		
(i) Computers (Desktop)	Not Available	18(9.0)
	Available	182(91.0)
(ii) Computers (Laptop)	Not Available	133(66.5)
	Available	67(33.5)
(iii) Printers	Not Available	9 (4.5)
	Available	191 (95.5)
(iv) Electronic Board	Not Available	82(41.0)
	Available	118(59.0)
(v) USB Sticks	Not Available	57(28.5)
	Available	143 (71.5)
(vi) Audio Tapes	Not Available	81 (40.5)
	Available	119 (59.5)
(vii) CD's	Not Available	110 (55.5)
	Available	90 (45.5)
(viii) DVD's	Not Available	83 (41.5)
	Available	117 (58.5)
(ix) CD-ROMs	Not Available	179 (89.5)
	Available	21 (10.5)
(x) Interactive Radio Programme Service	Not Available	53 (26.5)
	Available	147 (73.5)
(xi) Interactive Television Programme Service	Not Available	187 (93.5)
	Available	13 (6.5)
(xii) Power Points	Not Available	83 (28.5)
	Available	117 (58.5)
(xiii) Overhead Projector	Not Available	95 (47.5)
	Available	105 (52.5)

(xiv) Electricity	Not Available Available	106 (53.0) 94 (47.0)
(xv) Video Tapes	Not Available Available	53 (26.5) 147 (73.5)
Internet Facilities		
(xvi) e-books	Not Available Available	25 (12.5) 175(87.5)
(xvii) e-journals	Not Available Available	82 (41.0) 118 (59.0)
(xviii) Individual Student's Modem	Not Available Available	126 (63.0) 74 (37.0)
(xix) e-mail	Not Available Available	13 (6.5) 187 (93.5)
(xx) Mobile learning through SMS, Text bulk, Group SMS, Closed User Group (CUG's) Phone links	Not Available Available	21 (10.5) 179 (89.5)
(xxi) e-Library	Not Available Available	193 (96.5) 7 (3.5)
(xxii) On-line Video Conferencing	Not Available Available	198 (99.0) 2 (1.0)
(xxiii) Resource Rooms	Not Available Available	28 (14.0) 172 (86.0)

From table 3 above, the result of findings reveals that UIDLC exposes her distance learning students to Information and Communication Technology based learning materials via: Computers (Desktop)182 (91%); Printers 191 (95.5%); Electronic Board 118 (59%); Audio tapes 119 (59.5%); Interactive Radio Programme Service 147 (73.5%); e-books 175 (87.5%); e-mail 187 (93.5%); Mobile learning materials 179 (89%) and Resource Rooms 172 (86%). This is commendable, more effort should be geared towards the dispensation of quality teaching and learning between teachers and students on one hand and among students on the other hand. However, the result reveals that some internet facilities are not adequately available to distance learners and utilised. These are: e-library 7 (3.5%) and online video conferencing 2 (1%).

The result supports the view of Moran, (1997) emphasizing the need for distance learning institutions to integrate the various dimension of flexible learning into its process culture and value. In like manner it is seen that those countries that harness the power of multimedia communications, for education and training purpose will be the economic power house of the twenty-first century (Bates, 1995).

Quality cannot be enhanced without proper provision and utilization of multimedia instructional materials in distance learning programmes. Equipment such as telecommunication gadgets, computer system, radio/television sets, and printed course materials have to be made available in large quantities and also within the reach of the students if it is to achieve the desired result and realize stated objectives of the programmes (Dada, 2001). It is however noted that for UIDLC to meet up to international standard in distance education, it must seek ways of collaborating with other developing and developed countries that are already vast in the application of multimedia instructional materials into their systems and study their strengths in order to garner experience from them.

Access to ICTs in turn improves access to educational opportunity as it is viable in United Kingdom Open University (UKOU), University of South Africa (UNISA), Indira Gandhi National Open University (IGNOU), Korea National Open University (KNOU) and so on. For instance, the UKOU operates well below the cost of other universities and holds fifth place in national rankings of teaching quality, just above Oxford University. (Daniel and Kanwar, 2006). It is further stated that UKOU came first in year 2005 in a national survey of students satisfaction conducted on behalf of the UK government (Bamiro, 2007). Thus distance learning via the internet presents massive opportunity. It is active and engages learning that mandates doing instead of watching.

In addition to these, UIDLC does not use printed textual materials alone, but compliments instructions during contact sessions with ICT based learning materials and internet facilities. While the result of finding agrees with Klees, McAnany and Majo, (1975), Mackintosh, (2005), Perraton, (2000), Moore, (2001), NPE FRN, (2004) and Rufang (1997), on the aim of distance education in developing countries, Nigeria inclusive, as the move to widen participation and life-long learning for non-traditional learners to the development of a strong knowledge economy: it however disagrees with Zhang, (2005) who persists that developing countries motive for distance learning are to provide basic and literacy education to a large number of poor people alone.

Since Distance learning is supposed to be operationalised on less of face-to-face (contact) and more of ICT interaction, UIDLC should therefore inculcate this method for greater achievements in future, particularly in rural deprived areas of the country. The proliferation of mobile phones will enhance the development of mobile learning (e-learning) to educate distance learners.

The result further agrees with similar findings by dela pena-Bandalaria, (2007) in a survey of information and communication technology used in the Philippines. It was discovered that

Philippine educators used combinations of radio, audio, print and video recordings for distance learners scattered around Filipino Island since 1952. It was further discovered that because they faced challenges in infrastructure and digital divide between rural and urban population when it comes to using computers and associated technologies for learning, it resulted into using mobile learning to educate the masses which was launched in 2004 at Philippines' Open University to facilitate her programmes in health, literacy and numeracy education.

The Nigerian factor in this is the accessibility of the internet facilities, like e-mail, mobile learning (with the use of phones) and ICTs (computer, CD-ROMs, etc) by the distance learners who live in the rural areas.

Recommendations and Conclusion

- There is the urgent need for UIDLC to collaborate and cooperate with other distance learning institutions intra-nationally and continentally for it to be globally recognised.
- There must be series of capacity building workshops for UIDLC academic and non academic staff.
- UIDLC should endeavour to foster parity of quality, perception and acceptance between Face to Face and Distance Learning.
- The Nigerian Government should wake up to her responsibilities by financially supporting public universities adequately in order to maintain the quality of tertiary education expected of a nation called "Giant of Africa".
- The Federal and State Ministries of Education must as a matter of urgency give birth to an additional Ministry of Distance Education, and work hard to produce a comprehensive distance learning policy framework which will be different entirely from the general education policy as a mechanism to standardise the quality of distance learning offering across the country.
- Efforts must be made by the Federal Government to find lasting solution to the epileptic power supply which is an essential ingredient to guarantee and sustain an effective, functional and quality distance learning system. The problem of electricity emanates from administrative and selfish motive to amass wealth far more than from technical, infrastructural and skills shortages.
- Appointment, promotion and retention of both academic and administrative staff of the distance learning institution must be measured against the backdrop of staff quality, productivity, output and performance efficiency, rather than, on long years of service, ethnicity or favouritism.
- Good conditions of service and commensurate pay should be provided to attract the best scholars to the university in order to avoid the problem of brain-drain.

- Judging from the enormity of national economic resources available in Nigeria, backed with appropriate governmental planning including judicious resource allocation and utilization, education should not only become a right for all the citizens of Nigeria, but should also be made free up to the University level.

Conclusion

Distance Learning has the potential of making education accessible to marginalized students in Nigeria. It is a cost effective way for students to meet their families' financial, social and educational commitments. A well-coordinated and adequately resourced distance learning system, characterized by efficient deployment of appropriate ICTs in a regime of blended learning can be a veritable supplement to the face to face mode for enhanced access and the production of quality high-level human resources imbued with the requisite skills, knowledge and competencies to drive the achievement of Nigeria's national development objectives.

Building human and technological capacity and training in distance learning best practices as well as investment in distance learning initiatives in Nigeria may go a long way towards meeting the country's developmental goals. Policy frameworks and investing in distance learning infrastructure will improve the quality of its programmes and begin to erase the negative public perception regarding the quality of its products and programmes.

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SCHOOLING CHALLENGES, COPING MECHANISMS AND SUPPORT ACCORDED TO STUDENT MOTHERS IN KENYA: THE CASE OF NYANDO DISTRICT

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INTRODUCTION

Teenage pregnancy is a global problem with U.S.A., UK and Australia leading in rates of teenage pregnancies in the developed world (Quinlivan, 2006). In 2005, Pennsylvania had 26,047 teenage girls who faced the challenges of being young mothers. In the United States nearly one million female adolescents become pregnant each year (Popenoe, 1998). This is twice the rate found in Great Britain and nearly ten times the rate in Japan. The rate of adolescent child bearing in the United States has fallen since the late 1950s from 96 births per 1000 women aged between 15 to 19 in 1957 to 49 births in 2000 (Mangino, 2008).

In Kenya, national figures on teenage pregnancy stand at 23% with an estimated 5.5 million girls between the ages of 15 to 19 giving birth annually. In Kenya as in others African countries, childbearing trends vary based on regional and socio-economic status. Teenage pregnancy is highest in Nyanza Province where it stands at 29% compared to all provinces (CSA Report, 2008). In Kenya, just like it is in most Sub-Saharan Africa (SSA) countries, teenage pregnancy is a major contributor to school drop out among girls (Bunyi, 2008). Pregnancy at a young age is likely to curtail a young woman's schooling and thus her economic potential (Okoth, 2005). Mpesha (2000) says that the Kenyan issue of school dropout because of pregnancy is as old as the school system itself. Despite the introduction of free primary education fewer girls are joining secondary school due to teenage pregnancy.

At a time when more money and time is being spent on education than ever before students' drop out due to pregnancy becomes an issue of great concern to the nation. When a girl drops out of secondary school, the cost is often higher than when she drops out in primary school due to the cumulative expenditure over the years and the fact that the student leaves without a certificate unless they return to complete school after delivery. Based on the per capita expenditure of Ksh 10,265 in secondary school, the government stands to lose up to 40 million annually due to pregnancy related dropout in secondary

schools. This is because the recurrent expenditure once invested cannot be recovered if a girl leaves school half way through the school year (CSA Report, 2008).

The Ministry of Education, on recognizing the negative impact of teenage pregnancy on girl child education put in place the return to school policy guidelines in the mid 1990s to ensure that girls who became pregnant while still in school got a second chance (MOE, 1994; Mpesha, 2000; CSA Report, (2008). This has been emphasized because education is considered a basic right in our society and world-wide to enhance productivity across sectors, increase economic growth and to provide citizens with basic life skills. However, these students go through a lot of challenges in combining responsibility of being mothers and students at the same time.

A recent research done by Centre for the Study of Adolescence (CSA) on teenage pregnancy revealed that despite the existence of return to school policy at least 10,000 girls drop out of school every year due to pregnancy and only a few resume studies (Onyando & Omondi, 2008).

Where the policy is implemented, it has had positive effects, with some girls proceeding to universities and other institutions of higher learning (CSA Report, 2008). However, student-mothers face various challenges on resuming studies, one of which is to be a mother and a student at the same time. Fulfilling the challenging and sometimes demanding roles of being a mother and student concurrently can contribute to role overload and conflict, which can have a negative impact on her schooling as well as her overall wellbeing.

Stress arises when the goal structures that an individual holds have the potential for conflict, especially when an individual is committed to two or more goals that cannot be easily attained at the same time. Thus, devoting efforts to attaining one goal can impede the attainment of another goal. This role conflict contributes to stress being experienced by the individual (Carver & Scheier, 1999). Stress is a particular class of experience and coping is the response that follows from these experiences (Carver, Scheier & Pozo, 1992). Coping is an effort to create conditions that permit the individual to continue moving towards a desired goal (or away from anti-goals) or an effort to disengage oneself from goals that are no longer seen as attainable (Carver & Scheier, 1999).

The implementation of the return to school policy has enabled a significant number of student-mothers to get back to school with the aim of completing their secondary school education. Despite the existence of the re-entry policy, most student-mothers still find it difficult to fit back into the school system after delivery. However, some resume but they face numerous challenges as they try to fit back into the schooling environment. This

situation makes it necessary for them to adapt certain coping strategies. The coping mechanisms employed by student-mothers when they resume studies have a great impact on how well they do and how far they will progress in the academic field.

Return to School Policy in Kenya

Pregnancy has led to many girls dropping out of school in Kenya. A number of studies suggest that student pregnancy is associated with disruption of schooling, social disadvantage and an on-going cycle of poverty (Wadende, 2002; Maeke, 2003 and Okoth, 2005). Despite world-wide acknowledgement of the value of female education, a large number of girls in SSA continue to have their school careers cut short by unwanted pregnancies and as a result suffer the negative social and psychological consequences that are derived from this situation (Bayona, 1996).

The Kenyan government therefore put in place a strategy to help curb this situation by giving the young mothers a second chance to pursue their education through the inception and implementation of return to school policy. The government introduced the re-entry policy because schools are not able to give new teenage mothers appropriate facilities to care for their children while they continue with their studies. The policy permits girls to go home to deliver and nurse their children and thereafter they are free to rejoin their former schools without hindrance from school administration, parents or society (Oyaro, 2008).

Until 1990s the trend in Kenyan schools was to carry out clinical check-up on school girls and eliminate pregnant ones. Things have since changed and the practice now is to allow the victim maternity leave and then allow her back to continue with school (Okoth, 2005). It has been held over the years by various communities and individuals that continuity in education for a girl terminates at the altar of pregnancy (Oyaro, 2008). Today, there is hope that such girls can continue with education after delivering. However, their dreams may be cut short if they fail to receive care and support to enable them handle their new situation with ease.

Further, where ad hoc policies such as re-entry policy to enable girls who become pregnant while still in school to re-enter the system upon delivery are articulated, they have not been followed by strict implementation. More often than not the implementation of such policies is not monitored. The lack of monitoring and follow-up procedures is making implementation of return to school policy difficult. The situation is made worse by the absence of penalties for non compliances (Onyando & Omondi, 2008). Consequently, the policies have not addressed the relevant issues effectively (Bunyi, 2008).

In some situations the re-entry into school policy is considered a reactive rather than a preventive strategy for it does not spell out any measure or programmes for preventing school girls' pregnancies. In fact, arguments have been advanced that the practice may be indirectly encouraging rather than discouraging school girls' pregnancies because assured that they can have a second chance after discontinuing due to pregnancies, girls may be inclined to undermine the consequences of irresponsible behaviours like sexual activities (Bayona and Murangi, 1996 and CSA (2008) report). This view is true especially if the student-mother herself, her peers and the rest of the school community is not guided on the benefits of implementing such a policy through sensitization.

Student- mothers' Schooling Challenges

A girl has to work ten times harder to put her life back on the rails after becoming a mother before the recommended time. She has to fight stigma from her community and if she goes back to school, she faces even more discrimination from peers who have survived student pregnancy. They face rejection and are forced to abandon school. Life becomes a virtual struggle and putting up with the hostile environment at school is an uphill battle. Upon dropping from school the young mothers add to the number of illiterate people facing a bleak future (Banda, 2005).

Mothering, peer pressure and school environment negatively affected teen mothers in coping with schooling. Research by Kaufman, 2001 shows that both pregnancy and parenting are the leading reasons girls give for dropping out of school (Chigona & Chetty, 2007). According to Theron & Dunn, 2006 adolescent child bearing is especially disruptive to the educational process of girls and as a consequence many teenage mothers leave school and never return due to their inability to manage logistics and finances associated with mothering and schooling simultaneously (Kaufman, 2001).

However, those who resume too face a lot of challenges that make them have difficulties to fit back into the schooling environment (Okoth, 2005). Teenage mothers face many challenges in raising their young ones because they are often immature to properly nurture their children. They are usually still emotionally dependent on their own mother. They may also be so stressed by the challenges of motherhood that they become depressed, develop poor self-esteem and are not able to provide their children with emotional stability (UNESCO, 1991).

Socio-psychological challenges

These were challenges that mainly touched on the student-mothers' social and psychological life making their attempts to pursue their secondary education to completion challenging.

1. Lack of concentration

Student-mothers were normally not fully settled while at school and this adversely affected their social and academic life. They lacked a great level of concentration in their academic work due to lack of ability to adequately manage parenting and schooling successfully at the same time.

2. Worries over marriage

The society does not appreciate teenage pregnancy and children born out of wedlock. Considering that these students were already in that state, most of them looked worried over their future life for they were not sure about their fate in marriage.

3. Lack of Professional Counselling

The study established that student-mothers were counselled as they returned to school and even when they were in school to prepare them on how to deal with their challenges like stigma, balancing their time to attend to schooling and parenting demands. However, the counselling services that they received were not very adequate since the counsellors lacked proper training in counselling. The consequence is that student-mothers got overwhelmed with their situation making many of them not cope resulting in their poor performance.

4. Stigma and discrimination

Student-mothers experienced stigma from various sources. They stigmatized themselves, and they were teased by fellow students, some parents and some teachers. Boys and girls often verbally abused these girls, making their participation in class to seem unwelcome. Teenage mothers were sometimes ridiculed in front of classmates by both teachers and fellow students whenever they did not satisfy the class requirements making them suffer from low self-esteem, fear and loneliness at school.

5. Fear and loneliness at school

Most students were shy to approach teachers for consultation, the reason was not well known, it was not clear if they feared going to teachers in the staffroom or not. Sometimes teenage mothers had fear participating in class discussions. For example, whenever topics like 'teenage pregnancy' and other socially related subjects were being taught the teenage mothers became particularly not interested and uncomfortable that everybody was talking about their situation.

6. Low self-esteem and guilt

Since these girls had become mothers whilst young and still in school they were stigmatized and so they tended to have low self esteem. Low self-esteem made them feel out of place especially when other students felt that they were not fit to be within the school system.

7. Lack of skills to handle student-mothers' situation by teachers

Teenage mothers were disadvantaged at school because their teachers did not know how to handle them and their situation when they were at school. Teachers had difficult time handling the student-mothers because they did not know how to treat such students.. They were left in a state of dilemma, to advocate for or not advocate for the use of contraceptives by such girls. Teachers had challenges addressing emerging issues or even teaching certain subjects like Biology and C.R.E. that deal with aspects that the student-mothers had or were going through to have the others informed and at the same time keep the image of the student-mothers in their midst.

Economic challenges

These were challenges that mainly touched on the student-mothers' financial difficulties that had an impact to their schooling directly or even indirectly. The study established that the retention and completion rate of student-mothers in school after returning greatly have a link on the resources available in the student-mothers' families. A greater percentage of student-mothers were daughters of mothers who had nothing at all to do to fend for their lives and fully depended on their husbands for their sustenance. This great level of dependency may make the girls be at risk of dropping out of school due to lack of finances to see them through their education.

Sometimes student-mothers had to do household chores when they returned from school and the only time they could do their homework was at night. Unfortunately, most of them came from families where the lighting system in the house was just hurricane lamps making it difficult for the girls to study or do their homework at night, as they could not have the lamps on due to inadequate supply of paraffin . Additionally, after their delivery most of their parents became reluctant to pay their daughters' school fees compared to the period before they conceived and resumed studies.

Support student-mothers receive

Only allowing student-mothers back to school could/did not help them succeed in their secondary education. It was evident that student-mothers needed much support if they were to complete schooling successfully. The success of a student mother was contingent

upon active contributions of all stakeholders in supporting them through their education process alongside motherhood demands.

1. Spiritual support

This is the kind of support that is concerned with sacred or religious matters like prayer and meditation. The study established that student-mothers were supported by their parents and schools to get access to spiritual support that was also very necessary and important to them in handling their situations.

2. Social support

This kind of support entailed student-mothers getting financial support, encouragements and pieces of advice alongside appreciation of their abilities.

Instrumental support

Instrumental support refers to the individual's access to practical service and /or financial assistance. Practical support is support that is inclined to action rather than speculation. It involved individuals taking action to ensure that the expected is done by taking steps and beginning to act without much ado. Parents often provided the basic needs to both the student mother and her baby (their grand child) and took full responsibility of bringing up the child and also supported the girl in school. Wanting the best for their children the parents always did for them all that they could to enable these children attain their set goals.

Teachers too played a significant role in the provision of material support to the student-mothers. Considering the needs and situation of student-mothers, teachers were sometimes obliged to support them in various ways to help them cope with their situation by assisting them in their academic work to enable them catch up with ease.

The fathers of the babies made some impact in supporting the student-mothers' education since they were positive about their academics but were not involved in provision of financial support. They were only mentioned by the student-mothers as being supportive in academic matters as they encouraged the girls to continue with their education and showed interest in their schooling experiences. Other organisations were also not left out in the support of student-mothers. They actively took part in empowering the girls and also supporting them financially by paying their fees with the intervention of school principals in most cases. Like the Tuungane Youth programme, Kenya Female Advisory Organisation (KEFEADO), World Vision and the Constituency Development Fund office.

Emotional support

Emotional support reflects the individual's experience of receiving care, encouragement of the sense of personal value and the perception of confidence and trust from family, friends, neighbours and colleagues. Parents were very supportive in assisting student-mothers to make them feel cared for by taking care of their young ones as the girls went to school. Teachers and other students also provided care and encouragement to the student-mothers making them have confidence and trust as this encouraged their sense of personal value. They also took part in providing encouragement and ensuring that student-mothers' learning environment was conducive.

Parental education is a strong contributor to female student's education. The education level of the student-mothers' parents had a great impact on the girls and their education. Mothers with higher education background were better placed to guide their daughters against early pregnancies, thereby making the number of those who became pregnant to such mothers fewer compared to girls from families where their mothers had a lower education background. The educational background of the fathers also determined the ability of the girls getting a second chance to pursue their education even after delivering. Student-mothers from families where fathers had a higher education background got a greater percentage for a second opportunity to get educated compared to those from families where fathers had a lower level of education.

Informative support

Informative support refers to appropriate advice and assistance in coping and solving problems. Guidance and counselling was the most critical form of support student-mothers were accorded by teachers, peers, parents and other relatives both at school and at home to help them cope with their situations. Most student-mothers received counselling services from their parents as compared to other sources. This is an indication that in as much as the students spent more time with teachers at school than being with their parents, teachers did not actively offer them counselling services that they needed. This also illustrated that the counselling services that the student-mothers got from their parents were not very adequate considering the time shared together making the students' access to counselling services marginal.

Appraisal support

The schools tried their best to make student-mothers comfortable upon returning to school by communicating to them information that was relevant to self evaluation rather than problem solving with the intention of boosting their self esteem. Student-mothers were at

times motivated to carry on with their studies as they were given examples of successful student-mothers. At times they were asked about their babies' welfare to make them feel cared for despite what they had gone through.

However, there were certain times when the needs of student-mothers were not adequately met due to financial difficulties or even not knowing that the students were in specific needs. In as much as the parents, teachers and peers tried to support the student-mothers they too faced various challenges that hindered their full support. Parents tried to provide their daughters with school requirements but at times it was a challenge. Some student-mothers were also never free to express some of their needs, they were so reserved and this meant that their parents and guardians were to guess what they required and provide to them.

Teachers, on the other hand, lacked proper skills to handle student-mothers' situations and they found it difficult to make up for the missed lessons by student-mothers. The training that teachers got from higher institutions of learning did not enable them to comfortably support and encourage the student-mothers to deal with their situation which made them 'learners with special needs'. As a result, most student-mothers were left behind in terms of syllabus coverage and this finally affected their academic performance, most of them were performing below their initial academic standards before their delivery.

How student-mothers cope

Student-mothers were different and distinct in all components of psychological adjustment processes and varied in the way they responded to challenges. Psychologists like Di Vesta (1970) and Mouly (1973) identify coping mechanism as a compulsory strategy in dealing with challenges and difficulties in our daily life experiences. Student-mothers got actively involved in trying to cope with their double role of being a mother and a student concurrently. They reverted to coping strategies, harmful (such as avoidance and emotion focused) as well as constructive (problem focused).

1. Problem focused coping strategies

Financial matters

The study established that student-mothers got actively involved in having their challenges addressed if not solved. To make them overcome their financial difficulties student-mothers were forced to look for finances to cater for their needs (personal and school) alongside the needs of their babies by getting involved in various activities and ways. They got involved in some economic activities like selling firewood, sugarcane or even working for others at

home or in farms at their free time over the weekend and holidays. Sometimes they requested for financial assistance from parents, teachers and other relatives.

Time management

Student-mothers tried their level best to fully utilize any free time that they could find to catch up

with other learners in terms of syllabus coverage and also to do their personal study while at home or even in school. Sometimes the student-mothers went to school very early and stayed behind in the evening as others left for home to fully utilize their time at school to enable them get enough time to finish assignments and also study. When they missed lessons they consulted their teachers and fellow students for assistance.

Make ups for the missed lessons

At times student-mothers also explored the field of education by consulting teachers for remedial services and also other students to know what was covered in their absence and to borrow notes from them to enable them be at par with their counterparts who were regular at school.

Self drive

Student-mothers had their own initiated drive to make them cope with their situations to better their academic abilities and had some role models whom they strived to emulate. They also read story books to keep their minds occupied and sometimes went through articles that talked about the challenges they were going through to guide them on how to deal with their situation.

Spiritual support

When situations become tough people turn to God for support by seeking God's intervention to deal with their social and emotional challenges. Student-mothers too used this strategy to help them go through some of their life challenges.

2. Avoidance coping strategies

Denial is a defence mechanism proposed by Sigmund Freud, in which a person faced with a fact that is too uncomfortable to accept rejects it, insisting that it is not true even though there might be overwhelming evidence. This explains the reason why teen parents who are faced with serious social problems deny it. They might possibly admit the fact but deny its seriousness, or admit both the fact and the seriousness but not want to take responsibility for their social problems. This strategy was able to work for those who used it to cope with their new situations as they also went ahead to ignore and assume all that others said about

them. In some cases student-mothers felt overwhelmed by their situations to the point of lacking what to do to improve on their condition, they therefore accepted whatever came their way.

3. Emotion focused coping strategies

Some of the teen mothers just decided to be bold enough to take the insults from their surrounding and just develop their own psychological shock absorbers but for those who were not able to be strong and forge ahead shied away from school because of too much pressure piling on them at school.

Student-mothers tried their best to make full use of the three identified coping mechanisms to help them cope with their situations. However, they (student-mothers) did not succeed fully in overcoming their challenges to make them more comfortable as they doubled up as mothers and students. Strategies like avoidance and emotion focused coping styles were in several occasions used by some student-mothers. In as much as this strategy served them well at times, it negatively impacted on them psychologically.

Conclusion

The study established that that there were a number of challenges student-mothers went through within the school environment and sometimes when at home. Because of these challenges they go through student-mothers opted to use various coping mechanisms to complement the support that they received from their parents, relatives, friends, teachers, and school administrators to manage their conflicting roles with the support from different individuals like parents, peers and teachers. In as much as parents, relatives, peers, teachers and school administrators tried their best to support these needy students their efforts were also curtailed by other factors like financial constraint, time limit, lack of set up programmes and means to be followed and individual desire to set aside more time for personal and private study.

This therefore left the student-mothers to come up with their own ways to come out of their difficulties. The study also established that student-mothers thereby resorted to make use of coping mechanisms that could be of benefit to them as per the situation at hand and their general capability. The strategies used clearly showed that most of the student-mothers were not well adjusted since they were disturbed, tended to become frustrated and they suffered from social and emotional problems. Some in most cases had also lost interest in education in most cases and were confused about their abilities the reason as to why a majority of them did not do well academically on resuming studies. It also revealed

that very few student-mothers had a positive self concept, knew and accepted oneself, displayed social sensitivity, had confidence, conformed to social expectations to promote self-realization and that of others and above all they set realistic goals. These are the few who were able to compete comfortably with their counterparts and bettered their academic performance.

The return to school policy is a noble idea to help girls who would have otherwise dropped out of school because of pregnancy get a second chance to education. These girls need adequate support if they are to complete their secondary education and get access to higher education. This should be done jointly by all stakeholders to ensure their retention to completion upon returning to school. There is need to advise the student-mothers on effective (problem focused) coping strategies to enable them adapt to them more than using other strategies (such as avoidance and emotion focused) that may finally affect them socially and psychologically.

Recommendations

The following recommendations could be considered for adoption and put into practice so as to support student-mothers go through their secondary school education successfully:

1. Teachers need guidance with respect to how student-mothers can be encouraged and supported academically so that they do not make these students' lives worse because of insensitivity. This is necessary because the study found out that most teachers did not know how to handle and offer advice to student-mothers.
2. There is need for schools to motivate guidance and counselling teachers by sending them for seminars and workshops to help them sharpen their skills.
3. There is great need to have the student-mothers transferred to other schools to avoid stigmatization. This should however be done only after conducting a series of counselling services both at the current school before exit and the new school on readmission.
4. Encourage parents who can afford to take their daughters to boarding schools to enable the students have ample time to study while at school without much difficulty. However, for parents who may not afford boarding fees they should have their daughters readmitted in preferably different day schools from their previous schools and they be given ample time to study while at home.
5. Professional counselling preferably by trained counsellors to both boys and girls through mentorship should be instituted and given greater priority.
6. Schools, communities and individuals need to be sensitised on the return to school policy to make them aware about its existence and thereby appreciate it.

7. How to sustain the girls upon return should be the key issue of concern since the government has no setup plan currently to do this. This is necessary to promote retention and hence improve completion rate of the student-mothers upon resuming studies. Consider putting in place:

- Formulating a uniform strategy to assist student-mothers make up for the missed lessons by offering remedial teaching for them in the evenings and weekends.
- A way in which schools can keep in touch with the girls outside the school. For example; making follow-ups on how they handle themselves and make use of their time while at home.

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FOOD SECURITY: A CRUCIAL ELEMENT IN TRANSFORMING SOCIETY THROUGH QUALITY EDUCATION

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In the world there are approximately 800 million people who live in condition of food insecurity and illiteracy. Incidences of food insecurity are particularly devastating and remain a challenge in developing countries due to a combination of factors, including high population growth, small land size, more attention given to cash crops for food crops, recurring floods and drought, as well as poor targeting of development policies.

Investment in education is believed to be associated with household food security. Educated individuals have more capacity and opportunity to realize food security this is because education boosts human capital (skills and knowledge) and incomes, which are strongly associated with increased agricultural productivity, higher and diversified incomes, sustainable agricultural practices and reduced poverty.

Chronic food insecurity undermines the possibility of attaining quality education. This is because it leads to inadequate dietary consumption, which affects children school enrollment, attendance, retention and concentration.

This paper explores the impacts of food security and education and vice versa and elaborates specifically on how food security affects the three educative stages (childhood-0-5yrs; School age-6-17 and adulthood-18 and above). It also demonstrates the key role of education, as an instrument of social change and productivity that contribute to food security.

Education and food security reinforce each other: more food security within a household is likely to lead to more education and vice versa. Education increases opportunities to acquire productive skills and openness to new ideas. Primary education has the strongest influence on rural household food security.

Inadequate consumption during the first 24 months of life from conception (also known as the “window of opportunity”) could lead to irreversible damage in the cognitive abilities of a child and reduce the possibilities of attaining high quality education. Therefore food security is a clear threat to attaining quality education in both rural and urban areas.

The paper recommends increased focus on early child development programmes in the area of both nutrition and education. Primary education should be strengthened as it is the basis for human development and rural food security. Education-for-all policies need to be accompanied with institutionalized measures to address hunger-related impediments to school attendance and learning.

Introduction

Basic education is a key ingredient for improving economies and creating literate, self-reliant and healthy societies. The World Education Forum held in Dakar, adopted the Dakar Framework for Action to reaffirm commitment to achieving Education for All (EFA) by the year 2015. The World Declaration on EFA also noted that there is a strong link between education and food security as learning outcomes are compromised by ill-health, hunger and under-nutrition which are all inter-related with food security (Sibanda-Mulder, 2004). . This paper gives an overview on food security concepts, shows the links between food security and education and pays particularly attention on the mechanisms by which food security affects education and vice versa.

The right to food is a human right inherent to all people. It encompasses the right to an adequate diet and the fundamental right to be safe from hunger. The former covers the medium and long term, while the latter relates to the short term. The right to food complements and reinforces food security through a legal dimension and its reference to fundamental rights. This concept makes states responsible for ensuring the enforcement of this right and its gradual achievement for all people living within their borders.

Concept of Food Security and Hunger

Worldwide it is estimated that 800 million people in condition of food insecurity and illiteracy (Burchi and de Muro, 2007). Food security is a broad and complex concept. It is commonly defined as a normative condition “where people all people at all times have physical and economic access to sufficient, safe, and nutritious food for a health and active life” (FAO, 1996).

From the definition, food security is a very broad subject. However, in the most basic understanding food security has four elements: 1) *Availability* (the supply of food in an area through domestic production, commercial imports and food assistance); 2) *access* (a household’s ability to obtain that food through own production, market and labour exchange); 3) *utilization* (a person’s ability to select, take-in and absorb nutrients, 4)

vulnerability/stability--uncertainty and risk of changes in the three above factors (Broca, 2002; WFP, 2009).

If food security involves access at all times to enough and appropriate foods, then “food insecurity” reflects uncertain access to enough and appropriate foods (Barrett, 2002). Food insecurity is caused by a number of factors. Misselhorn (2005) identifies 33 drivers of food insecurity ranging from climatic disasters, social and political unrest or war, prevalence of HIV/AIDS, poor human health, poverty, poor market access and high food prices. Some of the emerging causes of global food security include increased use of cereals to produce bio-fuels and meat/milk for the large emerging economies such as India and China, climate change, price volatility of in the food and energy markets (European Commission, 2009).

One of the main consequences of food insecurity is hunger which is defined as physiological condition in which people lack the required nutrients, both macro (energy and protein) and micro (vitamins and minerals), for fully productive, active and healthy lives (WFP, 2006). Hunger can be a short-term and phenomenon or a longer-term chronic problem and this distinction will be important when looking at the effects of food security on education.

Hunger can result in a significant shortfalls in the consumption of macronutrients (calories, protein, fats), which physically manifest as under-nutrition (Barrett, 2002), which affects bodily processes such as growth, pregnancy, lactation, physical work, cognitive function and resisting and recovering from disease (WFP, 2006). Malnutrition is a complex condition that results from an interaction of hunger and other variables such as health status, energy expenditure in work, water and sanitation and micronutrient (vitamin and mineral) intake, among other factors (Barrett, 2002; CDC/WFP (2005).

Hunger, malnutrition, low achievement in education and poverty are closely linked to food insecurity. If poverty is a cause of hunger, malnutrition can be a cause of poverty since it may reduce people’s mental capacities to perform well in school and physical capacities to work and gain income or produce food (European Commission 2009).

There is a two-way relationship between education and food security. The impact of food security and education is well understood and documented however the impact of education on food security is much less understood. In the next section these are tackled.

Hunger’s impact on learning

World Food Programme (2006) identifies the impact of hunger at three main phases of the educative process: Early childhood (0-5 years); School age (6-17); and Adulthood (18 and above).

Early childhood (0-5 years): Hunger at this stage of life, can cause damage to a person's basic learning capacity (i.e. ability to utilize future learning opportunities). Nutrition during pregnancy and the first two years of life (i.e. 1,000 days of life) strongly influences future mental capacity. Research indicates that the brain sizes of malnourished children are smaller as a result of reduced development, which negatively impacts cognitive function. Inadequate brain growth explains why children who were malnourished in the womb and in infancy often suffer lasting behavioral and cognitive deficits, including slower language and fine motor development, lower IQ, and poorer school performance (Rosales, Reznick and Zeisel, 2009, WFP, 2006). After birth children undergo a rapid pace of brain development and need a high level of fat in their diets until about years of age. Therefore babies should receive most of this fat from breast milk in the first year of life or other sources (WFP, 2006).

School age (6-17 years): The main negative effects of food insecurity on education are most visible at the school age phase (WFP, 2006). Children who are hungry are more likely to have difficulty concentrating and performing complex tasks, even if otherwise well nourished. Data from many studies on school breakfast programs suggest that omitting breakfast interferes with cognition and learning, an effect that is more pronounced in nutritionally at-risk children than in well-nourished children (Sibanda-Mulder, 2004).

In this case hunger may limit the future capacity to learn (i.e. affect learner's basic characteristics and therefore their ability to utilize future learning opportunities). It also lowers enrollment, attendance and retention as well as concentration and ability to perform complex tasks. Since schooling is seen as an essential opportunity for learning, these are large impediments to child mental development. Another relevant problem at this stage is that food insecure families face higher opportunity costs in sending children to school because they could earn and provide means of subsistence to the household members. Such opportunity costs are even larger if school fees exist (WFP, 2006).

Adulthood (18 and above): Hunger in adulthood (18 years and older) does not have the long-term damaging impact on mental capacity that it does in earlier stages of life. But it can make it difficult to take advantage of opportunities to learn. Hungry adults have less time to focus on activities that do not have a direct payoff in improved nutrition. In this case there is an opportunity cost that adults have grapple with and in many cases the learning opportunities are sacrificed when adults are confronted with the choice to look for food or education. Hungry adults also have difficulty in concentration and this means that that they

do not acquire the skills needed to address hunger for themselves and their children. This increases the risk of transmitting hunger inter-generationally (WFP, 2006).

Learning's impact on hunger

Education and food security reinforce each other: more food security within a household is likely to lead to more education and vice versa. Burchi and De Muro (2007) attempted to explain the how education can promote food security. Using country-data from 48 low income countries, they found that primary education, more than secondary and tertiary education has the strongest influence on rural household food security and suggested that investment in primary education is an important means to achieve food security. They observed that education is one key factor promoting social change and fostering household economy. The study also demonstrated that mothers' education was a key factor to reduce child food insecurity which we have seen has important effect on learning during the childhood stage. Therefore having basic education allows women to become an instrument of social change.

Women's education contribute to food security was found to be related with increased food diversity provided for household consumption (Olumakaiye and Ajayi, 2006). Women's education also leads to lower fertility and child mortality, as well as better health, nutrition and educational outcomes for children. It has been shown that malnutrition that occurs during childhood, adolescence and pregnancy has an additive negative impact on the birth weight of future babies (Dauda, 2009). There is no doubt therefore that increased school enrollment, attendance and completion among women or girls could transform the society positively.

WFP (2006) also attempts to explain how education contributes to food security by looking at how learning at the three main phases of education: childhood, school age and adulthood. Learning at childhood does not teach any particular skills relevant to addressing hunger, but it lays the foundation for future cognitive development.

At the school-age stage, it allows children to acquire the skills and openness to new ideas (such as new agricultural techniques or improved hygiene) and a greater capacity to understand and apply them. This observation echo the findings of Burchi and De Muro (2007), which shows that mother's education results is a key factor in reducing child food insecurity.

At adulthood, learning helps people to acquire the specific skills that increase their livelihood choices and opportunities and engage in activities that increase food production

and income/resources to buy food at the household level. Other learning opportunities can teach better nutritional practices, such as improved hygiene and exclusive breastfeeding for the first six months. These changes in livelihoods and behaviour contribute to improvements in the nutritional status of adults — and feed back into improved prospects for their children. The effect of learning at the adult stage is discussed further in the next section.

How does Food for Education improve Nutrition and Food Security?

Education is considered one of the most powerful tools for reducing hunger and poverty. In economic terms, lack of education undermines productivity, employability and earning capacity. In rural areas it has been shown that it improves agricultural productivity leading to food security (Burchi and De Muro, 2007).

However the effect of education and learning is broader because it is an instrument for social and institutional change. It has a particularly key role in access and use of public information concerning food production, health, nutrition and hygiene which creates more awareness (ibid).

Therefore those who lack access to basic education are likely to be excluded from new opportunities, and where long-standing gender gaps in education persist, women will be at increasing risk of falling behind men in their ability to participate in development (Olumakaiye and Ajayi, 2006).

In the agricultural sector, studies indicate that four years of basic education significantly increase farm output (Moock, 1994 as cited in Levinger, 1996). This is because basic education boosts literacy, numeracy and specific skills for agricultural production, better resource management and higher income potential that enhance and sustain livelihoods. Primary education and literacy, combined with training in basic skills has been shown to have an immediate and positive impact on farmers' productivity. In addition, education and training aiming at building gender equality is a prerequisite for the eradication of poverty, and increased food security (Mc Harry, Scott, and Green, 2002) which are important positive aspects for societal transformation.

Furthermore, individuals who receive a quality education are better able to earn a livelihood that provides the purchasing power to obtain nutritious food. Educated individuals are also more likely to practice safe food storage and preparation techniques and to practice basic principles of nutrition, health and childcare.

Enrollment, Attendance and school feeding

Many governments recognize the pivotal role of basic education in overall human development and promote Education-for-All (EFA) policies. In Kenya, this is popularly known as Free Primary Education (FPE). While these policies are well-intended, the challenge of having brought more children is for them to learn, especially in situation of short-term and chronic hunger situations and this is where school feeding or food for education (FFE) can contribute.

We have seen that poor health and poor nutrition among school-age children diminish their cognitive performance either through physiological changes or by reducing their ability to participate in learning experiences, or both. Short-term hunger, common in children who do not eat before going to school, results in difficulty concentrating and performing complex tasks, even if the child is otherwise well nourished (Bundy, Burbano, Grosh, Jukes, Gelli, Drake, 2009).

Foods for education (FFE) aims at increasing enrolment, attendance, retention and stimulate learning through the provision of in-school meals, which alleviates short-term hunger, or through the provision of cash or in-kind incentives such as take home ration for girls or other target groups (Janke, 2000).

However, helping children to be more able and available to learn will not improve education achievement unless it is matched by the delivery of quality education. This requires that other endogenous factors such as the quality of teaching and the availability of textbooks to be in place to be able to achieve the intended education outcomes (Bundy et al., 2009).

Studies on school feeding programs and attendance show that attendance is typically higher at program than at non-program schools. Attendance often jumps at program inception then levels off at a higher sustained rate than at non-program schools. Take-home ration activities result in greater attendance increases for girls' attendance tracking is problematic.

A study by Ahmed and Ninno (2002) revealed that in Bangladesh Food for Education programme, started for poor households, increased enrollment in FFE schools by 35 percent per school over the two-year period from the year before the program to the year after the introduction of the program. Equally the enrollment of girls increased by a remarkable 44 percent, and for boys, the increase was 28 percent.

The study also showed that school feeding programs or food for education can also be used to improve the school performance and education quality in general. It notes that the

government of Bangladesh imposed a number of additional requirements (related to teaching and learning) for the schools to qualify for program participation which in the long-run increased overall school performance.

A study by Gelli, Meir and Espejo (2007) also concurred with these findings regarding increase in enrolment of girls with take home rations. In contrast, per school enrollment in non-FFE government primary schools at the national level increased by only 2.5 percent, 0.1 percent for boys and 5.4 percent for girls over a two-year period from 1992 (the year before the FFE program was introduced) to 1994. As recorded in the attendance register, the overall rate of attendance is 70 percent in FFE schools and only 58 percent in non-FFE schools while only about 6 percent dropped out compared to 15 percent of the non beneficiary students in FFE schools.

In Sub Saharan Africa schools with only on-site feeding showed the highest rates of increase in grade 1 throughout the assistance program, year after year. Generally, after the first year of assistance, the average percentage changed. Among girls, absolute enrollment in schools with combined take-home rations and on-site feeding are most significant in contributing to higher primary school grades (Gelli et al., 2007).

There is a clear indication from the above studies that school feeding programs/food-for-education in the form of take home rations are good methods for ensuring school enrolment especially among girls, improved performance of individual pupils and the school in general and reduced school dropout.

School feeding can reduce short-term hunger of school-age children; second, it contributes to lower the opportunity costs of food insecure families, since they have to feed fewer members. Third, the opportunity of giving a meal is also an opportunity to address specific nutrition problems, such as iron or iodine deficiencies (WFP, 2006).

Educated individuals have more capacity and opportunity to ensure food security for themselves and for the society as a whole, increased school enrolment and attendance and reduced pupil drop-out due to feeding programs might in turn lead to future food security as a result of pupils who complete school being in a position to access and produce food, and be involved in gainful employment and this could transform the society through elimination of illiteracy, food insecurity and its related effects such as diseases caused by malnutrition and low achievement of children in school as well as poverty.

Conclusion

Hunger, malnutrition, low achievement in education and poverty are closely linked to food insecurity. There is a two-way relationship between hunger and education.

The impact hunger on learning depends on the educative phase (childhood, school age and adulthood). The impact of hunger in the childhood stage (0-5 years) could lead to nutritional deficiencies could hinder brain development and cause irreversible negative impacts on cognitive function. Therefore, this is the window of opportunity to establish basic learning capacity. There is substantial evidence that investing in early nutrition has profound consequences for subsequent development.

The main negative effects of food insecurity on education are most visible at the school age phase (6-17 years) as it affects enrollment, attendance, retention and concentration. At the adult stage, hunger creates a vicious cycle which could lead to inter-generational transmission of hunger. But this cycle can also be reversed, with good nutrition and enhanced learning.

Education and food security reinforce each other: more food security within a household is likely to lead to more education and vice versa. Education is a key instrument for promoting social change. It increases opportunities to acquire productive skills and openness to new ideas. It is a key element in the access and use of public information. This is because basic education boosts literacy, numeracy and specific skills for agricultural production, better resource management and higher income potential that enhance and sustain livelihoods.

Primary education, more than secondary and tertiary education has the strongest influence on rural household food security and suggested that investment in primary education is an important means to achieve food security. Mothers' education plays a key role to reduce child food insecurity and therefore educating women allows them to become an instrument of social change.

School feeding programmes do contribute to achievement of enrollment, school attendance and retention. However, without complementary inputs such as scholastic materials, proper learning spaces and effective teaching its contribution to overall education outcome would remain marginal.

In view of the above observations, nutrition interventions should give priority to preventing malnutrition during the first 24 months of life—from fetal development to the early years of life—which is the most critical period for growth and development. This should be complemented by early child development programs which build on the foundational cognitive potential created during the first 24 months.

Primary education should be strengthened as it is the basis for human development and rural food security. Education-for-all policies need to be accompanied with institutionalized measures to address hunger-related impediments to school attendance and learning.

However, school feeding programmes cannot deliver the educational outcomes in isolation. They must be accompanied by sufficient budgetary support to provide complementary inputs such as scholastic materials, high teaching standards and adequate learning spaces to achieve the educational goals.

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TEACHERS' PROFESSIONAL DEVELOPMENT: SUSTAINABLE AND GENERATIVE MODES

Irene Simiyu

Abstract

The issue of professional development for teachers has in the recent past drawn substantive attention from education stakeholders, the world over. This is with particular consideration of the relationship that exists between teacher quality and improved student learning outcomes. While effective professional development opportunities can enhance teachers' knowledge and enable them to develop new instructional practices, literature and studies have revealed ineffectiveness in some of the modes. Of particular concern is firstly, the inability of some modes to support continual improvement of practice. This is as a result of several issues that are connected to the way the opportunities are designed and the level of involvement of the teacher who is the target of the professional development opportunity. Secondly is how feasible and practical is the opportunity given that follow-up is minimal or even none at all. Arguably, the organizers of such opportunities do not seem to recognize the various ways in which adults learn, a factor that may lead to the 'new' knowledge taking root or being ignored. However, this situation need not be so, as demonstrated by literature and studies. Professional development opportunities should include inquiry-based and self-directed activities, coupled with a commitment to working with colleagues in the process of designing learning and assessing procedures. To argue out this thesis, this article will briefly examine current professional development opportunities in the East African context and then propose modes that are sustainable and generative. The article ends with a discussion of the implications for teachers, schools and Ministry of Education officials.

Key words: Professional development opportunities, teacher learning, student learning outcomes, collaborative approaches.

I. Introduction

Worldwide, education systems have come under scrutiny especially in regard to the quality of graduates that leave the schools at the end of every academic year. The prominence and scope of interest in this subject are illustrated by a growing body of empirical evidence and articles, that seek to explain the factors that influence students learning outcomes (Darling-

Hammond, 1998; Putnam and Borko, 2000; Johnson, 2006; Verspoor, 2004; Cochran-Smith and Lytle, 1999). The East African region has not been left behind in this concern. Currently, the region is facing challenges brought about by the Education for All initiative (EFA) whose main objective is ensuring equitable access to good quality education. These challenges include large classes, heavy workloads for teachers and overstretched resources, as more and more children are enrolled in schools. Despite this scenario, education stakeholders in the region have raised the demand for quality in student achievements to ensure manpower that will propel the region to high levels of development (Okuni, 2007). In response to this demand, education officials have formulated policies whose successful achievement depends on the contribution of several factors, chief among them: the teacher. Indeed, for the governments of East Africa and the rest of the world, there is an emerging consensus that points to the view that what teachers know, do and care about, will determine what students learn, how they learn it and what the students turn out to be (Hattie, 2003 cited in Meiers 2007; Borko, 2004). Literature by Verspoor (2004) and UNESCO (2005) reveal that, effective teachers are a key enabling factor in the realization of quality education in both more-and less-developing countries. As a consequence, improving the effectiveness of teachers has become a favored strategy and one that donors like World Bank and the United Kingdom's Department for International Development (DfID) have invested in heavily (Johnson, 2006). This is a departure from the former trend, where international agencies made investments in the 'hardware' of education that includes textbooks and other materials, and rarely in the 'software' or the teachers (MacLeod, 2007). The impetus to invest in teachers could be informed by views like those of the American Federation of Teachers (AFT) (2002) that:

"The nation can adopt rigorous standards, set forth a visionary scenario, compile the best research about how students learn, change text books and assessment, promote teaching strategies that have been successful with a wide range of students and change all other elements involved in systemic reform-but without professional development, school reform and improved achievement for all students will not happen"(p. 2).

The above view places teachers' professional development at the centre of school improvement that is evident in among others, improved learning outcomes for all students. Current thinking about teacher learning consistently points to the view that when teachers improve their skills, aptitudes, understanding and ability to adopt innovations, then they will be able to get their students academically engaged (Wong, Britton and Ganser, 2005; Borko, 2000).

A review of literature in the area of teacher learning reveals several definitions of professional development. However, in regard to the discussion presented in this article, I will adopt the definition of professional development as:

“...the process by which, alone and with others, teachers review, renew and extend their commitment as change agents to the moral purposes of teaching and by which they acquire and develop critically the knowledge, skills and emotional intelligence essential to good professional thinking, planning and practice...”(Day, 1999 cited in Leliveld, 2006, p.4).

This definition has two strengths. First, it points to the important aspect of collaboration that is key to any discussion of how adults learn and consequently, how learning opportunities for adults need to be structured. Secondly, it considers the outcomes of an effective professional development opportunity as including the development of knowledge, skills and dispositions that will enable the practicing teacher to improve their quality and the quality of their practice. This can only happen if professional development is viewed as a continuous process of reviewing, renewing and deepening a teacher’s understanding of teaching, a factor that makes it mandatory for the teacher who seeks to be effective. Drawing on literature and studies on teacher learning, this article will briefly examine why professional development is pertinent to the teaching profession and then provide a brief critique of current professional development opportunities in the East African context, before discussing proposed modes that could be sustainable and generative. The article will conclude by examining anticipated barriers to the effective realization of the proposed modes of professional development and the implication of knowledge generated by this discussion, for: practicing teachers, schools and Ministry of Education officials.

II. The ‘Why’ of Professional Development

The 21st Century teacher is faced with the daunting task of handling learners who are diverse in all senses but who have all to be prepared to take up roles in a world that is constantly changing, again, in all senses. To do this successfully, Darling-Hammond (1997) posits that practicing teachers need to develop appropriate skills and knowledge “... to prepare students to frame problems; find, integrate and synthesize information; create new solutions; learn on their own; and work cooperatively” (p.154). As a result of this and other expectations, a number of reasons have been indicated for teachers’ professional development.

First, powerful teaching is increasingly gaining importance, as standards for learning are now higher than ever before. Teachers are expected to prepare all students for higher order thinking and performance skills that were previously reserved for only a few (Darling-

Hammond, 2006). This expectation is driven by the demand for greater knowledge and skills that meet world standards, given that the world is now a global village and one can offer their services anywhere. Consequently, the teacher needs to learn the skills of teaching in ways that will develop in their learners, knowledge for success and survival. Literature and studies reveal the fact that teaching is a dynamic job, that requires the teacher to shun routine and to constantly deepen their knowledge of student thinking, subject matter knowledge, instructional practices and assessment procedures (Borko, 2004; Cochran-Smith and Lytle, 1999; Hoban, 2002). This is knowledge generated from educational research or from experiences of teachers who inquire into their classroom practice, with a view to come up with best practices.

Secondly, while a demand is placed on the teacher to assist students to achieve their best in learning outcomes, no school of education can boast of being able to adequately prepare the teacher for the demands of a classroom situation. As a result, practicing teachers find themselves inadequately equipped to be 'in-charge' of their domain, especially when faced with the challenges of handling 21st Century learners. Such learners may have issues related to their social life, finances or even their health, which present educational challenges that have to be handled before they are helped to engage in academics. For the practicing teacher to do this effectively, they have to seek for knowledge by learning either from the situations that present themselves in their classrooms or, in formal in-service courses. Indeed, there is need for education stakeholders and teachers in particular, to configure teacher learning as the pre-service continuum, in what Nemser (1983) aptly describes as a continuous process starting with pre-service and going on throughout the teacher's years of service (p. 151). It is a truism that no teacher knows everything and thus a professional teacher is one who continues to learn from and about teaching, rather than one who has finished learning (Darling-Hammond, 2000). Undoubtedly, it is when teachers admit their inability to know everything that they will be ready to seek for knowledge and improve practice.

Thirdly, 21st Century schooling is faced with emerging issues that challenge effective practice. These include: large classes that now contain an ever increasing diversity of learners who have to be understood, nurtured and assisted to achieve their best performance; fewer school leavers opting for the teaching profession and consequently fewer teachers against a large number of students; resources that are overstretched and therefore the need for the teacher to engage their creativity in improvisation, against financial and time constraints; students who are either infected or affected by the HIV/AIDS scourge; pressure from school administration and education officials to 'produce quality grades' without considering individual student abilities and school contexts and, the changing educational technology that the teacher has to acquaint themselves with, if they

have to remain relevant to the profession. Given this range of challenges, the need for approaches of handling emerging issues is not optional, but an essential and indispensable process, especially if teachers have to support student learning and support it effectively. While effective professional development opportunities can enhance teachers' knowledge and enable them to develop new instructional practices, literature and studies have revealed ineffectiveness in some of the modes. A brief examination of professional development opportunities in the East African region reveals some of these shortcomings.

III. A Critique of Current Professional Development Opportunities in the East African Context

Literature and studies on teacher learning show that the overarching goal of professional development is the improvement of teacher quality, that could in turn result in improved learning outcomes (Borko & Putnam, 2000; Borko, 2004; Darling-Hammond, 2006; Fullan, 2003). However, current approaches of professional development like workshops, seminars and induction programs, have been criticized for a number of shortcomings. This is especially in regard to their effectiveness in leading to improved learning outcomes, the way the opportunities are structured, the role of the teacher who is the target of the learning experiences and the component of follow up, that is intended to provide support as well as evaluation of the effects of teacher learning on student outcomes (Hoban, 2002; Darling-Hammond, 1998; Guskey & Huberman, 1995). These shortcomings have also been identified in the East African context, where a growing body of literature and empirical evidence on teacher learning has come up with similar findings but at the same time, revealed some that are contextual.

Over the past decade, the governments of East Africa have made efforts to ensure continuous professional development of teachers through in-service training (INSET). For example, Kenya developed and implemented School Empowerment Program (SEP), Strengthening of Primary Education (SPRED) and Primary School Management (PRISM) between 2001-2010, with the aim of strengthening subject specialists in primary Mathematics, English and Science. Uganda launched Teacher Development and Management Systems (TDMS) and Teacher Development and Management Plan (TDMP) in the 1990s, to encourage teachers to apply action research to improve teaching, involved teachers in structuring professional development opportunities, among others (Okuni, 2007). Tanzania developed and implemented Primary Education Development Plan (PEPD) between 2002-2006, targeting teachers, tutors, headteachers, Ward education coordinators and other education administrators (GURT, 2001). Despite these efforts, Moulton's (2000) assessment of Uganda's efforts reports the inability of teachers to use effective teaching methods and thus resorting to rote methods. Kiura, (2005) cited in Okuni (2007) points out

that the first cohort of key resource teachers in the coast province of Kenya, remained underutilized for sometime, lacked the support of headteachers and their input was not recognized by teachers. In Tanzania, GURT (2001) and Kanyike, (2005) found that the emphasis of the INSET programs was on upgrading teacher qualifications for higher job mobility and better salary prospects, consequently, teachers improved their credentials without improving classroom practice.

Shortcomings like those cited above call for innovative professional development modes that take into consideration the fact that teaching is a profession in a complex world and therefore learning about it should not be an 'additive process' involving the accumulation of knowledge and skills from one-off workshops (Hoban, 2002). Instead, professional development opportunities should be informed by theories of how adults learn; learning theories like cognitive and social constructivism and approaches of content delivery to adult learners. Such theories include; Mezirow's theory of transformative learning, cited in Jarvis, Holford and Griffin (2003), which posits that learning occurs when adults create new knowledge using their experiences as reference points for exploration, new application and new learning. This concurs with the theory of collaborative learning, whose main argument is that adults prefer to learn in collegial environments that allow them to bring extensive life experiences which can be shared to lead to new learning (Knowles, 1980 cited in Rudney & Guillaume, 2003). The Social constructivism theory confirms that learning takes place where sharing is encouraged, ensuring scaffolding, the guidance by a More Knowledgeable Other and the improvement of the level of proximal development, that can simultaneously empower and enhance practice (Pritchard, 2005). Cognitive constructivism theories of Brunner and Piaget (Ibid) argue that the learner is not 'tabula rasa', and so the learner's knowledge and understanding need to be taken into account. The focus in these learning theories is on how knowledge is constructed rather than how it is acquired, because noteworthy teacher growth can never be based on transmission or delivery of facts and information, but on active learner participation.

In consideration of the discussion above, this article will propose modes that are generative and sustainable. These modes are underpinned by the classroom-based teacher development approach, an orientation that situates the professional growth of teachers within the daily realities of their classrooms (Thiessen, 1992).

IV. Sustainable and Generative Modes of Professional Development

As an alternative to current professional development opportunities, research in teacher learning concur on the view that teachers should learn through self-directed, inquiry based activities which not only help teachers to understand their practice, but also

to improve it (Ponte, 2005). This article will propose four such approaches that are sustainable and generative.

(a) Action Research

Action research is defined as self-reflective inquiry undertaken by teachers with the aim of improving practice (Carr & Kemmis, 1997). This places the teacher in the central position of identifying the issue to be examined, gathering data, analyzing data collect from their classrooms and sharing this knowledge with colleagues. According to Hendricks (2006), the purpose of action research is for the teachers to understand their practice through knowledge that they have generated and thus professional development. Action research is underpinned by two key elements of adult learning: firstly, it is pegged on collaboration where teachers work together or external researchers in formulating the problem, gathering data and engaging in reflective conversations, from which conclusions can be drawn to create theories of practice. This aspect increases commitment to change; increases the probability that proposed actions are possible; draws upon a range and variety of talents; reduces the individual risk and prevents feelings of manipulation (Noffke, 1997 cited in Ponte, 2005). Secondly, teacher research focuses on systematic and intentional inquiry by teachers on the issues in their own classrooms, thereby ensuring their active participation, which provides unique perspectives on teaching and learning (Lytle & Cochran-Smith, 1994). The action research process proceeds through stages beginning with the formulation of a general idea that entails the problem or issue to be studied; exploration of the general idea against literature and studies; drawing up a general plan, implementing it and evaluating the outcomes of the actions and writing up (Carr & Kemmis, 1997). The researchers keep reflection journals to record and evaluate actions and plan for follow-up, while also holding frequent discussions with a critical friend to ensure personal biases do not affect the findings. Arguably, action research can be used to counteract the tendency towards an externally controlled and regulated teacher profession and thus ensuring that teachers own their practice (Ponte, 2005)

(b) Peer Coaching

Shallaway (1997) makes a true observation that teachers at whatever level in their career, need each other. She points out that teachers are each other's best allies and their friendship leaves a mark on each of them and their teaching. This article examines two ways in which these close partnerships lead to teacher learning and thus professional development. These two are peer coaching and lesson study. Peer coaching involves a partnership where two teachers agree to observe and critique each other's teaching as a way of supporting each other in implementing new strategies or in the process of practicing

differently for effectiveness (Shallaway, 1997). Peer coaching happens when one partner picks on a colleague whose teaching style or educational ideas they respect or whom they are comfortable with. This is to ensure that the learning environment is one that is non-threatening and that encourages trust. The two then discuss and identify an area of pedagogy to focus on and which has presented challenges to either of them. The two then identify how the observation will be carried out, given that most teachers are hesitant to be observed when teaching. However, once the agreement is reached, the coach should proceed to observe and keep notes that will be used during the conferencing session. In the conference, the coach debriefs the partner and offers technical feedback, while ensuring the partner also gives their reasons for acting the way they did in carrying out the lesson. The conference session should involve collaborative problem solving and joint reflection. The cycle can be repeated to ensure the partner has a good grasp of the strategy as evident in the students' learning outcomes.

Like peer coaching, lesson study involves two teachers sitting together and agreeing to focus on a specific problem or concern in their classroom practice. One teacher teaches while the other observes, recording specific behavior, comments on the teacher's engagement with students, resources and content and, other classroom happenings. Together, they reflect on what happened and try to develop strategies for improvement. While peer coaching inevitable points to the superiority of one partner, in lesson study, this need not be the case, since the overall aim is to assist each other carry on the teaching practice in an effective manner.

(c) Team Teaching

Team teaching is a partnership where two or more teachers plan and teach topics in each other's classes. The partners acknowledge that first they are learners and teachers second, a factor that encourages willingness to help each other in their classroom practice. This strategy has several benefits: firstly, it offers the partners an opportunity to brainstorm, share ideas and plan a lesson or unit to be taught in each others classes. Secondly, it provides the chance to observe other teachers in action, a factor that ensures that one can adopt best practices observed as opposed to being 'told' what to adopt as in the case of in-service programs. Thirdly, the team is able to handle diverse students and consequently learn how to deal with each child, thereby improving understanding and retention of content. Given that the team members work in each other's classes, the students are also exposed to different personalities and teaching styles, a factor that leads to more enjoyable learning. Team teaching capitalizes on the strengths and expertise in the team and results in members using the knowledge gained in this non-threatening environment, in their classes. The team works by focusing on one or two issues that present challenges to either a

member or several members, for example content delivery of a certain topic or classroom control. One or two members carry out the observation focusing on the classroom conduct of the teacher and students. This information is then discussed in the conference, where emphasis is on what was observed and how it can be corrected. To make team teaching effective, the members should be of equal status or almost equal so that a mentor-mentee relationship does not appear. It is evident that team teaching is informed by collaboration and makes use of members in providing the knowledge needed for improving practice. Members are also available to provide support and it can be argued that time and energy is well used in such a partnership.

The modes discussed above are informed by views like those of Hargreaves and Fullan (1991) that effective professional development involves intensive, sustained, theoretically-based, yet practically situated learning, with opportunities to observe good practice and be involved in the structuring of the opportunity.

V. Barriers and Benefits

There is a growing body of evidence within teacher learning that highlights the effectiveness of the above modes in improving teacher quality and consequently student outcomes (Hendricks, 2006; Lytle & Cochran-Smith, 1994). However, there are inevitable challenges peculiar to the East African context. Chief among them are: Firstly, given that the region is currently grappling with the challenges brought about by the EFA initiatives like universal free primary education, the teachers may find the heavy workloads demanding a lot of their time. This could result in teachers who have less energy to engage in anything outside their classroom practice. Despite this possibility, determination to find best practices to handle the challenges of heavy workloads and large classes, can be the impetus for teachers to still seek out knowledge. Secondly, the above modes are site-based development opportunities and may therefore lack the injection of new ideas that are grounded in research, a factor that could lead to teachers not extending their thinking in challenging ideas or even working with proven approaches. I therefore concur with Hoban (2002) that this is a factor that may cause teacher change to take several years to show and consequently a slower pace of improvement in learning outcomes for students. The solution to this situation is found in teachers networking with colleagues from other schools, partnering with schools of education found in the various universities and with a small number of professional development schools, like the Aga Khan academies.

Benefits

Under the right conditions, the positive benefits of these modes will include: First, since the learning experiences are site-based, they are inevitably connected to the classroom practices of the teachers, making it likely that what is learnt will influence and support teaching in meaningful ways (Putnam & Borko, 2000). This also means that teacher learning will be geared towards solving contextual issues that are a challenge to teachers and whose solution will result in the school adding value to all its learners. Secondly, given that these modes encourage collaboration in the learning process, it is likely that collegial relations among teachers will be enhanced, a factor that is useful in ensuring school improvement. Thirdly, by engaging in professional development using these modes, teachers will realize their ability to create new knowledge that can be shared with colleagues, a factor that is a motivator towards seeking for more learning opportunities. This is also likely to lead to the development of learning communities where there is frequent talk among teachers, frequent opportunities to observe and evaluate one another's teaching, regular opportunities to design and evaluate teaching material and regular opportunities to teach and learn from one another in a non-threatening environment (Nemser, 1983).

VI. Implications

The implications stemming from this discussion touch on practicing teachers, the school administrations where these teachers work and the Ministries of education which are charged with the duty of ensuring that the education systems in the East African countries produce graduates who are well prepared to meet the demands of the current world.

Implication for practicing teachers

For teachers, they should not settle for routine, instead they should be proactive in seeking for knowledge to improve their pedagogy, informed by Nias' (1992) argument cited in Stoll and Fink (1996) that teachers have a fundamental role in their own learning. This role includes eliciting information, providing constructive criticism and accepting feedback, which is necessary for improving pedagogy (Stronge, 2002). Indeed, Sergiovanni (1998) posits that the hallmark of an established profession is the willingness of its members to be concerned not only with their own practices, but also with the practice itself" (p. 38). Secondly, teachers should appreciate that change involves taking risks, even if the risk includes allowing a colleague into ones 'private domain' of the lesson. Arguably, nothing good comes easily and one has to take a risk as a step towards achieving the best. Thirdly, teachers should espouse collaboration, since teachers are their own best resource (Ibid) and in a profession where isolation is a potential threat, warm collegial relationships can bring out the best in individual teachers.

Implications for Schools

An effective teacher is perhaps the most important factor in school improvement and therefore there is a direct link between what happens to teachers and what happens to students (Wong, Britton & Ganser, 2005; Sergiovanni, 1998). Therefore schools should treat the issue of teacher learning with the seriousness it deserves. As Nemser (1983) correctly observes, schools have no well defined structures for helping teachers learn from their practice nor do schools give priority to what teachers feel are their job-related needs, a thing that is unheard of in leading corporations which invest in the professional development of their employees. Schools should therefore create strategic plans for teacher development and support sustained processes of teacher learning (Chirure, 2010). Current educational leadership thinking includes the notion of pedagogical leadership that requires that teachers take responsibility for and led teaching and learning activities (Sergiovanni, 1998). To do this effectively, schools should develop the intellectual capital of teachers by providing opportunities that extend beyond the traditional models and approaches of professional development (hill, n.d). This includes encouraging and facilitating teacher discourse, encouraging risk-taking with new ideas and the formation of inquiring communities (Sergiovanni, 1998).

Implications for Policy

The discussion above has pointed to the essential need for life long learning that is job-embedded, contextual and collaborative, and that requires teachers to engage in the inquiry into their practice. The ministries of education should therefore inject inquiry- based learning into pre-service courses so as to ensure graduates of schools of education who are equipped with inquiry skills, that include, critical thinking skills, problem solving skills and skills for reflection. This will result in teachers who can learn anything they want to learn, when they want to learn it. Secondly, the ministries of education should support school-based learning by recognizing master teachers who can be assigned the duty to work with schools in developing professional development opportunities that are informed by research and that take into consideration the context. Thirdly, education ministries should also establish professional development schools that will collaborate with other schools and where experienced teachers can work together as communities of learners. According to Darling-Hammond, Bullmaster & Cobb, (1995), such schools should not just function as laboratories, but as means of changing teaching, schooling and teacher education, drawing from research.

VII. Conclusion

From the foregoing discussion, it is evident that teachers' professional development that happens through various learning experiences is part of the job of teaching and should

therefore be configured as ongoing and lifelong. This is especially so in the 21st Century where all student have to be prepared to take up challenging roles of citizenship and work. Despite this importance, many current modes of professional development have been criticized for not considering the various ways in which adults learn, the sustainability of the learning process, the effectiveness of the knowledge gained by teachers in ensuring improved learning outcomes for all students and, the lack of or minimal follow-up help to ascertain the uptake of knowledge and its effect on learning. This article has therefore set out to propose peer coaching, team teaching, lesson study and action research as modes that are sustainable and generative. This article is also cognizant of possible barriers that could hinder the full realization of the benefits of these modes in the East African context. However, in doing this, the article has highlighted possible solutions to these challenges, for example, the need to partner with professional development schools and schools of education in various universities in order to access approaches that emanate from educational research. This discussion has implications for educational stakeholders who need to give support to job-embedded professional development and for the teachers, the need to be risk-takers, as well as willing participants in collaborative ventures.

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GIVING WOMEN AND GIRLS A SECOND CHANCE THROUGH EDUCATION

Catherine Wanjohi, Susan Karanja
LIFE BLOOM SERVICES INTERNATIONAL-KENYA.

1.0 INTRODUCTION

(Below is a poem (*original version*) composed by 3 women and girls whose main desire was to get out of the indignities of Sex Work-(2009)

WHAT DO YOU WANT?

I want food for my children,

I want a home for my children,

I want clothes for my children,

I want medicine because I am HIV positive

and so are some of my children,

Tell me, what else do you want?

I want to inherit land like my brothers,

To build a house for my children,

I want to be able to give an education to my children,

I want to know who I am and love myself,

I hear you, but is that about all you want?

I want more; I want an education for myself....

I want sooo much.....

I once dreamt of being able to take care of myself and my children

I dreamt of being useful to the community,

I want to live my dreams,

I want to be able love myself.....no matter how tainted my past is,

I want to give myself as a gift to me.....

I want more, much, much more.....

I want my parents to take me back,

I want to work through my bitterness,

I want to feel like other women,

I want to feel whole,

I want my children to be proud of me

And look up on me as their mentor and protector

I want my children to trust me.

I want my children to be treated equally though they are a prostitute's children.

I want to find justice,

I desire to lead a dignified life,

I WANT TO LIVE AGAIN!!!!!!!

2.0 MAJOR CHARACTERISTICS OF THEIR LIVES.

- Little or no formal Education
- Lives led in abject poverty.
- Background of Teenage Motherhood
- Rejection by family and community
- Indignities associated with sex work industry, sometimes leading to HIV infections or deaths, and Gender Based Violence.
- Bitterness, anger, self guilt and self pity.
- Loss of self respect, positive drive, and hope.
- Loss of their human face.

3.0 IN-HOUSE DEVELOPED CURRICULUM.

A dynamic Curriculum developed in partnership with the relevant Government Departments, and based on the needs of the women and girls.

Curriculum covers:

1. Authentic Leadership Skills/visionary leadership.
2. Vocational/Trade Skills:
Catering, Tailoring and handcraft, Salon and Beauty therapy.
3. Micro business management skills.
4. Skills in Basic literacy and enrolling for formal education, Computer skills.
5. Service Skills: Peace Building and Conflict Resolution, Countering Human trafficking and exploitation, countering Gender Based Violence, reproductive health and HIV related services.

4.0 MAJOR MILESTONES.

- Recruited and trained 247 Peer Mentors and 62 Peer Counselors, serving a current estimated 3,000 clients.

- 41 women and girls trained in Entrepreneurial and life skills. (Est. 70% are in business today).
- 36 women and girls (15 in catering, 13 in hairdressing and beauty therapy, 8 in computers) have been trained in 2009 (65% are either in paid employment or self employment).
- 3 girls are in high schools and two sat Secondary School examinations in Nov 2009. (3 of the ladies currently work with Life Bloom).
- Rescued and offered support to more than 250 survivors of Gender Based Violence and domestic human trafficking.
- Women and girls taking up positions as responsible mothers and heads of families, and community.
- Estimated 320 women and girls perceive themselves as depending on other ways of earning a living, having departed from the sex work industry (

4.1 Societal Values they bring.

- Compassion
- Being open
- Positive Pride
- Giving/generosity
- Hope/Optimism
- Oneness
- Resilience
- Laughter and a sense of “just being”
- Unleashing of potential
- Leadership.....re-defined and re-positioned.

5.0 WAY FORWARD/CONCLUSION

- With an all-inclusive model that respects the dignity of those who have been left out by our systems, we can have the more than 50% of illiterate females transform their lives and those of their house holds.
- Develop adequate policies that integrate a “need based” curriculum for the populations that have “fallen off” from the formal education system.
- Bring Kenyans to be part of this whole process, encourage Individual Social Responsibility.

“It is impossible to realize our goals while discriminating against half the human race. As study after study has shown, there is no tool for development more effective than the empowerment of women”

Koffi Annan-2006.

THE QUALITY OF UNIVERSITY EDUCATION AND KENYA VISION 2030: THE WORKING ENVIRONMENT OF LECTURERS

Dr. Julius O. Gogo
Daystar University

Introduction

Education is central to development as it empowers people and strengthens nations and hence it is critical to Kenya's attainment of Vision 2030. Investment in education benefits the individual, society and the world as a whole. A broad-based and good quality education is among the most powerful instruments known to reduce poverty and inequality. Quality education can only be achieved in a university; the major function of a university is to give ideas for the furtherance of equality, human dignity and development. Quality is a good academic training based on good knowledge transfer, a good learning environment and a good relationship between teaching and research. This implies that the quality of the lecturer (who transfers knowledge and sets the learning environment) is a critical component of quality university education.

Background to the Study

According to Republic of Kenya (2004) the provision of education and training to all Kenyans is fundamental to the government's overall development strategy. Kenya's human resource is central to the country attaining its goal of industrial development and technological advancement. Kenya Vision 2030 is the nation's development blueprint from 2008 to 2030 which aims at making Kenya a newly industrializing, "middle income country providing high quality life for all its citizens by the year 2030" (NESC, 2007). The goal of Vision 2030 is to provide globally competitive quality education and training and research for development. To meet the educational and training requirements for the vision, the challenges to be addressed include expanding tertiary and higher education enrolment in view of tuition waiver in secondary schools; expanding access and equity, which is critical in technical, industrial, vocational and entrepreneurship training (TIVET) institution and at university level; relevance of education (i.e. matching skills to market demands) and building a skill inventory for Kenya.

However, there is a serious shortage of capacity, at the university level, both public and private, as only 30% of those with the required minimum entry qualifications are admitted (Republic of Kenya, 2007: 82). In addition, university graduate specialization has remained

relatively unchanged despite changes in the domestic labour market, the global environment and advances in technology.

In an address during the launch of the Narok University College Strategic Plan, the Moi University Chancellor, Prof. BethwelOgot noted that “despite the mushrooming of many universities in the country (Kenya) the number of professors and lecturers have remained low” (Daily Nation, February 11, 2011, p.11); there are only 360 professors in more than 20 universities (serving over 200,000 students, a ratio of 1: 568). He attributed the trend to poor pay, which has forced lecturers to seek greener pastures abroad. Speaking at the same function, the Ag. Higher Education Minister, Prof. HellenSambili urged institutions of higher learning to collaborate with partners to benefit from their research findings. She emphasized that “a major contribution of university education to national development is through conducting research and ensuring utilization of research findings”. She added that “the country can only achieve Vision 2030 if it develops its own human resources with relevant skills and competences”.

Statutory regulations in public universities require those with masters’ degrees to be employed as tutorial fellows to help tutor small groups of undergraduate students as advised by a lecturer. International standards require that one should also be taught skills of imparting specific forms of knowledge to their students, a component that is lacking locally (The Standard, 2010 November 16: p.21). Unfortunately, the absence of professors in universities has resulted in reduced quality of education since university education is supposed to be more research-oriented and to help solve social problems (Muindi, 2010a). This is not possible where 70% of the teaching staff have a masters’ degree or below according to Muindi (2010b: 10). According to UASU Chairman, Prof. Sammy Okubasu, there is no motivation for professors, or even aspiring ones, to stay on doing university work. They are paid less than Kshs. 150,000 while their peers in other sectors are paid handsomely (Muindi, 2010a).

In effect universities are relying heavily on part-time lecturers and under qualified academic staff. Part-time lecturers constitute 81% of lecturers in Presbyterian University, 71% in Kabarak, 68% in African Nazarene, 59% in Daystar and 55% in Catholic. Kiriri, Mt. Kenya, Inoorero, and NEGST have no full-time lecturers. Academic staffs are not employed on permanent nor contract basis thereby casting doubt on their commitment to research and knowledge development. It is, therefore, necessary to carry out a survey on the working environment of part time lecturers especially in a private university in Kenya.

Methodology

The survey aimed at establishing the challenges facing lecturers in universities in Kenya. The research questions included: What are the qualifications of lecturers in our universities? Why do full time employees seek part time teaching? Are the lecturers adequately equipped to deliver quality education? What challenges do the lecturers face in line of duty and how do these challenges impact on their productivity? Are we satisfied with the quality of university education in Kenya? Descriptive research design was used in this study. A sample of 40 lecturers was randomly picked from a target population of 210 in a private university giving a ratio of 19%. The respondents were given questionnaire which they filled and were collected later. Out of the 40 lecturers, 33 (82.5%) gave their responses. In addition, 53 students (31 undergraduate and 22 masters) were purposively sampled.

Findings of the Study

Qualifications of lecturers

The level of lecturers' education and qualifications is a critical component of the provision of quality education at the university level. The Commission for Higher Education (CHE) demands that one must be at least one level higher than the students. However, the proportion of lecturers with doctorate degrees was only 10% in an institution in which the postgraduate students account for 20% of the entire student population. The other level of education were PhD candidates 40%, masters 45% and masters' candidates 5%. The ratio of full time to part time lecturers was 3:2. The composition of the full time lecturers was 30% senior lecturers, 60% lecturers while assistant lecturers accounted for 10%. Among the permanent employees 5% were administrative staff doing part time teaching.

Part time teaching

Lecturers find themselves teaching part time in addition to their full time work while others who are part time in one institution add work in other institutions. The reasons for teaching part time include the need for extra income, career development, meeting the needs of understaffed departments and changing environments. Lecturers earn little (as low as Kshs. 150,000 according to UASU Chairman) compared to their counterparts in other fields and as such cannot meet their daily requirements.

However, part time lecturing on top of regular work comes with various challenges. First, part time lecturers have no forum for airing their concerns and these impacts negatively on the teaching/learning process. They remain docile in an environment that requires open interaction with their full time counterparts. Second, it is difficult to balance between full time and part time work thereby making it hard to plan for the available time. In addition,

they are never sure of getting part time teaching and as such they cannot predict how to plan their time. Third, accurate payments, low payments and being paid on time are a big challenge. Part time lecturers do not benefit from institutional deductions for NSSF, NHIF, medical cover, car loans, computer loans, annual leave, pension scheme and insurance cover. Payments are irregular and there are delays that sometimes take two to three months particularly at the end of the semester. Four, lack of choice of friendly courses for part time teaching means that lecturers are not imparting the right knowledge to the students. Part time lecturers are sometimes given courses that remain unallocated to full time lecturers and these may not be in their strong areas of specialization. To avoid doing without a course to teach they accept them because they cannot choose for themselves what they desire to teach. Five, part time lecturers are overworked when they move from one institution to another and taking too much workload. Chances of taking many courses are there because there is no system of monitoring the loads they have elsewhere. In addition, they lack time to prepare for lessons, administer assignments and mark to beat the deadlines for the various institutions. Six, commitment to one's work is important for good service delivery. Part time lecturers, however, are never committed to the institutions they work in for once they are through with their teaching they leave. They cannot be expected to be loyal to the dictates, vision and mission of these institutions because they are there for a short while only. The worst scenario is when part time lecturers feel unwanted by their full time counterparts; sometimes even looked down upon and discriminated against.

To alleviate the problems of part time lecturers, universities should employ more full time lecturers from amongst the part time lecturers to achieve the university's mission and attract more students. This involves investing more on lecturers as the number of students grows; set aside the money as there are no two ways to it. Two, avail teaching assistants to help lecturers with tutoring and marking so that they can teach more courses. Three, reduce the number of non-teaching staff in some areas; there are many who are too idle. Give more hours to part time lecturers who can be relied upon so that they are few but with more teaching load. It is better to have reasonable number of full time lecturers. Most part timers are really underutilized having an average of 6 hours per semester. Four, pay lecturers well; it is ironical that some administrative staff are paid better than the lecturers who trained them. The university should source for more funds by coming up with projects to boost their financial status in order to pay lecturers well. Five, offer part time lecturers one to two year contracts of three to four course units a semester to commit them to few institutions. Give part time lecturers more responsibilities; this could be an incentive for strong commitment to the institution. Six, invest in training and orienting part time lecturers to be effective lecturers; teach them the university culture and values and work ethics. Train part time lecturers in key skills especially the mission, vision and core values of the university to enable them deliver just like the full time lecturers. Seven, come up with a policy on part

time teaching to address their issues. For instance, have staff development programmes that include part time lecturers. Eight, avoid using qualified lecturers on non-teaching services e.g. administrative work. Such persons could be more valuable in the classroom. Nine, use more e-learning and distance learning to reduce on expenditure on part time lecturers. Ten, identify the needs and work out the exact number of lecturers required and have an adequate budget. Eleven, universities must have a sustainable balance between full time and part time lecturers to function effectively even if it is costly. Lastly, hire full time lecturers to ensure quality service delivery since full time lecturers have allegiance and accountable to the university.

Lecturers' workload

The underlying principle should be that lecturers should teach as many hours as one can efficiently manage with close supervision and this should depend on whether one is a full time or part time lecturer. In addition, those persons in administrative positions should not teach. Up to 60% of full time lecturers noted that they are overworked while 35% were not overworked with 5% saying they sometimes felt overworked. The lecturers who complained of being overworked cited three reasons for this situation. First, they felt that it was not easy to prepare and teach more than 12 hours in any given semester particularly given the fact that they also do some administrative duties. Second, there is no time for research and publication as one is fully committed the whole day. Three, deadlines at the places of work as full time employees sometimes makes preparations difficult.

Lecturers who believe that they were not overworked noted that it is a choice for one to do something else for extra income; it is not mandatory that one must do part time work. Work also requires proper planning and good time management. Others noted that part timing is a passion and that they enjoy it.

As a result of the challenges of overload, not all lectures are able to complete their syllabi by the end of the semester. Up to 40% of the lecturers indicated that they were unable to complete due to national holidays, university functions, sickness, too wide course outlines, time constraints because of part timing elsewhere, fatigue and students failing to complete their assignments on time. Unfortunately, there is no time for organizing make up work. On the other hand, 60% had adequate time to accomplish their work, setting CATS and assignments, marking and revising. They noted that planning was important in accomplishing one's work. Making a realistic plan at the beginning of the semester is the key to proper planning.

The number of students who had the course syllabi completed by the end of the semester was 34 (18 undergraduate and 16 postgraduate). This accounted for 64.2% implying that 35.8% had some of their courses not completed.

The number of courses not completed was one for masters students and either one or two for the undergraduates. Various explanations were given for this inability to complete course work in time. First, the teaching pace was slow and students were given handouts, sometimes tons of handouts a week to the examination. This scenario was a result of ineffectiveness or disorganization of the lecturer(s), lecturers missing classes (some up to five times), lecturer taking too much time on one topic and technical content in the course. In one case the lecturers were changed three times during the semester. In another situation the lecturer missed many classes and had to fix some classes on Sundays. Second, the course content was a lot to cover within one semester. A number of courses are given few hours that are not enough.

The number of times lecturers gave assignments, CATS and term projects varied greatly. 7.1% of the lecturers reported that they never gave assignments while 17.9% never gave term projects or papers. Those who gave up to three assignments were 78.6% and those who gave above three assignments accounted for 14.3%. As for CATS, 92.9% gave between one and three CATS, 7.1% gave four while one lecturer only gave the mid-semester examination. For projects 82.1% of the lecturers gave between one and two projects. The number of assignments, CATS and projects given to students is a testimony of proper evaluation of the course content. This information was corroborated by the students who noted that the number of CATS, assignments and term projects varied greatly from one lecturer to another; the range was between one and six.

Quality of Teaching/Learning Process

Quality of the teaching/learning process was evaluated through the updating of teaching notes, use of computers and availability of textbooks. Indeed, 90.9% updated their notes regularly; 33.3% had their latest review in 2011, 54.5% in 2010 and 12.2% in 2009. Lecturers felt that notes must be reviewed regularly because of a number of reasons. One, the dynamics of the field demands that notes are regularly updated for new realities and technologies to remain relevant and contemporary. Two, teaching the same content is monotonous leading to cheating oneself and the students. If students know that one is repeating notes they would borrow from former students and fail to concentrate in class. Teaching in a university is practical and examples must reflect new trends. Three, new students need appropriate approach, hence need for innovation to make a difference. Lastly, changes in technology necessitate updating of notes to enrich them.

In regard to the use of ICT in teaching/learning process, 45.5% used it frequently, 51.5% rarely, while 3% never used it. Lecturers who used ICT frequently noted that computers were necessary for sending notes, assignments and messages through e-mail. The computer also allows for access and use of the Internet in class. Others are the use of LCD projector for teaching through power point presentations, uploading notes on the e-learning platform and use of Facebook to enable students' critique. However, lecturers who rarely used ICT complained of lack of skills in the use of ICT facilities, the inadequacy of the equipment, the time allocated for teaching is too short to enable the setting up of the equipment, and some courses are too theoretical to require the use of ICT.

The availability of enough reference textbooks in the library was a challenge to many lecturers as the library did not have all the books required. The number of reference textbooks in the library for various courses varied from one to two to over 10. One to two books accounted for 24.2%, three to four was 54.5%, and five to six was 18.2% while others (over ten) was 3%. In addition, only 39.4% of the lecturers indicated that the books were available to students while 60.6% responded in the negative. The reasons for unavailability of the books were cited as lack of enough financial resources to purchase all the required books, some classes are too big for the limited resources (e.g. one can teach four similar classes with over 200 students using few books), some books were not yet bought as the library takes too long to procure the books, purchasing books for new courses is very expensive, some books are not available locally even if students were able to buy them, getting current books was not easy, some courses are an integration of many topics and it is rare to find a book that covers all of them adequately.

The lack of textbooks had a negative effect on the learning/teaching process. Lecturers were forced to use the lecture method as the predominant mode of teaching thereby reducing the degree of students' participation in class discussions. The mode of teaching was varied (as shown in Table 2) and combinations of these were used by different lecturers:

Table 1: Mode of Teaching

Mode	Number	Percentage
Lecture	31	93.9
Discussion	29	87.9
Demonstration	20	60.6
Question and Answer	27	81.8
Guest Speakers	3	9.1
Student Participation	6	18.2
Group Discussion	3	9.1

Debate	1	3
Case Study	2	6.1
Power Point	2	6.1
Seminar	1	3
Drama	2	6.1
Educational Visits	2	6.1
Reflections	1	3
Research	1	3

Whereas 93.9% of the lecturers used the lecture method as the best way of delivering information, a meager 6.1% used the power point in this age of computers and only 3% used research. Indeed this was too limiting in regard to knowledge acquisition. Secondly, lecturers had varying frequency in giving assignments requiring research. Lecturers who always gave such assignments accounted for 18.2% while 72.7% frequently gave the assignments and 9.1% did so rarely. Assignments requiring research is important to learning as it enables students to seek more knowledge beyond what is taught in class.

Satisfaction with content delivery

Asked if they were satisfied with the content delivery 10 undergraduate students responded yes while 21 said no. The masters' students had 15 and 7 respectively. This implies that 25 (47.2%) were satisfied with content delivery while 28 (52.8%) were not. The number of lecturers the students were not satisfied with is indicated in Table 2.

Table 2: Number of Lecturers that gave Unsatisfactory Content Delivery

Number of Lecturers	Undergraduate		Postgraduate		Total	
	No of students	%	No of students	%	No of students	%
1	14	66.7	7	100	21	75.0
2	4	19.0	0	0	4	14.3
3	3	14.3	0	0	3	10.7
Total	21	100	7	100	28	100

At the undergraduate level, the explanations given for dissatisfaction included lecturers who were not conversant with what they were teaching. Some, through own confession, had not been in class for the last 10 years and could not deliver the content since they had no subject mastery. The lecturers dictated notes directly from the textbook available in the library with some explanations being focused on foreign examples. This even affected marking in which only answers from the textbooks were accepted. Secondly, some lecturers

failed to complete the course syllabi due to inability to attend classes as expected (one missing four classes and others appeared not concerned) and lack of concentration in teaching. One lecturer could spend half the class doing devotion and the other half rambling about. Thirdly, some lecturers had weak teaching skills despite their great personality. This resulted in students doing all the work that lecturers could not elaborate. Lack of preparation for classes and absenteeism led to topics taught being different from the ones in the course outline. In addition, there are those who merely skimmed through the content without finding out if the students understood the content. Indeed the mode of teaching was vague in some cases and students were not able to follow and understand what was being taught. Four, lecturers were involved in teaching in other universities thereby frequently missing classes. Five, a lecturer had an attitude and was too hard on students. The lecturer was too strict with time (5 minutes late meant being locked out) and many students failed the course. Students dreaded the class due to the tense atmosphere and there were no class discussions. Lastly, some lecturers gave too many assignments and quizzes and presentations that left no time for reading. In other cases lecturers allocated 80% of the work to students with more than 50% of the semester being allocated to presentations by students. Group assignments never worked well and there was favouritism when marking.

Similar complaints were raised by postgraduate students. Some content was left to students to read and understand on their own, some lecturers missed classes without warning or information, shoddy delivery, lecturer giving very little in a course that was challenging and broad with no notes and lectured for only 5% of the entire semester with students doing presentations for the rest of the semester. Lecturers were not open to other views yet postgraduate programmes require discussion on various view points. One lecturer's content mastery was not at master's level of standard; lecturer never had a proper structure of the course content as it kept on changing. Lastly, some courses were had wide content causing lecturers to rush over the topics.

For maximum satisfaction the students recommended that lecturers improve their class attendance, involve students in class, have more evaluation in class instead of relying on CATS, know the level of understanding of students before starting to teach, use technology, use local books and examples that are relevant, and adequate assignments. To improve their class attendance, lecturers should be on time and stick to schedule. Indeed, lecturers should attend at least 85% of the class time and also come to class on time. This implies that they go to class prepared. Lecturers also need to train on how to teach; they may have the qualifications in their areas of specialization but do not know how to deliver the content. They also need to follow the laid down course outline to enable students read in an

organized manner; there is need to inform the students what is to be taught during the next lesson for preparation purposes.

Lecturers should involve all the students in class and not those seen to be active; interact more with students. Understand each student individually and give them a chance to express their views and opinions. One lecturer talked for three hours without asking questions and the class was boring. This resulted in students failing to attend subsequent classes. This calls for more practice as opposed to theory and go beyond class discussions and presentations. Postgraduate students require that courses are tailored such that they can serve students coming to a master's programme from different backgrounds.

Having adequate teaching materials and equipment such as studio for communication students is essential. Use local books and reduce reliance on foreign ones especially American books thereby relating content to real life situations.

More evaluation of the content should be done in class while the lecture is going on and not rely on CATS alone. This involves giving assignments as the lesson goes on thereby enabling lecturers to understand the level of students before continuing with teaching and teach to improve their level of content mastery. The number of CATS should be a minimum of two written assignments and two CATS. There should be less use of final examinations for evaluation; have more practical work and a participatory class for application of knowledge gained. It is equally important to follow up on students' projects.

Teaching in the 21st century require incorporation of technology in class; the use of LCD, power point presentations with graphic images and Internet for generation of information among others. This would reduce the time wasted giving notes and handouts and make learning interesting. However, where books in the library are few, hand outs would be necessary. It is one way of generating discussion in class which is relevant for knowledge generation as it accommodates all students. It will also reduce reliance on lecturers reading everything from the textbooks.

Lecturers need to carry themselves professionally by avoiding side stories in class and concentrate on the course work. For example, why have one hour of devotion? It means teaching and not use group discussions for the whole semester thereby reducing work load for students. Lecturers should dedicate more of their time to students and not run over topics, give guidance on where to get resources as the library alone is not adequate, be patient with students especially slow learners, and have one-on-one discussions with students. This involves the lecturer in providing guidelines on notes, class participation, and take away assignments in order to stimulate more reading, research and learning. Teaching should be student-centred where students get more involved in the acquisition of

knowledge; avoid note giving in dictation form but give guidelines and let students do the rest of the work. It also means starting teaching early in the semester so as to have little to cover towards the end of the semester. This can be achieved when lecturers avail themselves during the semester and reduce time taken up by their personal activities. Finally, lecturers should understand when students come to class late due to traffic jam.

Involvement in Research

Out of the 33 lecturers in the study, 24 (72.7%) reported that they were involved in research during the last two years. However the rest 27.3% were not directly involved in research. Some noted that they were involved in further studies (PhD programmes at the time), or had no opportunity to be involved. For those who were involved in research only 8 (33.3%) had their documents at different levels of publications: five lecturers had their documents with editors awaiting publication; one lecturer had three published while one document was awaiting publication; one had one published and a second one awaiting publication; the last lecturer had some articles published with others being worked on for publication. Most of these publications were out of the PhD and masters theses.

Lecturers who had not published in the last two years indicated that the research were part of academic work for other universities (Masters' candidates) and had yet to get permission to publish. Others noted that research for PhD thesis was on going and some had no intention of publishing.

Challenges facing lecturers

There are various challenges facing lecturers in the course of discharging their duties. These are lack of multimedia classroom facilities; sourcing for and lack of teaching materials; lack of proper induction (i.e. orientation) of new lecturers especially part time lecturers; lack of enough time to prepare for class; structuring teaching to give lecturers a free annual leave; make time for research work; punctuality of students especially for classes beginning at 8.00am and evening classes; lack of books in the library; lack of conformity in setting examinations; no health cover for part time lecturers; delayed acquisition of teaching materials; inadequate pay; too many students in class; congestion in classrooms; lack of enough emphasis on research and publications; too much administrative work with many meetings for HODs and Deans; students looking forward to be spoon fed by lecturers; poor communication from the administration; lack of regular joint meetings for staff and faculty.

Twenty five lecturers (75.8%) indicated that their productivity was affected by these challenges while 18.2% said they were not affected with 6% not responding to the question.

The affected complained of failure to meet all their expenses due to low pay and high taxation; failure to meet deadlines for assignments and marking; not able to access Internet due to shortage of computers; working throughout the year without a break is exhausting; lack of books interfere with the frequency of assignments and feedback; quality course content missing; time lost require covering up at some point but that time does not come; sharing of resources for many students make learning slower and almost impossible; forced to give notes due to lack of resources since students cannot research on their own; sometimes lack motivation to work but try the best (sometimes feel misused and not appreciated); time wasted to type and print; reduced effectiveness; and frustrations that affect productivity. On the other hand, lecturers not affected indicated that teaching is a call and one feels good when he meets former students long after they were taught; adjusts to the prevailing circumstances and formulate strategies to achieve one's goals; and consult about the examinations and read widely.

To ease some of these problems lecturers share a lot with fellow faculty. They help one another through discussion in faculty reading groups; co-teaching where one teaches a topic in their area; peer review research initiatives; presentation of papers in seminars where peer review is done; sharing challenges; interaction as a department may help in bonding; sharing the available resources such as books, videos; work more as a team especially when teaching the same course thereby encourage exchange of ideas and skills; mentoring in work attitude; and entrusting higher responsibilities through supervision by seniors.

Results of the challenges

All these factors lead to stress and other health issues, ineffectiveness in one's work, lack of efficiency due to fatigue, lack of preparedness, possibility of losing focus on the learner and focusing on income and lack of time for mentoring students. In this scenario, part time lecturers have no time for research and other academic endeavours and updating one's lecture notes. Firstly, as a result of the challenges of overload, not all lecturers are able to complete their syllabi by the end of the semester. Up to 40% of the lecturers indicated that they were unable to complete due to national holidays, university functions such as recess and prayer day, sickness, too wide course outlines, time constraint because of part timing elsewhere, fatigue and students failing to complete their assignments on time. Unfortunately, there is no time for organizing make up work.

Secondly, the number of times lecturers gave assignments, CATS and term projects varied greatly. 7.1% of the lecturers reported that they never gave assignments while 17.9% never gave term projects or papers. Those who gave up to three assignments were 78.6% and those who gave above three assignments accounted for 14.3%. As for CATS, 92.9% gave

between one and three CATS, 7.1% gave four while one lecturer only gave the mid-semester examination. For projects 82.1% of the lecturers gave between one and two projects. The number of assignments, CATS and projects given to students is a testimony of proper evaluation of the course content.

Thirdly, a total of 24 lecturers (72.7%) indicated that they had problems with marking CATS and assignments while only 9 (27.3%) had no problems. The issues raised were that some classes are too large (over 60 students) and marking is tedious such that one may spend sleepless nights marking; time is too short with semester examinations coming before completion of marking and revising CATs, assignments and projects; some students have to be pushed to hand in assignments and this draws back the teaching process; heavy work load of lecturers; time allocated for teaching does not give room for revision of CATs or projects with projects being submitted at the end of the semester; and failure to prepare marking scheme at the time of setting resulting in unclear questions. However, lecturers who had no problems with marking stated that they know what to look for in an assignment and student creativity is catered for in marking and plan their work well and stick to the schedules.

Fourthly, out of the 33 lecturers in the study, 24 (72.7%) reported that they were involved in research during the last two years. However the rest 27.3% were not directly involved in research. Some noted that they were involved in further studies (PhD programmes at the time), or had no opportunity to be involved in research. For those who were involved in research only 8 (33.3%) had their documents published or awaiting publication. Most of these publications were out of the PhD and masters theses; research outside the pursuit of higher degrees was rare. In addition, the lecturers were involved in thesis supervision and papers presented at symposia or conferences.

Satisfaction with Quality of University Education

Asked if they are satisfied with the quality of university education, 69% of the lecturers were positive, 28% were not satisfied while 3% did not respond. This is shown in Figure 1.

SATISFACTION WITH QUALITY OF UNIVERSITY EDUCATION

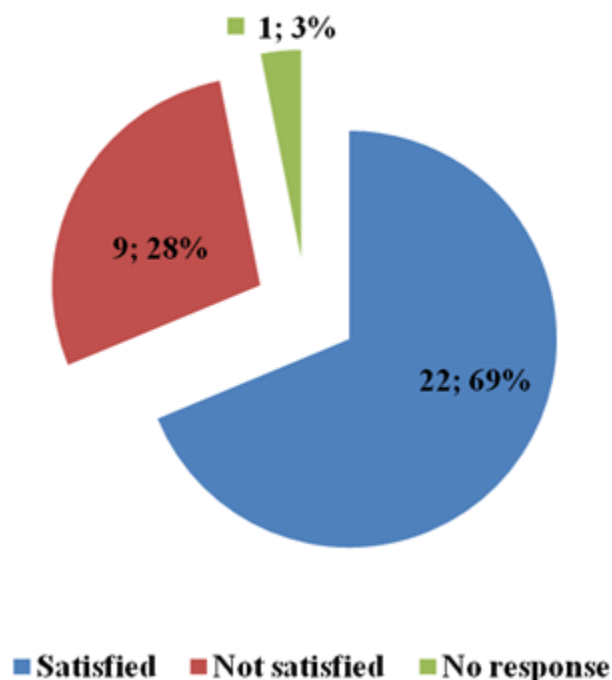


Figure 1: Satisfaction with the Quality of University Education

Those who were satisfied noted that they have no intention to give substandard teaching; university curricular and content are relevant and appropriate; the courses are practical in approach and also provide skills that are needed in most trades today; lecturers rarely miss classes and students have to attend 75% ensuring quality output; classes are small and enable lecturers to attend to individual needs of the students; the teaching is good but there is room for improvement especially efficiency and monitoring; employed students are able to deliver at place of work; positive feedback from guardians and employers show the success of the services offered; and lecturers have a wide experience and are delivering to maintain quality education. However, more needs to be done in terms of methods of delivery to measure up to current realities.

The opponents of the availability of quality education noted that there is no room for research since the bulk of the time is spent teaching; there should be emphasis on students doing their own work to encourage creativity and research; in some universities quality of teaching is poor as most of the classes are large and it proves difficult to properly attend to students while on the other hand some of the lecturers have a heavy workload to be effective; lecturers are out to cover the syllabi and to prepare students for examinations rather than engaging students in scholarly research.

As for students, 32 students (15 undergraduate and 17 postgraduate) answered in the affirmative, 13 (5 undergraduate and 8 postgraduate) said no while 8 (2 undergraduate and 6 postgraduate) had mixed responses. This information is shown in Table 3. A total of 60.4% were satisfied with the quality of education they were receiving, 24.5% were not satisfied while 15.1% had mixed feelings.

Table 3: Satisfaction with Quality of University Education

Response	Undergraduate		Postgraduate		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
Yes	17	54.8	15	68.2	32	60.4
No	8	25.8	5	22.7	13	24.5
Yes/No	6	19.4	2	9.1	8	15.1
Total	31	100.0	22	100.0	53	100.0

Students who said that they are satisfied with the quality of education noted that the knowledge they received was applicable. The education is applicable in the field of work and therefore prepares one for the future as one gains practical skills in addition to acquisition of knowledge. Lecturers help students understand the subject content, provide notes, and complete courses offered on time. They provide enough work to students and satisfactory explanations; are well informed and encourage students to work hard; most lecturers are friendly and conversant with the subject content and have vast knowledge in current affairs. In addition, facilities are good while the environment is conducive to learning and good course outlines; the only problem is the long registration process but there is room for improvement.

The course content is good and relevant in practice as it looks at life in a larger perspective beyond salary and promotion. Students have had a lot of growth in terms of knowledge and skills; developed confidence and can argue out intelligently and wisely; are very interactive and the desire to improve including slow learners.

Students who were not satisfied with the quality of education singled out a number of issues. Some lecturers copy and paste information from textbooks making the university look more of a High School than a university. Some lecturers only have book knowledge thereby teaching from the book word for word and students feel cheated; lecturers should have more than what the book has. Education should be relevant to the contextual realities to make it easy to implement. In addition, undergraduate students feel that there are too many unnecessary and irrelevant general courses, and repetition of other courses and some outdated content.

Postgraduate students felt that they got a raw deal in some courses; lecturers touching a few areas and leaving students to do the rest. There should be more practical lessons and educational trips to practice skills learnt in class. Secondly, books are inadequate forcing students to buy books or look for materials elsewhere. Thirdly, more time needed to cover the syllabi effectively and that some courses are too general. Finally, one lecturer was identified as not qualified to teach.

Up to 15.1% of the students indicated that they were satisfied in some courses and had a raw deal in others. Specifically they noted that the quality is good except that there is too much to cover within a short time and lecturers failing to teach the basic courses first before doing higher levels. Some lecturers are more inclined towards quantity of delivery and not quality thereby overloading students. Poor teaching methods were identified in some classes and there was need for year 4 level courses at undergraduate to be taught by experienced lecturers and not newly employed lecturers. In general, they believe that quality has gone down and that there is need for improvement.

How to Improve Quality University Education in Kenya

In order to improve the quality of university education the lecturers proposed that universities must invest in training of staff, both part time and full time. That is, training of staff in their areas of specialization, have more qualified ICT personnel even if fewer and tighten the recruitment criteria by recruiting qualified staff to teach.

Two, put more emphasis on research by funding more research and publications. Universities should demand that lecturers be involved in research and set aside funds for research and research oriented programmes. Equally convert research findings into policies. Provide basic principles of teaching to new lecturers who have no education background including use of collaborative teaching and testing.

Three, developing e-learning through investment on up-to-date technology and equipment, embracing emerging technologies and being conscious about challenges graduates face in the job market. Have a random survey on delivery from graduates who are working to establish the needs of the market to factor into the curricula. In addition, compare the employability of graduates. Hence revise curricula frequently due to suit the emerging trends in the job market.

Four, have all universities (including public universities) under the Commission of Higher Education (CHE) for quality control. Quality control divisions in universities should be more active especially quality assurance policies on teaching and testing. The supervisory work

should ensure admission of quality students; admission based on cognitive merit by limiting the intake to a B- than the current C+ grade. Through CHE the government should help universities develop ISO certification, assist private universities in staff development and avoid tribalism and nepotism in recruitment.

Five, acquire more and better facilities like laboratory space and equipment particularly in public universities. Availability of resources especially ICT development would encourage students to use information technology to boost their knowledge reserves and curb academic dishonesty. In addition, purchase good books, more so the latest in the market. At the same time there is need to move away from textbooks to practical application of skills.

Six, have a workable policy on class attendance by both students and faculty to ensure adequate coverage of course content. Also reduce the workload of lecturers and call for greater accountability. Lecturers should be willing to do much more in preparation than they are doing currently.

Seven, have more qualified and adequate staff that have a good and appropriate remuneration package for motivation. Enhance performance contracting for lecturers. Such lecturers would embrace continuous self-evaluation and implementation of improvement plans, participate in more public seminars and conferences (and encourage students to participate), and promote exchange programmes with both local and international universities.

Eight, have effective evaluation and performance, improve the lecturer/students ratio, and encourage more continuous assessment other than end of semester examinations. In addition, have more publicity for the university on its success and effectiveness.

Nine, universities must endeavor to have prudent management and administration of the institution in order to create a culture of continuous improvement. Such a management system would encourage students to be fully involved in the running of the universities, improve on administration at the departmental levels, provide more scholarships to students who are needy, support development projects to ensure universities have enough facilities and reduce class sizes and have adequate accommodation facilities for students.

The students encouraged most of these recommendations. One, there is need for E-learning in our universities; develop online education. Encourage e-learning at all levels and embrace technology in teaching. This is because not all students can afford the cost of living and requirements for most universities that are mainly centred in towns. Hence they could learn at home through e-learning.

Two, have more emphasis on research and publications. Indeed, research should be fully funded. Every university should have its own journal in which students can write and publish. Involve students in research work even at undergraduate. This would put a check on plagiarism. Relate learning to emerging issues and current challenges in society; too much history is not helpful. Make courses applicable to day-to-day issues to reduce dependency on foreign research work which does not solve local problems. In addition, more outdoor/practical activities are necessary. This would involve practicing theories taught as per the market/field associated with each course and thereby expose students to the job market in order to relate theory to practice.

Three, have relevant facilities and lecturers who are not busy and rushing and are also skilled in teaching. This means hiring enough professional teachers or professors to teach and who are available to advise students on course content and career development and relevance. This means maintaining small classes that allow more interactions in class and dedicated lecturers; make students and lecturers accountable to one another and able to have individualized tuition. There is need for more skills in delivery by lecturers; not repeating things from textbooks. Hence one should have a personal input into the subject. It also means a reduction of part time lecturers to a bare minimum (where finances allow). Investing in qualified lecturers and paying them well to avoid having them teaching many institutions should be a priority. This would enable them focus more on their students. In addition, admit students irrespective of their religion or culture for interactions and learning from one another.

Four, have adequate space and books in the library and other learning resources. That is, fully equipped library with a variety of course textbooks. Have enough course textbooks for all courses as per the number of students registered and journals to help in writing term papers. The books should have more local content. Provide adequate resources in the library and better access to e-journals and libraries outside the country.

Five, allow specialization at early stages and link well with the industry. Focus more on nurturing the inner talents of young people and focus more on quality and not quantity. Hence breakdown courses that are heavily laden; let them be more meaningful and be able to be effectively completed within the semester.

Six, ease of access to administration to sort out issues as they arise. One of the critical issues is the reduction of school fees to make university education affordable to many Kenyans. Have an increase in bursary allocations to cater for the needy students.

Seven, we should be aware of the effects and implications of opening up of many universities and university campuses in the country. They are subjecting us to too much competition and thereby eroding quality considerations.

Eight, end semester examinations should not be the ultimate test of intelligence. Universities must have set standards that meet international ones and tailor learning to achieve these goals. Have assignments that require application or learning through engagement in the actual area of study. This also means that for admission into the university we should consider qualifications required and water down quality at entry point.

Nine, exchange programme is a way of interacting with others thereby enriching our heritage. Hence we should encourage exchange programmes with other universities both locally and internationally and allow visiting lecturers once in a while. This should involve both students and lecturers on either side.

Recommendations

The recommendations of this study include:

1. The universities should encourage and facilitate research and conference participation by all lecturers including part time lecturers to enhance the discussions in the classroom.
2. University should take note of the needs of lecturers not only as a means of production; the welfare of staff should be taken more seriously especially as far as the working environment is concerned. Let there be more peer evaluation and internal academic activities and interactions between full time and part time lecturers.
3. The 'cut throat' competition among universities should be controlled through tough measures to ensure quality of university education. Adequate measures that would control the teaching load are necessary. In addition, quality should be rewarded instead of actual hours of teaching.
4. Need to employ part time lecturers on contract basis for two to three years and thereafter engage them on full time basis to make them be more committed. For effective teaching, they should be consistently given courses in their specialization; this makes preparation easier.
5. Lecturers need forums where they can forward the challenges they face and have them addressed professionally.
6. Part time lecturers should be given sizeable load and be retained; the idea of having too many part timers with only one unit is bad for quality and loyalty. There is no need of limiting teaching hours for an individual lecturer only for the lecturer to teach elsewhere; universities should strengthen quality assurance.

7. Provide adequate facilities to all lecturers alike e.g. part time lecturers should be facilitated with computers to make learning and search for information conducive.

Conclusion

Quality education can only be achieved in a university if the quality of the lecturer (who transfers knowledge and sets the learning environment) is certain. This calls for a clear policy on the working environment of lecturers and particularly part time lecturers (who account for over 70% of the academic staff in universities). Lecturers need motivation and appreciated for the part they play in service delivery.

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DIVERSITY: (RE)FOCUSING ON INTERSECTIONAL IDENTITIES

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Abstract

Issues of identity and their interrelatedness with power, privilege, and liberation are of global importance. US research on courses and co-curricular organizations that challenge systemic racism has focused primarily on white (female) students' resistance and involvement. This paper explores what racially marginalized students say in their final papers regarding their experiences in intergroup dialogue courses co-facilitated at Syracuse University. These data will be used to challenge the notion that only white students "benefit" from courses that challenge systemic inequalities, illustrating the importance of acknowledging intersectional identities and the various ways that students discuss their personal and interpersonal growth attributed to their enrollment in intergroup dialogue.

Diversity: (Re)focusing on Intersectional Identities

Provided that the seemingly common question among professors of multicultural education of "who benefits from diversity courses" often implies that white students are the ones who benefit, as they are the ones who come in "not knowing", the paper being presented at this conference seeks to substantiate the belief that this question would be more appropriately worded, "how do students benefit (albeit differently) from diversity courses".

Much of the existing research about student experiences in multicultural education, which is mainly conducted among pre-service teacher education, focuses on white student resistance to learning about racism and whiteness (Applebaum, 2003; Applebaum, 2006; Berlak, 2004; Case & Hemmings, 2005; Chalmers, 1997; Fox, 2001; Grillo & Wildman, 1996; Hytten & Warren, 2003; Jones, 1999; Maher & Thompson, 1997; Marx & Pennington, 2003; McIntyre, 1997; Rains, 1998; Razack, 1998; Rich & Cargile, 2004; Roman, 1993; Tatum, 1997/2003, Thompson, 2003; Warren, 2003; Wildman & Davis, 1996). However, when students of color were included in these studies, the content of the writing often focus on these students' frustration with expectations of sharing their perspective and experiences (e.g. Fox, 2001; Tatum 1997/2003).

One issue that complicates the question of "who benefits from diversity courses" is an assumption that is often implied by that question and the research taken up around that question: mainly white students benefit. This assumption- which I have heard in connection to these issues at conferences, in courses I have taken and taught, and that I have thought

myself before - is problematic for various reasons. This ideological mindset implies that diversity and racial identity are one in the same – and that in the USA/North American context, someone is only “diverse” if she is person of color. At the heart of what I am addressing through this paper is that since there are many more intersections to identity beyond race, there are many more ways that we should be researching and constructing “diversity”. Students of color are not only members of a targeted group based on race, they also have various intersectional identities and additionally, assuming that their experiences in these courses are identical is essentialist and shortsighted.

Looking toward feminist thinking (e.g. Anzaldua, 1990; Bailey, 2007; Lugones, 1994; Mohanty, 2003) we need to be more intersectional in our approach of the question of the “benefits” that students derive from diversity courses. We should not attempt the impossible by forcing a separation of students’ identities by researching in a strict essentialist manner that disregards their full identity. By doing so, we are missing the full picture. By no means does this assertion disregard the complications of determining student outcomes in quantitative research or the process of understanding their experiences through qualitative research; we certainly need to evaluate the outcome and understand our students’ learning processes in order to develop rich curricula and pedagogy. However, we should not attempt to do so at the expense of setting up an artificial binary between students of color and white students when we discuss “benefits” from diversity courses – even if such a binary is merely implied and not intentional.

Intersectionality is a theory that depicts the identities to which an individual person “belongs,” and even those categories to which some people “belong” without choice and/or knowledge, as overlapping and (often) incapable of being sectioned into distinct categories. Those who theorize about intersectionality contend that there is no essence to a particular group and that all groups are inherently heterogeneous. Furthermore, intersectionality theory posits that identity is non-static, socio-historically located, and multiple within intersections of privileges and oppressions (e.g. Butler, 1990; Haraway, 2003; Mohanty, [1986] 2003; Narayan, 2000; Spelman, 1988).

Statement of Inquiry

In response to these assumptions and research into white student resistance, I aim to look at what racially marginalized students say about their experiences in intergroup dialogue courses co-facilitated at Syracuse University. Intergroup dialogue offers a unique environment for students to collaboratively explore social identities and institutional levels of privilege and oppression. Students who enroll in dialogue practice suspending judgment while they listen to each other’s experiences and thus learn about and are impacted by lived

realities beyond their own. Students of various backgrounds come to understand how and why social identity impacts individual experiences and personal biographies; in this way, the systemic nature of privilege and oppression becomes illuminated. Research coming out of the Multiversity Project shows that there is an increased desire among participants to participate in social justice action and a greater understanding of systemic inequalities, even when controlling for self-selection (Nagda, Gurin, Sorensen, Gurin-Sands, & Osuna, 2009). This control for self-selection, through the use of a control group of students who enrolled in a course with similar content but without dialogue, strengthens the claim that intergroup dialogue courses offer a unique learning environment and that the pedagogy – the dialogue and experiential exercises – is a large part of what makes the difference (Nagda et al., 2009). Using 38 final papers regarding the experiences of students of color in intergroup dialogue courses, I weave students' narratives together to illustrate what they glean from their experiences in intergroup dialogue, with a focus on identity and intersectionality.

Methodology

The final papers used as data for this paper were those of intergroup dialogue students from Syracuse University's Intergroup Dialogue Program (Lopez & Sorenson, 2009; Lopez & Zuniga, 2010) and were collected as a part of the Multiversity Intergroup Dialogue Research Project (MIRP) (Nagda, Gurin, Sorensen, & Zúñiga, 2009). As the graduate assistant of this program, I had permission to access and analyze these data. These final assignments ask students to reflect upon their hopes and fears related to their expectations of their course enrollment, their interactions with their peers in the course, perception of their personal change over the semester, and how they may apply their knowledge once the class has ended.

For this particular segment of the research, I did a quick review of the final papers that students of color wrote at the end of their semesters in one of two intergroup dialogue classes. These include papers that were written by students in three sections on gender and three sections on race and ethnicity between 2006 and 2008. It is important to note that through course activities and readings – and sometimes classroom dialogue – identity is presented as intersectional and thus incorporate more than the identity described in the course title. The courses do focus on particular intersections of identity, but they do so as an entry point for talking about larger systems of privilege and power.

For the qualitative data analysis, I focus on the papers of students of color to both challenge the implication that only white students benefit from courses that challenge systemic inequalities and to highlight the ways that conducting research with a focus on how identities are intersectional can lead to the recognition of rich data and to hopeful

conclusions. By using the papers of students of color, I can intentionally look at a population that is systemically marginalized – and often excluded from discussion about student experiences in courses of this nature – and use their own words to explore how they understand and contextualize their experiences in a course where systemic injustice is challenged, as well as possibly how they understand their experiences outside of the course.

There are 38 papers by students of color that I will read out of 90 in the total collection of Syracuse University's MIRP data. My reading and qualitative analysis focuses on these students' experiences in their intergroup dialogue classroom and what they discuss regarding their learning about their own and other's identity. I read the papers to learn how students describe their experiences, thus not focusing only on the positives from their experience, but also neutral and negative experiences associated with their enrollment in intergroup dialogue – as well as those experiences that are more complicated in nature and not clearly neutral, negative, or positive.

Intersectional analyses of student data of even a limited nature are more difficult in quantitative analyses based upon the large data sets required for statistical significance. Therefore, qualitative research of this nature and that using interviews and/or focus groups can allow for more complex understandings of students' experiences in intergroup dialogue.

The quotes used in this paper are just a fraction of those available to be used. For the sake of length and being clear and concise, only a few quotes have been chosen for the various themes of this paper.

Discussion

The students' reflections on their whole experience clearly indicate that students of color have much to gain from their enrollment in and completion of an intergroup dialogue course. Overall, the student assignments analyzed for this paper indicate that these students are thankful that they enrolled in the course. Generally, students state that the course was revolutionary in their understanding of themselves and the world.

Although I didn't know it then (upon enrollment to the course), I know now that the Intergroup Dialogue class on Gender was the best class for me. I've learned more than I could have ever imagined...-African American woman

Though the readings significantly contributed to my experience, they were only references and information to guide our dialogue. I learned the most from my peers and professors – the small group (of) people who I've become unpredictably comfortable with. In this short span of time, I've experienced some of the most meaningful interactions concerning race

and ethnicity I've ever had. Lessons that I've learned here will be useful for me not only in an academic setting, but also in everyday life. –Filipino, American woman, IGD Race/Ethnicity

My experience in the intergroup dialogue class has been one that is profound and has served to open my mind up in ways that it honestly never has been before... During these 4 months, I have been through a great deal of personal and professional changes, and I cannot help but feel that this course has influenced the way I have dealt with both. -Black man, IGD Race/Ethnicity

It is important to note that students clearly indicate the importance of the process and pedagogy of dialogue for the establishment of trust, alliances, and support necessary for their personal and interpersonal growth. Various students also noted that knowing that all students want to be present in the course, not being isolated as a student of color in the course (having other racially targeted groups and their voices present), and the trust/bond that builds through intentional exercises/pedagogy was critical to their growth.

The method of teaching these courses and the dialogic nature of the class, as well as the intentional enrollment of nearly equal numbers of advantaged and targeted groups of students in the courses, are all bound up in these students' experiences. The experiences of these particular students cannot be generalized beyond their classroom experiences – though are likely expected among other intergroup dialogue courses – and certainly cannot be generalized to be a guarantee among students in multicultural courses taught differently.

Student as Teacher

Among the student assignments used for data here were some students who stated that they *wanted* to share their stories and were thankful to have a venue to that where others could learn from them. For example:

I certainly wanted to be able to open the mind of my fellow students, especially of those who grew up in small towns not meeting a lot of diverse people. – Croatian, Columbian, American man, IGD Race/Ethnicity

I felt that the course would provide a good outlet for me to get some things off my chest, learn some things about myself, and maybe even help educate others on what it's like to be biracial in today's America. -African American, Puerto Rican, woman, IGD Race/Ethnicity

Students of color who take an intergroup dialogue course can (and do) derive something positive from their learning and sometimes this is related to their ability to share their

experiences with their classmates in a trusting environment. I think that there is an important difference between the experiences of these students and that of other students of color experiences that have been written about – students of color in those writings (e.g. Fox 2001; Tatum, 1997/2003) seem to have been upset by the *expectation by others* that they teach others about what it means to be a person of their race. In this case, the students of color in intergroup dialogue who expressed a desire to have an impact on others were looking for an opportunity to share in a supportive environment.

Learning about Identity: Self and Others

Research that explores students' outcomes from multicultural courses have shown that students' participation is linked to an increased awareness of prejudice or awareness of difference in experiences between racial groups (Chang, 2002; DeTurk, 2006; Gurin, Dey, Hurtado, & Gurin, 2002; Hogan & Mallot, 2005; Lawrence & Bunche, 1996; Lopez, 2004; Spencer, Brown, Griffin, & Abdullah, 2008), genders (Stake, Sevelius, & Hanley, 2008; Stake & Rose, 1994), and religious groups (Khuri, 2004). Such learning about identities is not limited to one group of students. Assumptions that diversity courses are always about race (and only race) and that only those in dominant positions (read: white) learn anything from these courses, as implied by the aforementioned pre-service teacher literature, communicates that not only do students of color know all there is to know about "their race," but also that they are universal experts on all issues related to race. These assumptions are clearly rebutted through the final assignments that I read as data for this paper.

After this class, I feel that I have some insight into the Asian culture and want to learn so much more. (It) was interesting to hear the trials and tribulations of the Asian culture; they have been through things I could never imagine. Talking with them in the caucus group has led me to have a whole new respect and admiration for the Asian people. -Black woman, IGD on Race/Ethnicity

I would like to think that through such supportive and judgment-free dialogues I have learned a lot about my race and other people's race. -Columbian, Cuban, American woman, IGD Race/Ethnicity

Multiple students discussed in their final papers their learning about other cultures and experiences of oppression – related to race and other identity markers – as fostered through the readings and interaction/sharing among dialogue participants.

Through the process of intergroup dialogue courses students learn not only about others, but also learn about themselves (Alimo, Kelly, & Clark, 2002; DeTurk, 2006; Khuri, 2004; Nagda et al., 2009).

(Before enrolling in this course) I knew I was a Black, Haitian-American, and 19 year old, Catholic female. However, this class made me realize that I could identity myself, but did not really understand the implications of my identity... I never realized how my own personal actions were also affected by my identity. -IGD Race/Ethnicity

Because of this class, I do not only recognize my identities in which I am a minority, I am now fully conscious of my identities in which I have *majority status* as well. ...I ignored the fact that I am heterosexual and that I am not disabled. I never really considered these identities as important. Realizing my perception of my majority status identities helped me to relate to Caucasians and men that my subordinate groups usually accuse of being ignorant and lacking empathy... As a heterosexual, I was ignorant to the struggles of those in the subordinate group, and it wasn't that I didn't care; it's just that I didn't know. -African-American woman, IGD Gender (emphasis in original)

These excerpts illustrate the importance of recognizing the complexity of identity and how students in intergroup dialogue come to do just that. These examples also point to the ways that students of color gain knowledge about various identities and about themselves, thus pushing against the notion that these students in particular do not have anything to learn from enrollment in such courses. Indeed, even enrollment in the race/ethnicity intergroup dialogue was beneficial toward the self-discovery and development for several students, as evidenced above.

Intersectionality: "It is okay to have Multiple Identities"

Students who take intergroup dialogue are exposed to the concept of intersectionality – though possibly not the associated language and foundational readings. Students are asked at the beginning of the semester to think about their own identity as it pertains to various categories and group membership. Additionally, some of the readings that students are asked to complete highlight the ways that our experiences cannot be understood only through one of our identities, but rather that our experiences are a result of our whole being. Intersectionality is a complicated ideology to understand – I am still unpacking all the complexities – yet, through this course, students come to recognize their multiple identities and their importance in society.

I realized (from a reading) that moving to America disrupted my cycle of socialization... I ended up with multiple identifications for myself, such as Chinese, Fujianese, and Chinese-American... These combinations make me who I am... From this class I have learned that it is okay to have multiple identities. -Chinese American woman, IGD Race/Ethnicity

(T)here is always someone that is worse off than you whether that be economically, socially, or politically. Often times there is a combination of things that allow a person to be considered privileged on one sense but unprivileged (sic) and marginalized in another. As a Black male I am privileged because I am male, but because I am Black I am marginalized. This is what makes life so complex in this country. Even if you are white, you are not free from discrimination because religion, national origin and sexuality may come into play. -IGD Gender

My gender did not matter much to me prior to intergroup dialogues. My racial and ethnic identity always came before anything else. I knew all my identities were one, but I could not actually see that in how I acted or in how I was treated. In this class, I saw more clearly that my identities could not be separated at all. -Black, Haitian-American, woman, IGD Race/Ethnicity

These students' reflections show that through the course, students are able to recognize the complexity of their identities and begin to understand the ways that these identities play out in their lives through their actions and interactions. Moreover, the context of the papers shows that these students come to understand themselves more with an increased recognition of their multiple and inseparable identities.

Challenges in Learning

It is important to note that students' experiences in the course were complex and although all of the students recognized growth from their experience and were grateful to have enrolled in intergroup dialogue, some students expressed displeasure in their experiences in the class relating to their interactions with fellow students:

After a semester of getting to know the students, I have come to the conclusion that the students of color were relatively open, while the white students were both emotionally naked and closed off at the same time. ... However, some of these conflicts and situations did help me gain and understanding of my racial identity that was more expanded than the one I came into class with. -Black man, IGD Race/Ethnicity

Along these lines, in most cases, students who wrote about their frustration with their classmates used their empathy skills learned in the course to try and understand the lens and lived experiences of the students who frustrated them. It is important to in this way to recognize the complexity of this experience and that it is not an all or nothing process. Students can be disappointed by, frustrated by, challenged by and grow from, and learn to understand others through the same experiences and course context.

Students indicated time and again that the process of the course was crucial to their understanding and allowed them to develop skills that they will continue to use beyond the classroom and have already been using in such ways at the time that they wrote the assignment. Lastly, many of the students came to recognize the importance of alliance building as a way to challenge systems of privilege/oppression – these students often recognized the importance of working across difference in order to achieve equality amongst all members in society, regardless of various social identities.

Conclusion

These data illustrate the importance of looking beyond essentialized notions of race and racial identity and bring to light the intersectional nature of identity and the way that we are (nearly) all both oppressed/targeted and privileged/advantaged along various identities. The experiences and reflections of these students show that we have much to learn in these areas about ourselves and others and that such learning is not only possible, but likely.

Pushing beyond the belief that diversity courses are just about race or that students of color do not learn in courses that explore racial oppression allows for increased understanding of how intergroup dialogue courses can be beneficial to all students (as well as co-facilitators). The applicability of learning about various issues of systemic oppression using these pedagogical methods can expand the discourse around diversity courses to include all students of all identities. Internationally, issues related to inequality of power and privilege are problematic as well (e.g. Enloe, 2004; Mohanty, 2003); therefore, an approach such as intergroup dialogue - which seeks to increase the knowledge of those who are in positions of power as well as those who are oppressed - could be beneficial in higher education institutions in various nations beyond the US.

The students' experiences explored in this paper might serve as inspiration for us in our daily lives to take the time to use empathy so that we can understand one another in all of our complexities so that we may move beyond tokenism to recognize the richness of individual and collective experiences. Through this increased understanding, we can move to alliance

building so that we attempt to co-construct a more equitable world through our daily actions, as well as through more institutional level changes.

With these data in mind, when we conduct research or theorize about identity, we need to be careful to not *essentialize* to the point that we lose individual differences, or *focus* on individual differences so much that we ignore the institutional and structural levels of oppression and privilege. Pushing against binary thinking – all or nothing – can allow more nuanced theorizing to surface, making room for the inclusion of counter-stories and other narratives that are seldom heard. These narratives enable us, as educators, to engage the world – and, more importantly our students – in a deeper, more meaningful, and transformative way.

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SHORTAGES OF SECONDARY MATHEMATICS AND SCIENCE TEACHERS IN UGANDA: WHY THEY MATTER AND WHY THEY OCCUR

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Abstract

A recent qualitative study of the effectiveness of secondary school mathematics and science teaching in Uganda includes among its findings specific examples of teacher shortages in these subjects and their practical effects on the teaching situation. This paper explores the problem in greater depth, using both national and local level data. A number of factors are identified, including an ambitious curriculum, limitations of national statistics and planning, failure to adapt teacher education to new circumstances and the nature of the teacher labour market, which is linked to a “moonlighting” culture in a situation of diverse school ownership. The paper elaborates a problem for educational policy and further illustrates the interaction of the state and the market in the educational systems of low-income countries.

Background and rationale

In response to challenges of national development and of global advances in knowledge, the Government of Uganda initiated a Science and Technology Innovation Policy in 1994. Within this general framework, it has taken measures since 2005 to prioritise the study of mathematics and science in secondary and tertiary education. These measures have been driven by a perception that the results in these subjects, especially in the Uganda Certificate

of Education ('O' level), are poor and that relatively few students enter degree programmes in the sciences.

The measures taken include, firstly, a requirement that all students in lower secondary education study three natural sciences (biology, chemistry and physics) throughout the cycle; secondly, provision of a new, in-service training programme (SESEMAT) for secondary level teachers of mathematics and science and, thirdly, a quota of 75 per cent for scientific and technological fields of study in the government sponsorship of undergraduate students. The policy of three compulsory sciences up to 'O' level is somewhat at variance with the ideas of the Education Sector Strategic Plan of 2004-15 (MOES 2004), which advocates a simplified curriculum at the lower secondary level, and it is very ambitious in the context of rapid expansion of secondary education. The expansion has been intensified by reductions of fees under the "Universal Secondary Education" programme since 2007.

The combination of these various policies has considerably increased the demands, both quantitative and qualitative, on the teaching of the natural sciences at the lower secondary level. Mathematics too comes under pressure because of its foundational role in the sciences. The demands on teaching at higher levels are likely to rise also in response to the sponsorship quota. But a missing element in this scenario is national planning of the supply of teachers for mathematics and science. While shortages of secondary level teachers in these subjects are a common problem internationally, Uganda seems to represent a notable case of failure to tackle it systematically. Partly as a result, market mechanisms distort the processes by which teaching is provided.

The findings of a recent study of teacher effectiveness in secondary school mathematics and science in Uganda, carried out by the Centre for Global Development through Education (CGDE 2011), include some limited evidence, in specific clusters of schools, of the teacher shortage problem and sheds light on its implications for classroom processes. However, the authors, who were joint team leaders in the CGDE study, are undertaking an additional research project to study this particular problem in greater depth. This paper presents preliminary findings, based on the initial stages of data collection.

Purposes of the study and of this paper

The project as a whole aims to explore the dimensions, circumstances and causes of the teacher shortages in secondary mathematics and science. Both the pattern of supply and demand at the national level, and the way in which teachers are actually deployed at the local level, will be considered. At the national level, the study will examine the ways in which both national government bodies and tertiary institutions relate to the problem. It is

assumed from the outset that the relevant managerial bodies and training institutions may have the potential either to intensify the problem or to bring it under control. At the local level, the study seeks to clarify the way in which the labour market functions to distribute the teachers. The implications of the analysis for educational policy and planning and for school administration will be pointed out.

The present paper is concerned with several specific issues. Firstly, we consider the limited data available at national level on the supply of, and demand for, secondary mathematics and science teachers, and the implications. Secondly, we discuss the practical importance of the shortages of such teachers in the current context of secondary education. The third part of our findings, based on qualitative research in a local area, is concerned with the teachers' earnings, taking all sources into account, and how these relate to their needs and affect their deployment; the fourth part is concerned with the work loads of the teachers and how they are shared among schools. The project as a whole will consider, in addition, the supply capacity of the relevant tertiary institutions and the planning capacity of national government institutions in relation to the provision of these particular groups of teachers. We seek to identify policies that would help to rationalise the provision of such teachers across the secondary sub-sector.

Concepts and relevant literature

The planning of a teaching force, for a given level of education, can be attempted at the national level, using enrolment trends, pupil-teacher ratios school staffing models and teacher attrition data to estimate "demand", while "supply" is planned mainly through the provision of pre-service teacher education. Williams (1979) sets out a convenient methodology for this kind of centralised planning, which is necessary especially at times of rapid expansion of enrolment or demographic change. There is considerable variation, however, even among low-income countries, in the extent to which teacher recruitment to government-funded schools is centralised or localised (Gaynor 2005; Urwick 2011). Where there is a mixture of public and private ownership and funding of schools, as with secondary education in Uganda, it is likely that various different systems of recruitment will co-exist. In principle governments can nevertheless monitor and regulate both the recruitment of teachers and other aspects of their management in order to limit inequalities of supply and standards. Their capacity for such governance (Grindle 2007) is a relevant issue, especially where multiple agencies are involved. Urban-rural variations in staffing (Urwick 1985) are an important reason for intervention.

Teacher shortages are reflected in large pupil-teacher ratios and, less directly, in large class sizes. In Uganda large classes are unfortunately common at the secondary as well as primary

level: secondary mathematics and science classes of more than sixty are readily visible and teachers widely blame large class sizes for shortcomings of achievement and pedagogy (CGDE 2011). A complicating factor in Uganda is that class size may be determined more by the supply of classrooms than by that of teachers: the national statistics for 2008 show a national pupil-teacher ratio (PTR) of only 19:1 in general secondary education, but a pupil-classroom ratio of 35:1. While large class sizes are attributable to general shortages of classrooms and teachers and not to those in mathematics and science subjects alone, large classes may have particular negative effects on the time allocated to science practical work and on the manner in which such work is supervised. With regard to the effects of teacher shortage on pupil achievement in general, we may assume that previous research on these is relevant to some extent.

The main general comment to be made about research findings on class size in developing countries is that there is no consensus about its importance as a factor in pupil achievement. This also applies to research in industrialised countries, which is generally concerned with much smaller and lower ranges of class size. O'Sullivan (2006), after reviewing the literature, calls for experimental and observational research on the relative advantages of improved teacher quality and reduced class size. However, Lewin (1992) observes, "It may be that within a wide band achievement is not related to class size but this does not mean there are no limits" (p. 61). We are also aware of two examples of studies that do show PTR or class size effects in a convincing manner, in specific contexts that have some relevance to this project. These are an analysis of Grade 10 examination results in the Tamil Nadu state of India (Durasaimy et al., 1998) and a small study of Grade 7 achievement in Lesotho, (World Bank, 2005).

Another factor potentially related to teacher supply and widely thought to be important for pupil achievement is the time spent on learning. This factor in turn can be influenced by the official curriculum, the school management culture, teacher effectiveness and the level of commitment of teachers and pupils. Walberg (1991, p. 40) mentions that the first IEA study showed international differences in "official" content exposure to have powerful effects on learning outcomes in mathematics and science. More importantly, as Benavot and Gad (2004) show in a review of the available evidence, schools in Sub-Saharan Africa suffer from substantial gaps both between intended and actual instructional time and between the latter and actual "time-on-task" in the classroom.

A factor closely related to the pupils' time-on-task is the manner in which teachers' time is allocated. Considerable research has been done on private tutoring and its effects (e.g. Bray 1999) and Hallak and Poisson (2007) provide an overview of this. But relatively little research has been done on the holding of secondary jobs by teachers ("moonlighting"),

which is thought to be prevalent in Uganda. Hallak and Poisson (2007) recognise that secondary jobs encourage malpractice in the form of reduced availability of teachers at their main workplace and also that moonlighting is often related to low or irregular pay for the main job (pp. 161, 166). However, the research on private tutoring shows certain other problems that could also be caused by moonlighting. One is teachers' adoption of "cramming" strategies, which could occur in the secondary job if there is little supervision by school administrators. Another is teacher fatigue and inefficiency in the main job (Hallak and Poisson 2007, 259), which could result in outright absenteeism. An international survey of primary school teacher absenteeism (Reinikka and Smith 2003) shows Uganda to have one of the highest rates, at 26 per cent, but Hallak and Poisson, in reporting this, fail to comment on the possible role of secondary jobs and occupations in this problem (2007, 164).

Measures to increase the supply of mathematics and science teachers and to regulate and reduce the unofficial sharing of these teachers between schools would be more likely to succeed if they included improved pay. Improving teachers' pay, however, is difficult in the present context of the rapid expansion of secondary education and the pressures on public expenditure (Lewin 2008). If attempted, it would require efficiency measures and reductions in non-teacher unit costs. Savings could be made by making more use of non-laboratory settings for science practical work (see Walberg 1991), as well as more efficient use of teachers within schools.

There are arguments for teaching combined science, rather than three separate sciences, in the first two years of secondary education, both for the sake of economy and on some curriculum grounds (Blum 1991; Venville et al. 2002). "Combined science" does not imply neglect of the different disciplines (Geraedts et al. 2006), but it does require that teachers should be trained to be able to deliver the combined subject as well as teaching one or two of the specialised sciences at a higher level. There is also a case for giving all who are trained for science teaching a foundation in the teaching of mathematics as well. The need for breadth and flexibility will inform the way in which this study reviews the current patterns of pre-service teacher education for these subjects in Uganda.

Research methods

The data collection for the whole study is organised in four major components: firstly, a review of relevant planning and record-keeping at the national level; secondly, case studies of teacher employment, in two clusters of schools; thirdly, a small survey of B.Ed. students (in-service trainees) and, fourthly, a review of the relevant training output of tertiary institutions—universities and National Teachers' Colleges (NTCs). The present paper is

based on some national level data and on case studies in one cluster of schools. The methods used in these two components are here described briefly.

1. Review of national policy and record keeping

The Planning Unit of the Ministry of Education and Sports (MOES) has made available, for recent years, data sets on (a) secondary level teachers, by main subject of specialisation and (b) on secondary schools, showing enrolment, managing body and location. We have constructed a national school sample from these data, as explained in the relevant section below, for purposes of analysis. The larger study will also make use of semi-structured interviews to seek the perspectives of national-level stakeholders: representatives of MOES, the National Curriculum Development Centre and relevant teachers' and head teachers' associations. But most of these interviews have yet to be completed.

2. Case studies of teacher employment

In order to provide a better understanding of the employment pattern and distribution of the teachers, we plan to study two clusters of three or four secondary schools. This field work has now been completed in one cluster of schools, in an urban area (a suburb of Kampala). It was preceded by a pilot study in two other schools. The second cluster, still to be studied, will be located in a small town and the surrounding rural area. Each cluster contains a mixture of government and private schools. A flexible approach is used in the selection of schools: the initial purposive sample can be adjusted in the interests of a meaningful analysis.

The target is to hold short interviews with 20-25 teachers of mathematics and science and the head teachers of the selected schools in each cluster, while other teachers in the same schools complete a questionnaire covering the key issues. The interview and questionnaire items focus on the allocation of teaching time, within and across schools, their levels of pay from different sources and perceptions of their workloads and remuneration. Participation is voluntary for every individual and informants are kept strictly anonymous in reporting. The researchers record responses on data sheets and, in order to protect the anonymity of respondents, sound recordings are not used. The researchers jointly interview the head teachers, but share the interviewing of the teachers, working separately. Both the interview schedules and the teacher's questionnaire were piloted in a different location before the main field work began.

National level evidence of supply and demand for mathematics and science teachers

As part of its annual school statistics for recent years, the Ministry of Education and Sports (MOES) of Uganda has collected some limited data on the subject specialisations of secondary level teachers. The “main subject” of teaching is recorded (in most cases) on lists of individual teachers. Many teachers work in more than one subject: but, as there is a general tendency for science teachers to specialise either in a combination of mathematics and physics or in a combination of biology and chemistry, the data do give some indication of the overall number of science teachers. There are two major limitations, however. The first is that these data are not incorporated in the school data sets, as would be relevant for planning. It is indeed obvious that the data have not been used for any detailed planning of the teaching force. The second limitation is that an “others” category in the subject specification, intended to be used for miscellaneous “unusual” subjects, has actually been misused in some instances where data were missing or not collected. For certain schools, all teachers are labelled as “others” with regard to their main subject.

The circumstances are that the MOES is attempting to develop, with some external assistance, an educational management information system (EMIS), but has not reached the point where this is used to plan the teaching force at the secondary level. This raises worrying questions about why this point was not reached some time ago, in the light of the ambitious policies that have been mentioned and the scarcities of resources.

In order to obtain some relevant findings in this situation, our approach has been to construct a data set for a systematic national sample of secondary schools, for the year 2010, incorporating data both on enrolment and on teachers’ subject specialisation. From an initial sample of 350 schools, drawn from a population of 2,730 for which the total number of teachers in the school is recorded, we have excluded those in which half or more of the subject specialisations were labelled as “others”. This leaves a usable sample of 292 schools.

Table 1 shows basic statistics for (a) total science teachers as a proportion of all teachers in the school and (b) the student-science teacher ratio in the school, where “science teachers” are those who have specified mathematics, biology, chemistry or physics as their main subject. There are nine schools which have no recorded science teachers and are therefore excluded from the second of these measures. For comparison the general student-teacher ratio is also recorded.

TABLE 1 SCIENCE TEACHER PROVISION AT THE SCHOOL LEVEL: THE NATIONAL SITUATION

Indicator	Type of management	Mean	St. dev.	n
Science teachers as a proportion of all teachers	Government	0.28	0.16	107
	Private	0.25	0.11	185

	All	0.26	0.13	292
Student-science teacher ratio	Government	169.80	187.65	102
	Private	79.68	71.67	181
	All	112.16	133.30	283
Student-teacher ratio	Government	62.31	145.02	107
	Private	18.64	21.06	185
	All	34.64	91.57	292

Two caveats affect these findings. One is that, in a few cases, teachers combine economics with mathematics: in this regard the mathematics capacity is slightly understated. A second is that many teachers, especially those in science, work in more than one school: a problem discussed below in relation to our case studies. As full-time equivalents, therefore, the numbers of teachers in general and of science teachers in particular may have been overstated in the records. These caveats, however, do not much affect the general implications of the findings in Table 1.

One of the main points arising from Table 1 is that, whereas teachers of mathematics and the three sciences are responsible for about half the teaching time in the school curriculum, they tend to account for only one-quarter of the school's teachers. As each natural science subject normally has four periods per week and mathematics has between six and eight periods in the lower secondary cycle, these four subjects tend to occupy 18-20 periods per week. A second point is that the mean student-science teacher ratio is far above any level that might be considered a reasonable standard. This is especially so in government schools, which have a mean student-science teacher ratio of 188:1. Conventional staffing models, using class sizes of 40 and teaching loads of about 25 periods per week, suggest that in schools with 2-4 streams (which are typical in Uganda) the student-science teacher ratio should be in a range between 45:1 and 55:1 for the lower secondary level alone. For the A level curricula (Years S5 and S6) more generous standards should apply. If Uganda is to achieve meaningful learning in science, a radical re-appraisal of curriculum requirements and staffing capacity is necessary.

A further matter for concern is the extreme variability of the staffing in relation to enrolment. Uganda has large numbers of small, private secondary schools, many of which lack specialists in particular science subjects (especially biology and chemistry). Yet in other schools there are unwarranted concentrations of specialists in one subject. There are also new "USE schools" under government management that are more severely under-resourced than the older government schools. The recruitment and deployment of teachers is being largely left to the market: but, in rural areas especially, it is not a simple matter for the

services of the available science teachers to be shared between schools. Our case studies will explore some of the implications of this situation.

Why the shortages matter: ambitious policies and harsh classroom realities

As we have indicated in the background section, the Government of Uganda (GOU) has ambitious policies for the teaching of science and mathematics. The policy of making biology, chemistry and physics compulsory and separate subjects has increased the amount of teaching time occupied by science. As we have mentioned above, science, together with mathematics, now occupies about half of the total teaching time in the lower secondary cycle. This change has taken place in a context of rapid expansion of secondary level enrolment (about 14 per cent per annum in recent years). Both factors necessitate increased recruitment of teachers for the sciences.

Findings from the CGDE (2011) study suggest that the official syllabi for these subjects are ambitious in relation to the context. Most teachers interviewed, in response to a question about the feasibility of the syllabus in the subject that they had been teaching, reported difficulty in completing the syllabus or in meeting all of its objectives (see Table 2). The factors mentioned were excessive content and shortages of various facilities (see the details in the second part of the table); teachers may have taken their own staffing levels for granted. Among the effects of the excessive syllabus content, reduced time spent on science practical work was the one mentioned most frequently. This effect was deplored by teachers, who tended to see practical work as important for students' motivation and effective learning.

Two sets of official syllabi are used in the context: those of the National Curriculum Development Centre (NCDC) and of the Uganda National Examinations Board (UNEB). The authors consider that in both sets some of the objectives and scope do

TABLE 2 TEACHERS' INTERVIEW RESPONSES ON THE FEASIBILITY OF THE SYLLABUS THEY ARE USING¹

1. Teacher frequencies by general type of response

Type of response	Number of teachers:		
	Mathematics	Sciences	Total
Not all the syllabus can be covered/not all the aims and objectives can be achieved.	3	10	13
The syllabus can only be covered fully in S1 and S2.	1	-	1

¹ The source of this table is CGDE (2011).

It depends on the students' abilities.	-	1	1
The NCDC syllabus objectives are more achievable than the UNEB ones.	-	1	1
The aims and objectives are achievable on the whole.	2	-	2
I am not familiar with the syllabus aims and objectives.	1	-	1
Total	7	12	19

2. Perceived factors preventing full coverage of the syllabus

Factor	Number of times mentioned*:		
	Mathematics	Sciences	Total
Too much content	2	4	6
Shortage of laboratories	-	2	2
Shortages of equipment and materials	-	2	2
Power cuts/lack of IT access	1	1	2
Interruption by sports days, festivals, etc.	2	-	2
Shortages of textbooks and library books	-	1	1
Late supply of materials	-	1	1
Large classes	1	-	1

*Some teachers mentioned more than one factor.

appear ambitious. The NCDC chemistry syllabus, for example, strongly emphasises “discovery” of knowledge in the objectives, ignoring the difficulties experienced with this concept in the past (see Hodson 1996). The UNEB mathematics syllabus has a very academic emphasis and includes topics on vectors and matrices. The latter are all the more difficult to teach because of the continuing opposition (among older teachers) to the use of calculators. But, in any event, teachers with excessive hours and very large classes would find it difficult to meet these ambitious requirements of the syllabi. From the perspective of students, there is seldom any alternative to conventional classroom learning. In some schools interactive computer programmes for the sciences (in the CyberSchool series) are used successfully: but many other schools lack the computer facilities, funds for the subscription, or even a regular power supply.

A number of other problems, noticed in the lesson observations of the CGDE (2011) study, are ones to which teacher shortages may well have contributed. These include a general lack of written lesson plans, infrequent giving of homework, lack of performance based assessment and insufficient formative use of assessment (pp. 52-3, 62-3). The last two problems are partly attributable to the emphasis placed on examinations in the school culture, some schools holding examinations three times per term. Where teachers are in

short supply, however, it is difficult for them to challenge this culture. Finally, in nine of the 32 lessons observed, large class size was noted as a negative factor in the teaching situation (CGDE 2011, 50).

Why the shortages occur: evidence from case studies

In this section we shall first comment on the cyclical problem of low achievement and scarcity of specialists in science subjects (including mathematics) and then examine local evidence about teachers' remuneration and work loads.

1. The ineffective teaching and learning of Mathematics and Science in lower secondary education

The introduction of Universal Secondary Education (USE) by the Uganda government in 2007 requires that the education system attracts, educates and retains a sufficient number of well qualified teachers. The current shortage of mathematics and science teachers is in contrast to the high increase in the number of students at the secondary education level that the country has registered over the last five years (Ministry of Education and Sports 2009).

The shortage of mathematics and science teachers in secondary schools may be viewed as a continuous cyclical problem with its roots at the ineffective teaching and learning of mathematics and the sciences in both primary and lower secondary (first four years) education. Poor performance in mathematics and science at O level leads to a low level of competence in these subjects among primary teacher trainees and this in turn leads to a weak foundation at the primary level for pupils, which feeds into the lower secondary level. Ineffective teaching and learning of these subjects has led to a growing lack of interest and poor performance in them as reflected by the national examinations conducted by the Uganda National Examinations Board (UNEB 2009).

As illustrated in Figure 1 below, the poor performance in mathematics and science in secondary schools results in low enrolment of mathematics and science students at universities and other tertiary level teacher training institutions. The proportion of students in all Uganda's tertiary institutions taking science based courses was only 15 per cent in 2003 (Ouma 2003) and was still low at 22 per cent in 2010 (Kasozi 2010, 21).

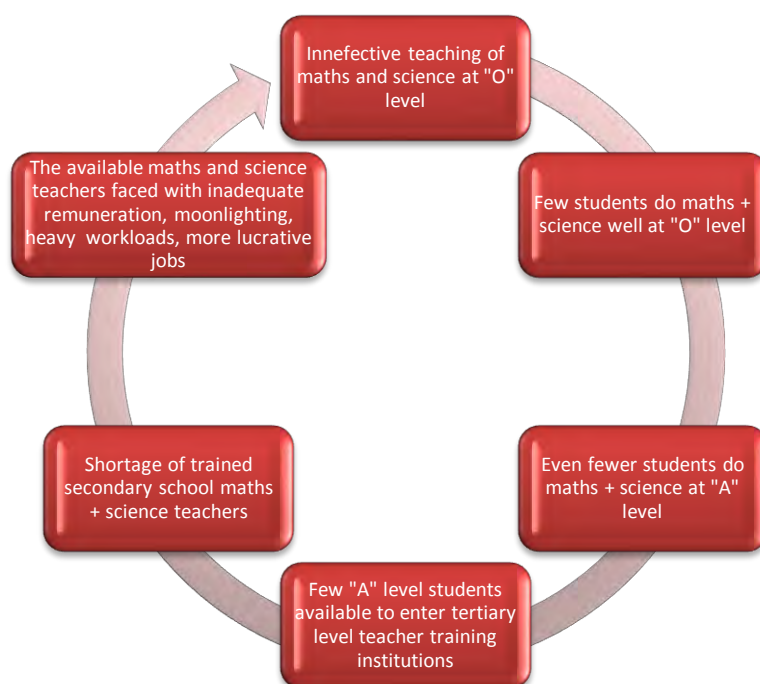


Figure 1: Continuous Cyclical Problem of Shortage of Maths and Science teachers

2. Teachers’ remuneration

The Mathematics and Science teachers who qualify with a Grade V diploma or a degree are employed in both government and privately owned secondary schools. A teacher’s monthly salary depends on the qualification (diploma or degree), years of teaching experience and whether one is teaching in a government or private school. Table 1.0 shows the typical earnings (net income) of these teachers.

TABLE 3: TEACHERS’ MONTHLY REMUNERATION

Figures given are approximate and based on interview data.

	On government payroll		Not on government payroll	
	Degree	Diploma	Degree	Diploma
Qualification				
Years of teaching				
2 - 6	300,000		350,000	300,000
7 - 11	330,000		400,000	
12 - 16	420,000		400,000	
17 - 21	620,000		400,000	
22 - 26	870,000		400,000	

*Currently, 1 US \$ = 2500 UGX

These teachers' remuneration which averages US \$ 5.3 per day is not adequate for their needs. Many teachers feel that doubling their current net income would be adequate for their needs.

All the schools surveyed provide break tea and lunch to the teachers. Other schools give a "food basket" as an incentive for the teachers. There are also instances where teachers are either housed by the school or they receive a housing allowance. Even then, some of the teachers end up teaching in two or more schools (moonlighting) in an attempt to make ends meet. Moonlighting, however, is a clear indication of the lack of mathematics and science teachers in some schools. Other teachers leave the profession for "greener pastures" leaving no immediate equivalent replacement for the gaps created.

3. Typical teacher workloads and how are they shared among schools

Table 4 shows the typical weekly teaching loads of a sample of secondary school mathematics and science teachers.

TABLE 4 TEACHER WORKLOADS IN A SINGLE SCHOOL

Number of periods taught per week	Frequency	Percentage (%) of total number of teachers surveyed
16 – 20	36	48
21 – 25	19	26
26 – 30	16	21
31 – 35	03	04
36 – 40	00	00
41 – 45	01	01
TOTAL	75	100

From Table 4, almost half of the teachers surveyed (48 per cent) teach between 16 and 20 periods of 40 minutes each per week in any one school. Some of these teachers are the school's director of studies, heads of academic departments, class-teachers (overall in charge of a particular class) or have other such responsibility in school while others teach more than 20 periods a week in a second school. A smaller proportion of the teachers surveyed (47 per cent) teach between 21 and 30 periods per week. However, some few teachers (4 per cent) teach up to 35 periods in a week. Table 5 shows the workload for those teaching in two schools.

Table 5 shows that 50 per cent of the teachers surveyed teach in two schools. Of these, 60 per cent do more than 40 periods by the end of the week. The implication of this is that teaching goes on outside the normal teaching time. Whereas some teachers teach on Saturday, others teach during early morning prep (6.00 a.m.-7.00 a.m.) and/or evening prep (5.00 p.m.-10.00 p.m.), especially in boarding schools. This is in addition to other roles and responsibilities that these teachers have in school, including heading academic departments, being a class-teacher or being in charge of careers' guidance, while others engage in personal businesses of various types. Given that schools have a standard five-day teaching week of 40 periods, these teachers spend more than 100 per cent of the school week inside the classrooms teaching.

TABLE 5 TEACHER WORKLOADS FOR THOSE TEACHING IN TWO SCHOOLS

Number of periods taught per week	Teaching in one school only		Teaching in two schools	
	Frequency	Percentage	Frequency	Percentage
16 - 20	12	48		
21 - 25	08	32	02	08
26 - 30	04	16	01	04
31 - 35	01	04	02	08
36 - 40			05	20
41- 45			07	28
46 - 50			04	16
51 - 55			01	04
56 - 60			00	00
61 - 65			02	08
66 - 70			01	04
TOTAL	25	100	25	100

Ironically, for the teachers doing more than 40 periods a week, each interacts with between 310 students and 1142 students in their classrooms by the end of the week. Some of them in the rural areas handle single classes of up to 260 students. Needless to say, the teachers accept that this is too much workload, leaving them with very little or no time for interaction with their students and it makes evaluation of students learning very difficult.

The information gathered also indicates that whereas many teachers are likely to be teaching only their major subject, apparently it is teachers who have become specialists and probably gained experience in one subject that are more likely to be teaching that subject in another secondary school. In most cases also, a teacher will be teaching in a government

school for three days of the week (say Monday to Wednesday) and in a private school for another three days (Thursday to Saturday).

Conclusions and further issues

The teacher shortages and associated problems as we have identified them illustrate the incoherence of an educational system in which an ambitious curriculum is prescribed by the central government, but the provision of a large part of the resources with which to implement it—notably the key resource of teachers—is left to the market. Those science teachers (i.e. teachers of the natural sciences and mathematics) who stay in the profession for any length of time tend to survive either by teaching in two schools or by engaging in a second occupation. This also applies to some of the other teachers: but, among teachers of compulsory subjects, science teachers are reported to be in high demand because of their relative scarcity. A common pattern is for science teachers to divide their time between a government school, which provides some job security and a pension entitlement, and a private school, which provides additional income. Thus the government, in order to meet the demand for secondary education, depends on the private schools in several ways. Private schools enrol a large proportion of the students, supplement the pay of teachers on the government payroll and meet the entire cost of many other teachers.

In the context of the USE policy, the MOES has introduced some provision of free secondary school places for the benefit of the poorest families. But, by running its own secondary schools, especially the new ones, with very meagre resources (classes of 100 students and no laboratory assistants, for example), the Ministry ensures that the demand for private schooling continues to be high. The administrators of schools, whether public or private, in order to meet their own curriculum requirements and to enable teachers to survive, tolerate the moonlighting culture. The losers are the students, who may receive a minimal service from overstretched teachers even when their parents are paying fees.

Is there a way out of the apparent impasse? We shall suggest that initiatives in four areas might be helpful: improvements in pay, proper use of employment contracts, more modest curriculum requirements and greater breadth in the pre-service training of science teachers. The latter at present has a rigid pattern of specialisation in two subjects only.

Improvement in teachers' pay is an obvious need, especially for science teachers. The education sector has to compete with other sectors to recruit from a very limited pool of science specialists (Kasozi 2010). A science teacher's allowance (at 30 per cent of basis salary) was approved in principle in 2009, but has never been implemented. There seems to

be an issue of “political will”, but the issue is still under discussion.² Whereas recent increases in public teachers’ salaries have not kept pace with inflation, more realistic increases would encourage the private schools to increase their own pay.

A second initiative, for which the MOES should be responsible, is to ensure that the owners of private schools comply with the law in providing written contracts of employment to their teachers, whether full-time or part-time. This would help to make the private school teaching force more stable and to prevent exploitative and capricious behaviour on the part of school proprietors and administrators.

As part of a move to achieve a better match between goals and resources, a less ambitious curriculum for science in Years S1 and S2 would be appropriate. It would be consistent with the practice in many other countries to require combined science (encompassing biology, chemistry and physics) at this level, with a weekly allocation of eight periods rather than the present twelve. Mathematics would continue to be taught separately. The combined science curriculum would contain some modules introducing the different disciplines and others that are interdisciplinary. (This is not a case of advocating the old type of “integrated science”.) In view of the current shortage of biology and chemistry specialists, this approach would mitigate the problem of teacher deployment: science teachers would, however, need some retraining in order to master both the breadth of content and the appropriate methods for combined science.

This leads to the fourth suggested initiative, which is to prepare all pre-service teacher trainees in natural science for the teaching of combined science (as stated above) in S1 and S², as well as two separate disciplines in S3 and above. This change would, in the long term, allow for more flexibility in the deployment of science teachers and make the staffing problems of the many small secondary schools easier to handle. Our wider study will explore this issue in more detail, along with quantitative aspects of the pre-service training programmes.

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TEACHER COMPETENCIES IN ACCESSING ONLINE CONTENT: A STUDY OF IGEMBE SOUTH DISTRICT

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THEME: QUALITY EDUCATION FOR SOCIETAL TRANSFORMATION

SUB THEME: ICT in Content Delivery

Abstract

ICTs have impacted the way people think and live. With the world moving rapidly into digital media and information, the role of ICT in education is becoming more and more important.

Providers of education are reviewing their programs so as to match the changing trends in the world. They have integrated ICT in education. The use of ICT in classroom set ups has impacted on the content and how the learners learn. The integration of ICT in classroom teaching in Kenya has faced many challenges. In this paper we look at the teacher competencies in accessing online content. The objective of this study was to explore teachers' knowledge and ability to access online content.

This study was conducted in Igembe South District of Meru County. The respondents to this study were 100 secondary school teachers.

This study was quantitative and adopted a descriptive survey design to gather data. Data collection was carried out using questionnaires. The findings of this study indicate that many teachers do not have access to computers in their schools, they do not access the internet daily and for those who access the internet ,they do not plan their searches and are not able to download the content for future use. The main recommendation of this study is, further

studies to be conducted on this aspect of ICT in order to come up with a uniform framework for evaluating teachers' competencies in accessing online content.

Key words: *ICT, Online content, Teachers, Education, integration, Internet*

INTRODUCTION

Computers change the way people think and live. For example, when one goes to a shop, all the items are scanned with a computer. When one goes to the bank, a computer is used to process all the transactions. Hodge and Miller (1997) confirm the impact of computers in people's lives and indicate that "information and communication technologies are rapidly changing the way individuals live, firms do business, governments administer and nations interact".

Within education, ICT has begun to have a presence but the impact has not been as extensive as in other fields. Education is a very socially oriented activity and quality education has traditionally been associated with strong teachers having high degrees of personal contact with learners. The use of ICT in education lends itself to more student – centered learning settings and often this creates some tensions for some teachers and students. But with the world moving rapidly into digital media and information, the role of ICT in education is becoming more and more important and this importance will continue to grow and develop in the 21st century. (Ron Oliver)

ICT INTEGRATION AND ITS IMPACT ON EDUCATION

According to Lockard and Abrahams (2001) integration is defined as the process of totally integrating the use of computers into the existing curriculum through learning activities that address the subject area objectives. Computer integration in the classroom is the application of technology to assist, enhance, and extend student knowledge. Using ICT in education means more than simply teaching learners how to use computers. Thus, ICT should also be used to promote information literacy – the ability to access, use and evaluate information from different sources in order to enhance learning, solve problems and generate new knowledge.

ICT curriculum integration further means that teachers and learners use computers to perform daily duties like using the word processor and the spread sheet to complete certain tasks. Teachers and learners also find a simple way of communicating curriculum matters with each other through the use of the internet and e-mail. Collaboration among teachers

will be more effective as they will share teaching and learning information and ideas via the e-mail or chat rooms (Godfrey 2001).

This is important, as noted by Collins (2002), who states that the use of computers to create learning activities can bring about interesting opportunities for learning and can have a high impact in addressing certain curricular needs.

Integration of computers involves the infusion of computers as tools to enhance the learning content Antifaiff,(2001). The computer is considered as the means for achieving the instructional objectives in the classroom with the teacher's guidance. Integration of computer in the curriculum is achieved when students are able to select computer tools to help them obtain information in a timely manner, analyze and synthesize the information, and present it professionally.

Information Communication and Technologies (ICTs) provide a window of opportunity for educational institutions and other organizations to harness and use technology to complement and support the teaching and learning process. E-learning is an example of the use of these ICT-supported teaching and learning methods whose use in educational institutions is gaining momentum with the passage of time. Omwenga (2004).

He further notes that educational systems around the world are under increasing pressure to use the new information and communication technologies (ICT) to teach students the knowledge and skills they need in the 21st century. It has the potential to transform the nature of education: where and how learning takes place and the roles of students and teachers in the learning process. Computer integration in the classroom is the application of technology to assist, enhance and extend student knowledge.

Using ICT in education means more than simply teaching learners how to use computers. The implication of this is that a lot is required from the teachers. This is explained by Coral (2001) who suggests that training in educational ICT should not only be confined to acquiring computer literacy skills but should also extend to using computers as a means to enable educators to change the way they teach. Most educators would benefit from changing the way they teach by using computers in the classroom but the ability to use computers to meet teaching and learning goals is a competence that can be acquired only after the investment of considerable resources and time. This position has unfortunately not yet been reached in Kenya. Further still, Curriculum integration may include collaborative, project based learning activities that enable learners to use the internet and software skills to work with other learners and teachers in their school, outside the community and

internationally. For this to be possible, teachers need to be well trained in various methods for incorporating ICT into the instruction and the curricula. Wheeler(2000).

Our argument in this paper is that the integration of ICT in education will involve access of online content so, apart from having the basic ICT skills teachers will also be required to have competence in accessing online content. This is because some of the subject content will be digitalized .We adopt this position in line with that of Trotter (1999) who points out that a school can possess the best educational software ever produced and access to the worldwide web on every computer but this will not make a lot of difference in teaching and learning unless educators are acquainted with the use of computers in their subjects. There could be the same digital content used ineffectively in one classroom and effectively in another. This could be attributed to educator competence in utilizing the computers for teaching and learning. As schools acquire more computers connected to the internet the value to learners depends on the educator's competence in using computers. The ability to use information and communication technologies (ICTs) has become a requirement in all institutions of learning. In some schools computers may be available but the teachers may lack the necessary skills to effectively use them in classroom teaching. The availability of computers in the schools will thus not be a major issue in this study.

Different studies argue that teachers must be trained to use the ICT as a tool for the learners benefit. Pascopella (2001) cautions that globally, most educators are not competent to integrate application software meaningfully into the learning context of a learning area and this may be the reason that schools do not appear to be exploiting the opportunities offered by educational information communicational technologies (ICT). In this study we are also in agreement with Godfrey (2001) who contends that the biggest challenge in the integration of ICT into the curricula lies with the training of teachers. The ability to utilize information and communication technologies (ICTs) has become a new literacy for the twenty first century. This literacy raises a number of challenges for teachers' vis-à-vis their technical ability, knowledge and expertise in ICTs.

Statement of the problem

In Kenya, many teachers have never had an opportunity to use computers for educational purposes nor have received any training in this regard .Although some teachers have been exposed to ICT at teacher training institutions the majority of them are unable to successfully integrate ICT into learning programmes.

Studies carried out in Kenya show that some efforts have been made in a few secondary schools to acquire computers for instructional purposes. Momanyi et al (2006) investigated

the attitude and perception of Kenyan educators towards introducing technology into the education curriculum in Kenya. This was done through a survey which inquired into the status of technology in the education system in Kenya.

In this study, we note that there is a gap in the ability of teachers to use ICTs effectively, to access online content, download and store it for future use

PURPOSE OF THE STUDY

The purpose of this study was to explore teachers' knowledge and ability to access online content.

RESEARCH QUESTIONS

The study was based on the following questions

1. What is the teachers' access to computers in their schools?
2. What is the teachers' knowledge in the use of hardware and soft ware?
3. What navigational skills do teachers' use in accessing online content?

RESEARCH DESIGN AND METHODOLOGY

The respondents to this study were 100 secondary school teachers .The teachers were chosen because they are charged with the implementation of the curriculum in the secondary schools.

This study was quantitative and adopted a descriptive survey design to gather data on views, opinions, attitudes, perceptions and suggestions of the subject under study. Descriptive survey is a research strategy or design which involves collection of primary data from all or part of a population in order to determine the incidence, distribution and interrelations of certain variables within the population. It comprises of data collection techniques like questionnaires, interviews and observation. Data collection was carried out using questionnaires. The questionnaires comprised bio-data of the respondents, questions requiring yes or no answers and a section carrying Likert-scale strongly agree to strongly disagree kind of items.

Q1. Table 1: Teachers' Access to Computers in the Secondary School

	frequency	percentage
Non existent	40	40

Fair	33	33
Good	27	27
Very good	-	-

Access in this question meant having computers that were conveniently located for the teachers' use. These computers are put aside for use by teachers only.

It was found that 40% of the teachers initially interviewed did not have access to computers for use in their schools. 33% of the teachers viewed their access to computers as fair this implies that the available computers in the school are not enough they are shared among the teachers and non teachers. At least the teacher can perform general tasks like word processing .27% percent of the teachers felt their access to computers in the schools to be good. This implies that the teachers have access to computers that have been set aside for their use only but they are not enough for use by all the teachers in the school at the same time.

Q2. What is the teachers knowledge in the use of hardware and software?

Able to identify and assemble the following:	Frequency			
	Yes	Percentage	No	Percentage
CPU	75	75	25	25
Monitor	75	75	25	25
Key board	81	81	19	19
Printer	63	63	37	37
Scanner	50	50	50	50
Install software(<i>from a CD or flash disk</i>)	63	63	37	37

Knowledge in computer hardware is important in accessing online content. Anybody accessing online content has to be conversant with the hardware first. The user must know how to connect the hardware and start the computer first before he/she accesses online content. The software is equally important in accessing the content. Software aids access of online content in form of browsers like Mozilla Firefox, Internet explorer, Opera mini etc. Some of these softwares have to be installed. This question looked at individual competence.

From the table above most of the teachers can identify and assemble a CPU, Monitor and key board. 75% indicated they could identify and assemble a CPU and a monitor while 81% indicated they could do the same with the keyboard. But when it came to peripheral devices the numbers went down. Probably this is because not many consider these devices important. 63% of the teachers indicated they could identify and assemble a printer while

50% indicated they could do the same with a scanner. On installing software from a flash disk 63% indicated they could perform that task. The use of a flash disk in this case checked at the ability of downloading and storing of online content. The assumption was that some of the softwares can be accessed online.

3. What navigational skills do teachers' use in accessing online content?

In answering the above question we established the frequency teachers accessed the following

	Never	Percentage	Daily	percentage	Monthly	percentage	Termly	percentage
Internet	30	30	27	27	43	43	10	10
E-mail	36	36	15	15	39	39	10	10

This question was aimed at checking the frequency of teachers at accessing online content. The assumption in this question was that teachers first accessed the internet before e – mail and those who accessed e – mails have e – mail addresses.

It was found that 30% of the teachers have never accessed the internet and 36% did not have e – mail addresses and thus did not have access to e – mails. Those who accessed the internet daily were 27% but the percentage of those accessing the e – mails daily was 15%. Teachers who accessed the internet monthly were 43% and those accessing the internet at the same frequency was 39%. The percentage of teachers accessing the internet termly was 10% ,same for those who accessed e – mails on termly basis.

b. Search engines used by teachers when searching for online content.

	Frequency	percentage
Google	50	71
Yahoo	20	29
Bing	-	-
Any other(<i>state</i>)	-	-

This question first excluded those who had never accessed the internet. Most of the teachers who accessed the internet used Google as their search engine this represented 71% while those who used yahoo as their engine was 29%. So, Google was a popular search engine among the teachers.

c. What teachers do when searching for online content?

	Yes	percentage	No	percentage
Plan the search	55	79	15	21
Devise key words	26	37	44	63
Select the search engine	60	86	10	14
Download and store online content	30	33	40	67

This question first aimed at finding out if the teachers first made any preparations for accessing online content. It further aimed at finding whether they downloaded and stored any online content for future use.

79% of the teachers indicated that they planned any search they conducted for online content while 21% did not. 37% devised key words for their search but 63% did not. 86% indicated that they selected the search engine while 67% did not download and store any online content.

d. How teachers rate their skills in accessing online content?

	Very good	Percentage	Good	Percentage	Fair	Percentage	Poor	Percentage
Searching		18		48		28		6
Skimming				33		40		27
Scanning				18		57		27
Evaluation of sources				20		47		33

In this question we intended to find out how the teachers perceived their skills in terms of accessing the online content.

18% of the teachers felt they were very good in searching for online content but the majority which comprised 48% of all the teachers rated themselves as being good, 28% rated themselves as being fair and 6% percent rated their skill in searching for online content as poor.

Scanning and skimming are skills that apply to reading. Not all searches for online content will yield relevant content so the teachers need to be able to scan and skim this content to ascertain their relevance. On skimming, 33% of the teachers felt they were good in that area,

40% rated themselves as fair and 27% poor. On scanning of online content, 18% felt they were good, 57% felt they were fair and 27% rated themselves as being poor.

Online content need to be evaluated to verify its originality and reliability. On evaluation of sources for online content 20% of the teachers rated themselves as good,47% which was the majority rated themselves as fair while 33% rated themselves as poor.

SUMMARY OF FINDINGS

Based on this study most of the teachers do not have access to computers in their schools and those who have access, the computers are not enough for adequate personal use. This means it would not be easy to integrate the use of ICT in classrooms. Secondly, most of the teachers interviewed had some basic knowledge of computer hardware and application of software. Not many of them would require training in their use except in the application of peripheral devices. Thirdly, many of the teachers do not access internet daily meaning that they occasionally interact with online content. Fourthly, for those who at least accessed the internet the search engine of choice was Google. Fifthly, many of the teachers planned their search for online content but did not devise key words; still many of them could not download and store online content. Finally, majority of the teachers are good at searching for online content but when it comes to skimming, scanning and evaluation of the content their rating is fair.

Conclusion

This study clearly indicates that there are teachers in secondary schools who don't have access to computers in their schools and are not competent in accessing and handling online content. In particular this study has pointed the weak link between the teachers' basic ICT knowledge and the ability to access online content. Although the results of this study cannot be generalized beyond the teachers in Igembe south district it can inspire many more studies to be conducted in other regions where similar discrepancies are being observed. From the research findings it is to be concluded that the adoption of ICT in content delivery in secondary schools may not impact fully due to the teachers' incompetence in use of computers in some aspects of ICT.

The main recommendations of this study is that in-depth studies are needed to identify in detail the extent of teachers competence in the access of online content. In line with this a uniform frame work should be developed to act as a guide of measuring these competences which can be applied to all teachers countrywide.

Teachers need to be encouraged to spend some time on the internet daily in order to develop and sharpen their competencies and therefore schools should look for a way of networking their computers and connecting them to the internet.

Teachers should also be encouraged to collaborate with other teachers both locally and nationally to exchange ideas and information on subject areas through e – mails.

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IN-SERVICE PREPARATION OF SCIENCE AND MATHEMATICS TEACHER EDUCATORS FOR ICT INTEGRATION IN TEACHING AND LEARNING

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Abstract

Research suggests that Information and communication technology (ICT) has the potential of facilitating teaching and learning process to enhance students' learning. However, in most developing countries, scarcity of teacher educators to prepare other teachers for ICT integration is often cited as one of the reasons for the slow pace of ICT integration in classrooms. Considering the need to prepare teachers for ICT integration in East Africa, it is essential that science and mathematics teacher educators (SMTE) themselves undergo professional development experiences that equip them with professional literacy necessary for meaningful ICT integration in teaching and learning. In this regard, this study explored the practice at ACADEMIA (pseudonym), a tertiary institution in Tanzania, of preparing SMTE for ICT integration. The study sought to examine how SMTE were being prepared to integrate ICT in their practice. This was for the purpose of documenting useful lessons, if any.

Three courses, namely, Science Education, Mathematics Education, and ICT in Education were purposively selected and compared analytically. Empirical qualitative data was collected from analysis of course documents, students' works, ICT facilities, and separate individual interviews with faculties and SMTE. Findings suggest that preparation of SMTE for ICT integration was defined by the following attributes: acquisition of basic ICT operational skills; mastery of selected subject matter related to Mathematics and Science; pedagogical development with a focus on constructivism; knowledge of Technological Pedagogical Content Knowledge as an ICT integration framework; use of ICT for professional development; and attention to human factors. Further, the preparation approaches in Mathematics Education and Science Education courses were skewed towards subject specific approach while that for ICT in Education course was ICT pedagogy approach. The empirical findings and the literature findings were synthesized in to a recommended sample model with a potential to guide the preparation of SMTE for ICT integration.

Key words: ICT, ICT Integration, teacher educators, Teacher Professional Development

1.1 Introduction: Background and context of the study

Integration of Information and Communication Technology (ICT) in teaching and learning is increasingly becoming an important agenda in educational reform initiatives. Arguably, the potential value of ICT in enhancing quality learning experiences and the transformation of pedagogy are some of the factors driving ICT integration in teaching (McNair & Galanouli, 2002). In support, various research studies associate ICT integration with improved quality of education. In addition to facilitating professional development of the teacher (Gaible & Burns, 2005), ICT may help to increase student motivation (Osborne & Collins, 2000), facilitate clearer thinking and develop interpretation skills with data (Newton & Rogers, 2003), and support independent inquiry, shared knowledge building, and promote collaboration amongst students (Bingimlas, 2009). Further, studies conducted by UNESCO (2007) in Asian countries, indicate that ICT has the potential to help broaden access to education and improve learning outcomes. This association of ICT with quality education is important considering that the sixth Education for All goal by UNESCO (2010) calls for the improvement in quality of education in its entirety.

Nonetheless, in as much as ICT usage brings about new opportunities in terms of providing an educational environment that is highly conducive to student learning (Vaughan, 2007), according to UNESCO (2007), levels of ICT integration are not satisfactory especially in developing countries. In Africa, inadequate ICT infrastructure is commonly cited as a major hindering factor towards ICT integration (Unwin, 2005). Although this might be the case, its overemphasis often overshadows the inadequate preparation of teachers for ICT integration. Ordinarily, the infrastructural problem is easily alleviated through provision of schools with ICT. Incidentally, this seems to be the option of choice for many education stakeholders with the hope that the investments will translate to effective integration without putting in place similar measures for teacher preparation. This is propelled by the common misconception that access to technology on its own motivates teachers to apply it in their teaching (Hennessy, Harrison, & Wamakote, 2010). However, mere provision of ICTs alone is not a sufficient facilitative condition for effective integration. This is because, as Wellington (2000) aptly argues, teachers “need to be able to judge when the use of ICT is effective and beneficial and when its use is ineffective or inappropriate” (p. 195). Capacity to do this requires teachers to acquire, among other things, an ICT integration framework for teacher knowledge (Mishra & Koehler, 2006) and positive attitude towards use of ICTs (Mohamed & Bakar, 2008). This emphasizes the need to have in place quality teacher education for mathematics and science teachers which in essence, also entails having in place Science and Mathematics Teacher Educators (SMTE) proficient in ICT integration.

Generally, in-service teacher education is an appropriate intervention in facilitating preparedness of teachers for ICT integration. Nevertheless, empirical studies suggest that preparation opportunities on ICT integration in teaching are inadequate (Pelgrum & Law, 2003). Where opportunities are available, especially in developing countries, the teacher education programs are considered ineffective (infoDev, 2010). A point in case is the claim by Glen and Isaacs (2007) that teacher preparation programs in Africa are biased towards development of ICT operational skills rather than integration of ICT into pedagogic practice. In support, and particularly in reference to East Africa, Wamakote, Ang'ondi and Onguko (2010) recommend the need for teacher professional development (TPD) in the region to shift emphasis from acquisition of basic ICTs skills "to pedagogic application of these skills for improved teaching and learning experience" (p.35). Compounding ineffective TPD is the challenge that Africa lacks teacher educators prepared in ICT integration in education (SchoolNet Africa, 2004).

Considering the lack of teacher educators in ICT integration in Africa, and if the status quo persists in East Africa, then I concur with Zhiting and Hanbing (2001) that teachers' preparedness to integrate ICT in their teaching will continue being a challenge. Thus, students will continue missing out on the potential value of ICT in enhancing quality of their learning experiences in science and mathematics. To mitigate this situation, there is need to have in place TPD courses for SMTE that facilitate the acquisition of relevant teacher competencies for effective ICT integration such as those outlined by UNESCO (2008) and ISTE (2008). In this regard, the assumption is that if SMTE in East Africa acquire such competencies through quality TPD they may improve their practice, that of other teachers, and ultimately improve students' learning outcomes in science and mathematics.

Notably, there are tertiary institutions in the East Africa region conducting TPD programs. One example is ACADEMIA¹. The university's website describes two in-service courses for science and mathematics graduate teachers; a six month Certificate of Education Program and a two year full-time Master of Education (MEd) program. The programs are offered to practicing graduate teachers drawn from the three East African countries, namely, Kenya, Tanzania, and Uganda. Through various courses in the TPD program, participants are exposed to contemporary ways of teaching and learning which include ICT integration. The ultimate intention is that the graduates eventually form a critical mass to ultimately facilitate the improvement of education standards in the region. Further, some of the graduates of the MEd program are expected to become SMTE and facilitate the professional development of other teachers in ICT integration.

¹Pseudonym of an international university located in Tanzania where this empirical study was conducted

1.2 Research problem

Bearing in mind that there are institutions engaging in professional development of SMTE in East Africa and presuming that such initiatives are geared towards improving the quality of education in the region, and if the preparation of the SMTE for ICT integration is integral to the achievement of this goal, then one important concern borders on understanding what informs these teacher professional development (TPD) initiatives in as far as ICT integration is concerned. This is in consideration of UNESCO's (2010) view that it is imperative to offer informed support to in-service preparation of teachers as a way of guaranteeing quality.

Ideally, informed support emanates from reviewing relevant literature and critique of existing contextual practices of preparing teachers for ICT integration. However, focusing on developing countries, infoDev (2010) reports the scarcity of quality TPD opportunities for ICT integration and lack of documentation of best practice models for preparing teachers. Seemingly, though there are in-service TPD initiatives in the East Africa region, there is insufficient documentation of plausible practice models. Specifically, there is insufficient documentation of essential attributes an in-service course in the region should have to effectively prepare SMTE for ICT integration. This is probably because emerging practices have not been explicitly examined in this context to draw useful lessons for dissemination to interested education stakeholders. Therefore, there is need to document contextual attributes of existing TPD initiatives to act as a frame of reference to interested stakeholders participating in the preparation of SMTE for ICT integration.

1.3 Research Question

In view of the research problem, this study set out to examine the practice of preparing SMTE for ICT integration at ACADEMIA and ultimately document contextually useful lessons, if any, in form of a sample model of a teacher professional development program for reference to interested education stakeholders. The main question which guided this research is: How are science and mathematics teacher educators prepared for ICT integration in the *Science Education*, *Mathematics Education*, and *ICT in Education* in-service courses conducted at ACADEMIA? Subsequently, two subsidiary questions were formulated:

1. What attributes related to ICT integration are science and mathematics teacher educators exposed to in the respective in-service courses?
2. What additional attributes, if any, are required to enhance the in-service courses in preparing science and mathematics teacher educators for ICT integration?

In this research an understanding of 'how' SMTE are prepared for ICT integration necessitated an investigation of attributes of the respective courses that course participants were exposed to. As outlined in the theoretical frame work, the attributes include the preparation approaches used, whether there was attention to human factors influence towards ICT integration, and types of ICT that SMTE were exposed to.

2 Theoretical Framework

Enhancing the preparation of science and mathematics teacher educators (SMTE) for ICT integration is crucial. This is in consideration of the fact that they are expected to facilitate professional development of other teachers in enhancing student learning. However, research on preparation of teachers for ICT integration in Africa point out several issues. These include the scarcity of opportunities for teacher preparation (infoDev (2010), scarcity of teacher educators (SchoolNet Africa, 2004), and general lack of conceptual clarity on objectives of teacher professional development programs (Glen and Isaacs, 2007). In view of these issues, the objective of this theoretical framework is to conceptualize what then should entail the preparation of SMTE for ICT integration.

2.1 Technological Pedagogical Content Knowledge

Preparedness of SMTE for effective ICT integration is dependent on the particular teacher's capacity to evaluate the use and role of ICT in teaching (Gill & Dalgarno, 2008). Attaining this capacity entails, among other things, acquisition of relevant science and mathematics subject matter knowledge, pedagogical skills, and basic operational skills of various educational ICT. Explaining this further, firstly, subject matter knowledge is knowledge about the actual mathematics and science concepts that are to be learned. This knowledge is important because, as Cox et al. (2003) aptly argues, the way ICT is used in lessons is influenced by the teachers' knowledge about their subject and how ICT is related to it. Secondly, pedagogical knowledge is important because, as Mishra and Koehler (2006) explain, "a teacher with deep pedagogical knowledge understands how students construct knowledge, acquire skills, and develop habits of mind and positive dispositions toward learning" (p.1027). Thirdly, considering that there are multitudes of ICT that can significantly enhance students' learning of concepts in mathematics and science subjects in addition to complementing the facilitative role of the teacher, and then as suggested by BECTA (2004) and Schoepp (2005), it is necessary to prepare teachers in operational skills of specific ICT skills. In line with this, Mishra and Koehler (2006) caution that attention should also be on the teachers' ability to learn and adapt to new technologies since technology is continually changing rapidly and therefore preparing "teachers to use specific software packages not only makes their knowledge too specific to be applied broadly, but it also becomes quickly

outdated” (p.1032). The understanding of the capabilities of various ICT, contextual and non-contextual, enhances learning that would otherwise be improbable without them.

Isolated understanding of the subject matter, pedagogy, and ICT operational skills is not meaningful. Much attention should be on SMTE comprehending the relationship between these three aspects for effective ICT integration. In support, Mishra and Koehler (2006) assert that “teachers need to know not just the subject matter they teach but also the manner in which the subject matter can be changed by the application of technology” (p.1028). Additionally, Borko (2004) probably makes a valid argument that in order to guide student thinking, teachers must also understand how children's ideas about a subject develop, and the connections between their ideas and important concepts in the discipline. This is what Shulman (1986) regards as pedagogical content knowledge, that is, appropriate teaching approaches fit for a specific content, and an understanding of how elements of the content can be arranged for better teaching.

Considering Cox et al. (2003) assertion that research “evidence shows that when teachers use their knowledge of both the subject and the way pupils understood the subject, their use of ICT has a more direct effect on pupils’ attainment” (p.4), perhaps then a more relevant focus should be on the relationship that encompasses subject matter, pedagogy and ICT. Further, if it is true what many researchers and theorists assert that ICT has great potential to enhance student achievement and teacher learning (Bransford, Brown & Cocking, 2000) and that the use of ICT can help students to become knowledgeable, reduce the amount of direct instruction given to them, and give teachers an opportunity to help those students with particular needs (Shamatha, Peressini & Meymaris, 2004), then it is incumbent upon TPD for science and mathematics to facilitate teachers’ understanding of these affordances by articulating the relationship ICT has with subject matter and pedagogy.

In their research based on professional needs and what should probably encompass TPD in ICT integration, Mishra and Koehler (2006) coined a framework for effective integration of ICT which they called Technological Pedagogical Content Knowledge (TPACK). Mishra and Koehler (2008) describe TPACK as “a way of thinking about the knowledge teachers need to understand how to integrate technology effectively in their classrooms” (p.1). Preparing teachers for effective teaching with technology requires their acquisition of competencies which Mishra and Koehler (2008) describe as:

an understanding of how to represent concepts with technologies, pedagogical techniques that use technologies in constructive ways to teach content; knowledge of what makes concepts difficult or easy to learn and how technology can help students learn; knowledge of students’ prior knowledge and theories of epistemology; and knowledge of how

technologies can be used to build on existing knowledge and to develop new epistemologies or strengthen old ones. (p.10)

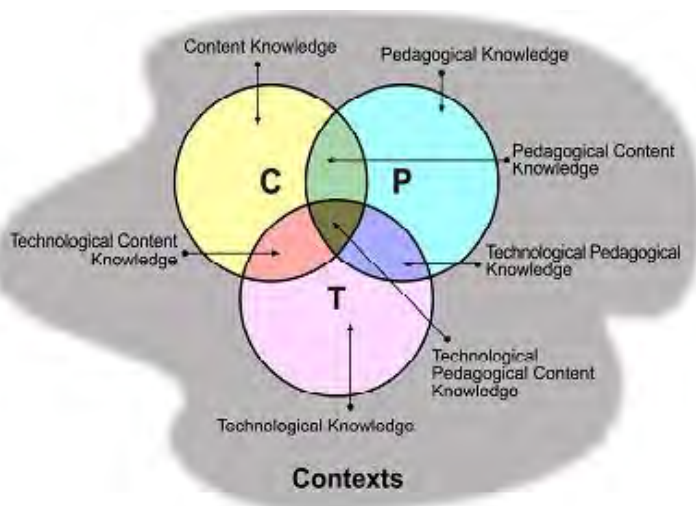


Figure 1. The TPACK framework and its knowledge components (Mishra & Koehler, 2008 p.3)

Advocating for such a framework in the preparation of teachers for ICT integration, Godfrey (2001) contends that teachers need models of best practice and knowledge to support learning. This entails SMTE understanding the rationale for integrating ICT into teaching and learning. In my view, TPACK offers an appropriate basic premise in the preparation of SMTE for ICT integration in their practice. This is because understanding and establishing the relationship between the subject, pedagogy, and technology, which is the basis of TPACK, is essential for effective ICT integration.

2.2 Learner Centered Teaching and Learning with ICT

The framework for preparing SMTE for ICT integration should entail refocusing on the need for teachers to balance the teaching and learning approaches. While the use of traditional approach as an instructional model where the teacher is regarded as the provider of knowledge and students as mere recipients (Pritchard, 2006) may be appropriate in certain situations, current debates advocate for the reduction of the amount of direct instruction during teaching. In fact in the last decade, the education sector has witnessed campaigns agitating a shift towards constructivism. The emphasis in the constructivism campaign is for the teacher to facilitate a learning environment for the student to assume a proactive role in knowledge creation (Vygotsky, 1997). This is important because unlike the traditional approach, constructivism, which is learner centered teaching and learning, assists students to develop high order thinking, explain their reasoning and use of strategies to arrive at solutions (Irujo, 2007). This is crucial in the learning of science and mathematics concepts. Promoting constructivism in mathematics lessons by teachers entails a shifting of emphasis,

during mathematical discourse, from ‘instrumental understanding’ to ‘conceptual and relational understanding’ (Skemp, 1976). Similarly in science lessons, Osborne and Hennessey (2003) advocate a move towards “teaching about science rather than teaching its content” (p. 4). This, as Steketee (2005) points out, requires teachers to confront their perceptions of the role of the teacher in the classroom and to adopt the belief that teaching is the facilitation of understanding. This is vital because the teacher’s own pedagogical beliefs and values play an important part in shaping technology-mediated learning opportunities (Cox, et al., 2003).

Considering the importance of learner centered approach, it follows therefore that preparation of teachers for ICT integration should underscore a constructivist model, one which requires participation between teacher and student. And as further explained by Papert (1998) a model where the student plays a more active role in learning process, and the teacher a more passive role in the teaching process. Consequently, in the interest of promoting access and quality education to learners in East Africa, there is need for SMTE to acquire professional literacy through effective TPD programs that will enable them to integrate ICT in a manner that facilitates a balance between the two paradigms, i.e., traditional and constructivist models of teaching and learning. Because teachers' perceptions of education are also shaped by their schooling, it is imperative that TPD programs engage SMTE in experiences that will encourage them to adopt views whereby teachers guide student learning, and identify ICT as a powerful tool that enhances their own learning and that of their students

2.3 Human Factors Influences on ICT Integration

Although research by UNESCO (2007) suggests that the preparedness of teachers in using ICT to enhance education by way of providing learner centered interactive education requires a commitment to ongoing TPD, there is need to note that human factors may be barriers to ICT integration. Indeed, similar studies to those by Sime and Priestley (2001) and Galanouli and McNair (2001) indicate that the individual teacher’s attitude is crucial in determining whether the teacher will integrate ICT. Additionally, a review by BECTA (2004) reports that human factors such as lack of confidence in using ICTs, a resistance to change and negative attitudes towards ICTs, and a lack of perceived benefits are among consistent barriers to teacher integration of ICTs. Further, studies by Gill and Dalgarno (2008), Kumar, Rose, and D’Silva (2008), Mohamed and Bakar (2008), and Stols (2008) point out that human factors such as confidence in using ICTs, attitudes and perceptions towards ICT influence preparedness of teachers to integrate ICT in their teaching.

In view of the human factor influence, various researchers have developed models that attempt to explain, if not predict acceptance and implementation of ICT. These models may be useful in understanding how to address human factors in the preparation of SMTE for ICT integration. One such model is the 4-E model by Collis, Peters and Pals (2000) discussed in Collis and Moonen (2001). The 4-E model supposes that an individual's likelihood of making use of a technological innovation for a learning related purpose is a function of four components: Environment, Educational effectiveness, Ease of use and Engagement. The environment component concerns the institutional context, e.g., exposure of SMTE to a variety of ICT and opportunities to experience integration of the respective ICT. The educational effectiveness has to do with the person's perceptions or expectations on the performance of a given ICT in relation to facilitating the achievement of set lesson objectives, while the ease of use and engagement has to do with the person's own response to ICT and to change. Clearly then, the environment component, which in my view encompasses the human factor influence, is crucial in facilitating the other three components. Another model explaining human factor influence is the Technology Acceptance Model (TAM) by Davis (1989) outlined in figure 2. TAM posits that perceived usefulness and perceived ease of use determines an individual's intention to use a given ICT with intention to use serving as a moderator of actual use of the ICT. The external variables may be in the form of having in place TPD programs that offer SMTE with practical experiences of ICT integration.

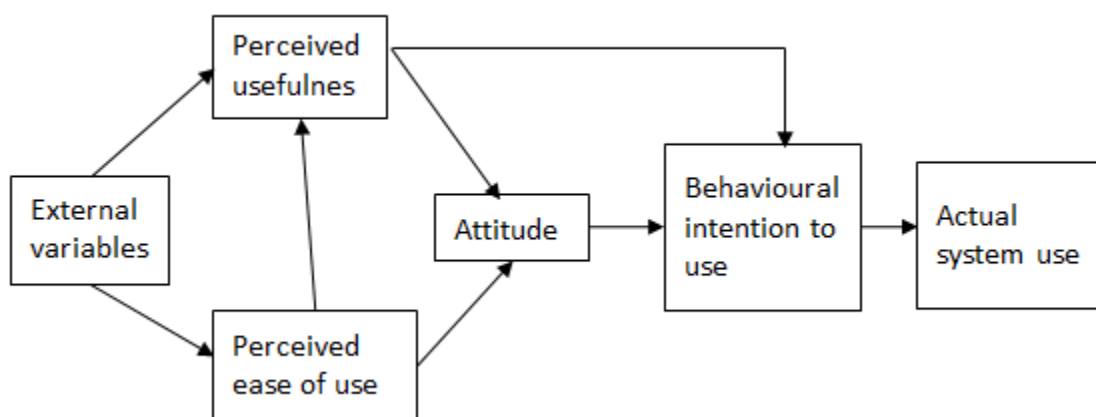


Figure 2. Technology acceptance model Source: Davis, Bagozzi and Warshaw (1989) cited in Gill and Dalgarno (2008)

The implications for these two models is to ensure that TPD programs address human factors by way of exposing SMTE to an environment rich with not only ICT but also opportunities to practically experience ICT integration. This is in line with SITE (2002) principle that participants in a TPD program should experience innovation technology-supported learning environments in their teacher education program. Unfortunately, most

TPD programs focus only on operational skills and bypass human factor influence (Glen & Isaacs, 2007; Gill & Dalgarno, 2008). However, as noted in a study by UNESCO (2007) in Asia, without active enthusiastic participation of teachers, innovations to improve the quality of student learning through ICT integration may fail. Extending upon this, TPD programs that prepare SMTE for ICT integration may not achieve much if they do not address the human factor influence. This is because, despite the potential benefits of using ICTs in teaching to promote access and quality education, some teachers shy away from using it effectively or at all. This brings into focus the role of TPD programs not only in helping teachers use ICT effectively (Wenglinsky, 1998) but also in changing some of their practices and attitudes towards teaching and learning (Stols, 2008).

2.4 Preparation Approaches for ICT Integration

The theoretical framework detailed in the preceding section implies that meaningful integration of ICT in teaching of science and mathematics requires teachers who have certain skills, knowledge, and attitudes. Thus, being prepared to adopt and use ICT and knowing how it supports student learning must become integral skills in every teacher's professional repertoire. However, in as much as as Isaacs (2006) reports that the lack of conceptual clarity in teacher preparation programs in Africa may be contributing to the scarcity of SMTE who possess professional literacy for meaningful ICT integration, there is need to scrutinize the approach used in the preparation of SMTE. This is because preparation approaches also contribute significantly towards nurturing of appropriate knowledge, skills and attitudes for meaningful ICT integration.

After a systematic review of relevant education databases, Steketee (2005) reports that preparation of teachers for ICT integration within teacher preparation programs around the world is being approached in four ways. First is the ICT skills development approach which, as explained by Gill and Dalgarno (2008), "comprises the addition of one or more ICT subjects within the preparatory course" (p.332). Second is the ICT pedagogy approach whose objective is to show course participants how ICT can be integrated as teaching and learning tools across the curriculum (Steketee, 2005). Third is Subject-specific approach focusing on knowledge of the learning technologies that offer affordances to particular content areas best explained by Mishra and Kohler (2006) as technological content knowledge. Fourth is the Practice driven approach that includes preparing teachers to design and develop implementable ICT facilitated classroom programs and products (Gill and Dalgarno, 2008).

In recognition of the need for teachers to acquire competencies that allows them to offer their students learning opportunities supported by technology, and in response to its

function as a standard-setting agency, UNESCO (2008) has initiated ICT Competency Standards for Teachers (ICT-CST) project. ICT-CST project defines a broad TPD framework with three approaches geared towards education reform, namely, Technology Literacy, Knowledge Deepening, and Knowledge Creation. These components can be useful in guiding capacity development of SMTE for ICT integration. Explaining this further, UNESCO (2008) has articulated respective policy goals for each approach that may be adapted to suit preparation of SMTE. First, the policy goal of Technology Literacy is to prepare SMTE capable of taking up new technologies so as to support student learning and improve learning outcomes. Second, the policy goal of Knowledge Deepening is to increase the ability of SMTE to add value to learning by applying the knowledge of school subjects to solve complex, high priority problems encountered in real world situations. Third, the policy goal of Knowledge Creation is to increase productivity by nurturing SMTE who continually engage in and benefits from knowledge creation and innovation and life-long learning.

Presuming that the approaches fronted by Sketee (2005) and UNESCO (2008) have varying degrees of success in preparing SMTE in East Africa for ICT integration, the primary concern is to ensure that the approach or approaches chosen enable SMTE to acquire a variety of competency standards for effective ICT integration. Various organizations, such as International Society for Technology in Education (ISTE) and UNESCO have formulated competency standards for teachers related to ICT integration. For example, ISTE (2008) has formulated five educational technology standards which stipulate that teachers competent in ICT integration should be in a position to: facilitate and inspire student learning and creativity; design and develop digital-age learning experiences and assessments; model digital-age work and learning; promote and model digital citizenship and responsibility; and engage in professional growth and leadership. In consideration to contextual needs of teachers in East Africa, these competency standards can form a good basis of deciding on the best prapproach to use, or upgrading existing approach in as far as preparation of SMTE for ICT integration is concerned.

3 Methodology

This research proposed to document a sample model of practice for preparing science and mathematics teacher educators (SMTE) for ICT integration in East Africa. The task necessitated an integrated analysis of theory and existing practices.

3.1 Research strategy

The researcher was interested in investigating the preparation of SMTE for ICT integration at ACADEMIA. In such a situation, Yin (2003) recommends the use of a case study research

strategy when the empirical inquiry sets out to investigate “a contemporary phenomenon within its real-life context” (p.13). Further, Cohen, Manion, and Morrison (2006) view a case study research as a purposive in-depth investigation to the characteristics of a unit in order to analyze varied phenomena that constitute the unit. At ACADEMIA there were multiple units of analysis involved. These included the in-service courses, lecturers, and the SMTE. These intrinsic units exemplify the contemporary phenomenon at ACADEMIA and therefore made the case study a single case embedded (Gray, 2009). An intrinsic single case study, like ACADEMIA, when studied singly avails the opportunity to study its uniqueness in detail (Creswell, 2007) and eventually yields insights that can have wider applications that would have remained implicit through coverage of a large number of instances (Denscombe, 2003). Therefore, considering the nature of the contemporary phenomena under investigation and the suitability of ACADEMIA as a research site in view of the explanation of case study by Yin (2003) and Cohen, Manion, and Morrison (2006), it was appropriate to adopt a single case study research strategy.

3.2 Site, sample and sampling procedure

Though there might be other institutions in East Africa conducting TPD programs with in-service courses preparing science and mathematics teacher educators for ICT integration, for the reasons explained in the research strategy section of this chapter, ACADEMIA was purposively selected for the empirical study. As mentioned earlier, the empirical study sought to investigate a contemporary phenomenon, namely, preparation of SMTE for ICT integration. Achieving this necessitated an in-depth probing and understanding of meanings ascribed to various aspects of the selected courses. Therefore, relevant documents and ICT facilities used to prepare MEd students; lecturers’ actions in regard to the design of the respective courses; and the students’ works including their views of the content, and process of courses became important data avenues in this research. Research participants were purposively selected and given pseudonyms. Science Education, Mathematics Education, and ICT in Education lecturers were given Alpha, Beta, Gamma pseudonyms respectively. However, Gamma declined to participate in the research in as far as interview and answering of questionnaires were concerned. Out of the six M.Ed students in the Teacher Education specialization being prepared to be science and mathematics teacher educators, only five were available and agreed voluntarily to participate in the research. One M.Ed student in the Educational Leadership and Management specialization with a science and mathematics background in teaching, and also undertaking the ICT in Education course, was purposively selected and voluntarily accepted to participate. The six MEd. students available for the study were given pseudonyms Moja, Mbili, Tatu, Nne, and Tano, and were subsequently referred to as science and mathematics teacher educators (SMTE) in the research.

3.3 Data collection procedure

The proposition that guided data collection and analysis in this research was that the in-service courses at ACADEMIA had attributes which prepared SMTE for ICT integration according to professional standards. The theoretical framework in the literature review provided themes such as preparation for ICT integration and attention to human factor influences. These were used as the basis of examining the in-service courses in respect to this proposition. Additionally, the themes were used to formulate items in all the data collection instruments. However, there was flexibility during data collection to allow for additional themes to emerge, e.g., probing during interviews and inclusion of open-ended questions in the questionnaires. Unavoidably, data collection missed out on classroom observations of the actual process of preparing SMTE for ICT integration. This is because the data collection period did not coincide with the actual course sessions.

Data was collected in two phases. In phase one; self-administered questionnaires with both closed and open-ended items for lecturers and SMTE were issued. Self-administered method was preferred in order to allow respondent to answer at their own convenient time. While close-ended items looked for specific information, open questions were included to probe deeper and give room for respondents to express themselves more. The respective course documents availed to the researcher, as listed in the preceding sampling section, were collected and analyzed using a document analysis framework (DAF). SMTEs' works on Moodle site were accessed using the guest password provided by Gamma and also analyzed using the DAF. ICT facilities in the library and ICT department outlets (Computer laboratory, IT store, and lecture rooms) were analyzed using the ICT facilities analysis framework (IFAF). The course documents and students works on Moodle site were chosen because their documentation was stable and could therefore be reviewed repeatedly without alteration (Yin, 2003). Secondly, they were a probable reflection of the existing practice of preparing SMTE for ICT integration. Further, they were unobtrusive and unbiased since they had not been created for the purpose of the case study (Gray 2009). An initial data analysis of phase one was done. Part of the findings was used to inform the second phase of data collection. This was a deliberate measure to guard against subjective reality of the respondents and probable biases of the researcher who was an insider.

Interviews were the main sources of data in phase two. They were necessary to corroborate data from first phase and suitable for probing meanings ascribed to different attributes of the respective courses. This was useful in authenticating meanings obtained from the first phase, which is an effort towards obtaining an uncontested data (Creswell, 2007). The two lecturers (Alpha and Beta) were interviewed once on different days in their respective

offices using similar interview guides. Only two students (Moja and Mbili) were available for interview on different days. Thus, they were interviewed individually once using similar interview schedules. Interview with Moja mainly focused on ICT-Education course and that with Mbili on Mathematics and Science Education courses.

A digital audio recording device was used during the interviews to capture and store authentic data. Short notes were also taken during the interview to enrich the transcriptions (Rubin & Rubin, 2005). Semi-structured interviews were used because they gave the researcher flexibility to probe respondents further depending on the nature of responses given (Wilkinson & Birmingham, 2003). They also gave individual interviewees the scope to follow their own thread of thinking rather than be constrained by close-ended questions (Evans, 2009). This enabled the researcher to understand the respondent's views more and minimized the likelihood of misrepresentation.

3.4 Data analysis framework

As discussed in the data collection section, empirical data was collected via multiple sources in two phases. Analysis of data from all the sources necessitated the use of a framework. Figure 3 is a visual overview of the data analysis framework used. The framework was an iterative modification of Wolcott's (1994) cited in Biggam (2008) three step procedure of data analysis, namely, description, analysis, and interpretation. The iterative modification was necessary for this qualitative analysis for the purpose of capturing and understanding themes related to preparation of SMTE for ICT integration. First, findings from each source were documented in form of descriptive memos. Essentially, memo entries involved sorting of data into categories that had identifiable recurring characteristics that reflected relevant attributes of preparing SMTE for ICT integration. Secondly, these memos were read repeatedly and in the process, which was iterative, connections, variations and singularities of categories were established (cross-referencing). Thereafter, data reduction followed. This involved clustering and converging of categories into major themes (triangulation). Finally, the themes were interpreted using literature.

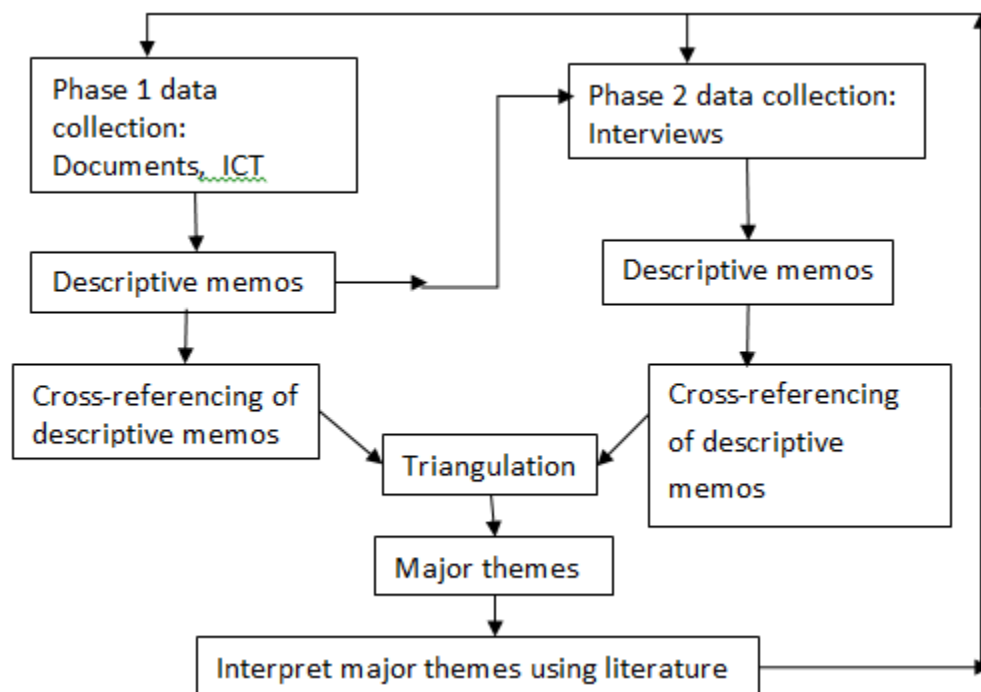


Figure 3. Qualitative data analysis framework.

4 Findings and Discussion

4.1 Facilitation of Preparation for ICT Integration

Lecturers and support staff contributed in the preparation of SMTE for ICT integration. Each course had a course leader at the rank of a lecturer. Among other obligations, the lecturers were responsible for the designing of the respective courses. However, as Beta articulated, lecturers required specialized preparation on ICT integration.

Beta: you see what we are doing we are bolting ICT on the [mathematics education] course....our CPs need to learn to do their course using ICT. We shouldn't only talk about ICT in our mathematics course....and for that you need to have well prepared personnel in terms of teacher education. I am not well prepared for that. I have never been trained for that. I have not undergone a program to prepare me to prepare others....and therefore it all depends on my own instincts, my own vision, My own understanding. Which is not bad but of course it has some shortcomings (Interview excerpt: 07-05-2010).

This reflects one of the many challenges facing some teacher preparation programs in Africa; lack of ICT-trained teacher educators to transform teacher preparation (SchoolNet Africa, 2004). That is, transformation in terms of designing contextually relevant courses that prepare teachers to go beyond the level of being mere consumers of ICT to the level of generating contextually relevant ICT products and integrating them effectively to facilitate student learning outcomes in science and mathematics. Unwin (2005) echoes the need to

have professionally prepared teachers by asserting that “without well-trained, qualified and committed teachers it is impossible to deliver effectively functioning educational systems” (p.126). Considering that student-teachers tend to mimic the practices and beliefs of their tutor (Steketee, 2005), and as McNair and Galanouli (2002) notes "where [lecturers] are in a skills-developing situation themselves, the role of ICT in teaching is likely to remain at the level of presenting old teaching in new ways" (p.191), it is important therefore to have lecturers who have advanced professional literacy in preparation of SMTE for ICT integration. This may possibly translate to a more effective preparation of SMTE.

Support staffs, which included the ICT department and library personnel, also played a role in the preparation of SMTE for ICT integration. The ICT department had two personnel. They offered technical support that included setting up ICT facilities, repair and maintenance of ICT facilities. Further, on request they offered orientation on basic operational skills of available ICT. Similarly, there were two library personnel who offered assistance related to online information search and basic operation skills of some of the ICT facilities. Having support staff who compliment lecturers’ efforts is crucial in the preparation of SMTE for ICT integration. This is because they may offer necessary technical support that might be unfamiliar to lecturers. However, they should not be a substitute for the need to professionally develop the lecturers. This is because their support may be limited in terms of linking it to teaching and learning theories. This is a crucial role played by lecturers. In advocating for lecturers to have support staff in the preparation of teachers for ICT integration, Collis and Moonen (2001) recommends support during the preparation of the course, assistance during course execution, and support related to the library services, and technological infrastructure available for use in the teaching process.

4.2 Exposure to ICT Facilities

Findings from questionnaires and inventory records indicated that a variety of ICTs were available for preparing SMTE for ICT integration. These facilities were conveniently placed and accessible to SMTE for use during class time and private studies. Entries in the ICT analysis framework showed that there were ICT facilities located in the computer laboratory, ICT department offices, lecture rooms, and library. Further, there was free access to internet (wireless and LAN) in the computer laboratory, library, lecturers’ offices, and students’ hostels. The library provided passwords for accessing online libraries and information data bases. There were specific ICT that were only available on request from the library and the ICT department. These included Graphing Calculators and Video camera in the ICT department, and TVs and DVDs in the library’s multimedia section. There was a specific lecture room for conducting Mathematics Education and Science Education lectures.

This was equipped with four computers that had, among others, CABRI GEOMETRY² software installed. Other ICT facilities were made available in this room by support staffs on prior request. Table 1 shows a summary of specific ICT facilities reported in the questionnaires and the course handbooks that were evidently used in the lectures for the preparation of SMTE.

Table 1 *ICT Facilities Evidently Used in the Courses*

Course	ICT facilities	
	Hardware	software
Mathematics Education	Computers, Graphing Calculators	CABRI GEOMETRY, GeoGebra, Spread sheet, Word processor
Science Education	Computers	Multimedia simulations, Elluminate, Power Point
CT in Education	Computers	Internet, Moodle, Multimedia simulations

The findings indicate that SMTE were exposed to an environment rich with ICT in comparison to the status of access to ICT in their respective contexts. In as much as many of the SMTE came from contexts where availability of ICT facilities for teaching and learning are inadequate, it is important that they do not encounter the scarcity during teacher preparation. In respect to the 4-E model, while emphasizing on the need to expose teachers in an ICT rich environment, Collis and Moonen (2001) argue that environmental factor determines the level of an individual's likelihood of making use of a given ICT. If SMTE are exposed to an environment rich with a variety of ICT and if they are given time and tasks that allow them to use these ICT, then it is likely they will acquire basic ICT operational skills and enhance the propensity to integrate the ICT in their future teaching. In support, Collis and Jung (2003) note that most teachers tend to integrate ICT in their teaching if they experience ICT skills as learners. Similarly, Steketee (2005) adds that introduction of various ICT to graduating teachers during their preparation increases their willingness to integrate ICT later. Explaining this further, in respect to Technology Acceptance Model by Davis (1989), such a rich environment where SMTE acquire not only ICT operational skills, but also knowledge and skills of integrating the ICT, nurturing of perceived usefulness of integrating the respective ICT and the perceived ease of their use is facilitated.

4.2.1 Contextually Accessible ICT Facilities

² A commercial interactive geometry software

There were efforts in the courses in regard to preparing teachers to integrate contextually accessible ICT in their respective subject areas. In fact Beta had made a deliberate effort to include GeoGebra in the mathematics course because of the potential of its accessibility by teachers.

Beta: what we expose...in-service teachers to must be available in the schools otherwise it is not going to be useful...CABRI is a proprietor software...so if you go back to your context you may not factor that in to your budget and therefore it may not be available and you cannot use it...so starting from this cohort I intend to switch over to GeoGebra that is a free software...if we use it here with our CPs we will have increased the possibility of extending it to the classroom because they only need access to the internet and this days you could be connected to the internet using a phone (Interview excerpt: 07-05-2010).

As more and more ICT continue to emerge and have relevant application in education it is necessary to have in place preparation programs that expose teachers to ICT operational skills (BECTA, 2004). Exposing SMTE to new ICT operational skills is in line with UNESCO's (2008) ICT-CST policy goal of Technology Literacy approach. It emphasizes preparation of SMTE capable of taking up new technologies so as to support student learning and improve learning outcomes. However, much focus should be on exposure to ICT that are accessible to teachers. It would be unproductive to spend a great deal of time and resources to prepare SMTE to integrate ICT that are not accessible to them. Although the need for preparation on contextually available ICT is important, it should also not be done at the expense of other emerging ICT. As Mishra and Koehler (2006) advises, attention should also be on the teachers' ability to learn and adapt to new technologies since technology is continually changing rapidly and therefore a biased preparation of "teachers to use specific software packages not only makes their knowledge too specific to be applied broadly, but it also becomes quickly outdated" (p. 1032).

4.3 Re-Conceptualization of Teaching Profession

Re-conceptualization of the teaching profession was attended to in the various courses in four ways, namely, Broadening of Teachers' Perception of Education; Technological Pedagogical Content Knowledge; Attention to Human Factors; and Use of ICT for Professional Development.

4.3.1 Broadening of Teachers' Perception of Education

A teacher's broader perception of education is perhaps a more useful indicator of that teacher's ability, and even desire, to integrate ICT in their teaching (Wang, 2002). Bearing

this assertion in mind, there were particular constructs within the three courses that were meant to assist SMTE to re-conceptualize their teaching practice. This included attempts meant to broaden their perception of education, and how Mathematics, Science and ICT fitted in within the education spectrum. The attempts were in form of objectives, aims, and themes outlined in the respective course schedules as samples in Table 2 indicate.

Table 2
Broadening Teachers Perception of Education

ICT in Education	Mathematics Education	Science Education
The place of ICT in teaching and learning, ICT policies and practices in education- the East African perspective, Application of ICT integration frameworks (ICT-E course handbook)	Review of what mathematics is and what mathematics teaching and learning entails in different socio-cultural contexts. (ME course handbook)	Nature of science, Role of context, culture, and globalization in science and science education (SE course handbook).

Looking at table 2 it may be inferred that once Mathematics Education and Science Education courses assist SMTE to understand *what mathematics is* and *nature of science* is respectively, ICT in Education would then facilitate their understanding of *the place of ICT in teaching and learning* of mathematics and science. This is in line with Wellington (2000) argument that teachers should first be clear about the “teaching objectives in science [and mathematics] and how they can be matched to, or enhanced by, the use of ICT” (p.219).

Broadening of SMTE’s perception of education is important if they are to effectively integrate ICT in their teaching. The broadening aspect in the courses was extended towards refocusing SMTE’s role in the learning process. This included emphasis on constructivism approaches in teaching where the teacher assumes a facilitative role and actively engages learners in their own learning (Larson & Keiper, 2007). This was necessitated by the need to mitigate misuse of teacher centered approaches as revealed during interview with Beta:

Beta: many [teachers] think that coverage of syllabus works against teaching for conceptual [and] relational understanding....teachers look for ways of short circuiting effective teaching...and at the end...you...finish the syllabus...just superficially...you have not moved with the students....if you were to ask...some tricky questions which require real understanding you might find out that these students will have problems in responding to this question.

Researcher: how does this course help to deal with this challenge of short circuiting?

Beta: we sensitize them [SMTE]...show them some short comings of teaching for syllabus coverage instead of teaching for conceptual [understanding]. We try to give scenarios which portray teaching for coverage negatively and teaching for conceptual understanding positively.

(Interview excerpt, 07-05-2010).

The sensitization highlighted by Beta in Mathematics Education incorporated practical tasks as outlined in this assignment:

Cps will observe teachers teaching a mathematics lesson and they will identify instances when teachers use algorithmic approach to teaching mathematical concepts at hand. After this, CPs will...write a paper...discussing how the same mathematical concepts could be taught for conceptual and relational understanding (Mathematics Education course handbook p.6).

Teaching for conceptual and relational understanding of mathematics concepts, probably intended in the task cited, is a learner centered approach to teaching and learning. The teacher engages the learner in constructing mathematical concepts from the simple aspect to complex, i.e., guiding them in the process of figuring out what to do and why. Unlike in the instances where there is misuse of traditional teaching, where the focus is on the teacher to merely complete the syllabus, teaching for conceptual understanding is a constructivism approach that assists students to develop high order thinking, explain their reasoning and use of certain strategies to arrive at solutions (Irujo, 2007). Similar tasks related to constructivism were present in the Science Education course as the task below probably indicates:

This [first assignment] comprise a write up based on data collected in the school based investigation of children's alternative frameworks in learning science. To do this you will have visited a school to collect data will have worked as a group during the data collection, the analyses and write ups will be done individually. This [second] assignment is critical reflection essay on your own teaching practice; it will therefore be a self study/evaluation of own teaching. In doing this assignment, you will be required to argue out a plan on how to teach for conceptual change and understanding in a selected problematic area. In doing this assignment therefore, you will first select a problematic area in one of your science teaching subjects (S-Education course handbook).

Teaching science for understanding requires a constructivism approach which Osborne and Hennessy (2003) view as a move towards "teaching about science rather than teaching its

content” (p. 4). In relation to constructivism, this advocacy implies that teachers have to involve learners in constructing their understanding of scientific concepts. One way of involving learners is establishing their alternative frameworks (AF) towards scientific concepts. Thereafter engage them in a process of abandoning their AF, if they are wrong, or building on the AF, if they are in line with acceptable scientific knowledge, to bring about the understanding of concepts. This aspect of involving learners to establish correct AF and focusing teaching to bring about conceptual change is an attribute of constructivism evident in this assignment task.

Considering the benefits of learner centered teaching and learning, the preparation of teachers for ICT integration should underscore a constructivist model. This model requires teachers to confront their perceptions of the role of the teacher in the classroom and to adopt the belief that teaching is the facilitation of understanding (Steketee, 2005). Mathematics and Science Education courses seemingly addressed this via the two tasks outlined in this section, i.e., conceptual understanding and conceptual change. Emphasis for teachers to adopt constructivism approach in teaching and learning of mathematics and science might eventually prepare SMTE to understand how ICT can further facilitate their new role. Otherwise, the role of ICT in teaching is likely to remain at the level of presenting old teaching styles in new ways (McNair & Galanouli, 2002).

4.3.2 Technological Pedagogical Content Knowledge

Further efforts towards assisting SMTE to re-conceptualize the teaching practice took the form of addressing their mastery of content and pedagogical development. Two course handbooks indicated schedules where series of subject matter knowledge were reviewed. For Mathematics Education, these included numbers, geometry, and algebra. In Science Education, the topics included force, cell, and periodic table. Covering of these topics was done together with an exploration of possible pedagogies of teaching these concepts. This included ICT integration. For example, the following schedule outlines how SMTE were taken through the concept of Geometry in Mathematics Education course.

...exploration of basic concepts in geometry. Under this a discussion of the following sub-themes will be undertaken: essential geometric elements; the point; the line segment; the ray; the straight line; the concept of intersection of lines; the plane angle, measurement of plane angles; unit of plane angles; plane figures; use of algebra in solving geometry problems; interior and exterior angles of a plane figure...Geometric shapes will be approached by studying the characteristics of plane and how 2D geometric figures can be conceptualised; studying the space and how 3D geometric figures can be conceptualised; projections of 3D figures onto the plane;

correspondences between 2D and 3D geometric figures. Cps will also explore the functions of CABRI software. Course participants will have an opportunity to reflect on the use of the interactive software CABRI to study a number of geometrical concepts including: construction of plane geometrical figures, transformation (translations, dilations, and rotations), studying intersection of lines (Mathematics Education course handbook 1 p.4, and course handbook 2 p.4,6)

If this schedule was followed then it is likely that SMTE learnt the geometry, and how to teach geometry for conceptual and relational understanding, i.e., starting from the basic concept of a point to the more complex concept of 3D geometry. Additionally, if they used CABRI software for teaching geometry then they probably also acquired basic knowledge and skills of integrating ICT in teaching geometry. Ideally, in as far as geometry is concerned, this schedule facilitated SMTE to conceptualize the relationship between content, pedagogy and technology. The underlying assumption here is that the SMTE had also been exposed to the additional preparation that was offered in the ICT in Education course that included an understanding of “the place of ICT in teaching and learning” and “application of integration frameworks for critical analysis of ICT use in education” outlined in p.2 of ICT in Education course handbook.

A successful TPD is influenced by the degree to which the course focuses on improving and deepening teachers' content knowledge (Desimone, 2009) and pedagogy (Cox et al., 2003). Content knowledge is important because as Cox et al. (2003) argues, the way ICT is used in lessons is influenced by the teachers' knowledge about their subject and how ICT is related to it. Further, Cox et al. (2003) report that evidence from research literature shows that teachers' pedagogies and pedagogical reasoning influence their uses of ICT and thereby pupils' attainment (p.4). Nonetheless, most teachers in Africa are victims of inadequate exposure to appropriate pedagogies for effective ICT integration in teaching during their initial teacher preparation (Unwin, 2005). This lack of ICT focus in initial teacher education is a barrier to teachers' use of what is available in the classroom during teaching practice (BECTA, 2004). This was evident from the interview with Moja who despite having access to ICT in his context, his teaching practice lacked ICT integration: “those ICTs as much as they are there...they are not [be] part and parcel of the way you are actually trained [to] teach....you fail to use them because you don't see how you can fit them” (Interview excerpt, 06-06-2010).

The implication therefore is to ensure that in-service courses play an intervention role; that of facilitating SMTE to understand the relationship between content, pedagogy, and technology. Seemingly, this was the objective as is evident in the task cited from Mathematics Education course. This relationship is probably best explained in a framework

of ICT integration, what Mishra and Koehler (2008) refer to as technological pedagogical content knowledge (TPACK). Although integration of ICT necessitates learning of ICT operational skill, there is a level of literacy beyond general ICT literacy. SITE (2002) terms this as professional literacy which involves SMTE learning to use technology to foster educational growth of students. Efforts towards professional literacy in the courses were characterized by opportunities for mastery of subject matter and introduction to specific contemporary pedagogies of teaching the respective subject matter that included ICT integration. Preparing SMTE to acquire such professional literacy is important for effective ICT integration. Therefore attending to SMTEs' subject matter knowledge needs and upgrading their repertoire of pedagogical skills is crucial in a TPD for ICT integration to avoid redundancy of the ICT operational skills acquired.

4.3.3 Attention to Human Factors

Human factors such as attitude, confidence, and perception are important predictors to the likelihood of teachers integrating ICT in teaching (Smarkola, 2007). There was evidence that the nature and composition of the courses addressed the human factor influences in relation to ICT integration. First evidence is in respect to questionnaire responses. For example, all the six SMTE answered yes to the question "Do you intend to integrate ICT in your future practice?" Respective explanations given by SMTE regarding their responses depicted an understanding of various affordances of ICT integration and a positive attitude towards ICT integration in teaching of science and mathematics. Moja's sentiment during the interview exemplifies this:

I think ICT integration...is a very good idea....The more you integrate the more you get...students interested in what you are teaching....teaching with ICT will be the best way to go....I have tasted teaching without it and I know where the loopholes are....if ICT is used I might be able to be more effective (Interview excerpt, 06-06-2010).

Further, Mbili expressed similar sentiments and stated:

"I prefer to use ICT....because it enables students to see things that cannot be brought physically in the classroom....students will be able to internalize abstract concepts" (interview excerpt, 06-06-2010).

These responses suggest that the nature and composition of the courses might have influenced SMTE to acquire a positive attitude towards ICT integration. The intention of SMTE to integrate ICT was clear despite the possibility that some of them may not have access to ICT in the classroom when they go back to their context. This possibility of inadequate ICT infrastructures did not seem to affect their positive attitude and intention to use ICT. Similar findings have been found in other research. For example, Sime and Priestley

(2005) found that “even when resources were limited and access [to ICT] was problematic...the individual teachers’ attitude was the vital factor in determining ICT use” (p. 137). Further, in their study of influences on pre-service teachers’ preparedness to use ICT, Gill and Dalgarno (2008) found that “the nature and composition of teacher preparation programs does impact significantly on pre-service teacher beliefs and attitudes and consequently their preparedness to use ICTs in classrooms”(p.333). Although Gill and Dalgarno (2008) focused on pre-service programs, findings from this empirical research on SMTE suggest that similar results may be extended to in-service programs. The nature of these courses, discussed in the preceding sections, was such that SMTE are not only exposed to a variety of ICT, they are also prepared on ICT integration skills and provided with opportunities for practical application for ICT integration. According to Technology Acceptance Model, when in an ICT rich³ environment like the one provided by ACADEMIA, the nurturing of perceived usefulness (PU) and perceived ease of use (PEoU) is probable. PU and PEoU further influences the attitude, intention to integrate ICT, and actual ICT integration as research findings by Stols (2008) and Gill and Dalgarno (2008) concerning preparedness of teachers to integrate ICT suggests.

BECTA (2004) claims that one key area of teachers’ attitudes towards the use of technologies is their understanding of how these technologies will benefit their teaching and students’ learning. Considering the preceding discussion, in my view, the nature and composition of the courses had the minimum conditions to facilitate this understanding. Whereas it is likely correct to conclude that the nature and composition of the courses had influenced SMTE to have a positive attitude towards ICT, the confidence level did not probably match the level of positive attitude. Evidently, during interview sessions, Moja and Mbili seemed a bit careful in their responses to a question about their level of confidence. Moja stated “In terms of confidence I could say that I am yet to find out. Right now I cannot say I am that confident....I can say that I am confident in terms of knowing what I want to do...” whereas Mbili stated “Let’s say if you rate in percentage...I am at fifty percent” (interviews excerpts, 06-06- 2010). The hesitation regarding the level of confidence points out the need to improve on the nature and composition of the courses. For example, in my view availing more opportunities for hands on activities and authentic practical application of ICT integration in real classroom settings during practicum would probably boost the confidence level of SMTE.

4.3.4 Use of ICT for Professional Development

Analysis of course handbooks revealed that the courses provided opportunities for SMTE to learn how to engage in professional development of themselves and other teachers. In

³ Comparison is in respect to the context where most SMTE come from; ICT resources are scarce.

particular, they were introduced to the use of ICT for professional development. Evidently, there were authentic tasks in Science Education and ICT in Education courses related to use of ICT for professional development. A sample task in Science Education course incorporating ICT integration for professional development read as follows:

...you are given the opportunity to select a contextually relevant issue in science education...You are required to write a paper...on this issue for presentation to a selected audience comprising Science teachers and educators...This task consists of a presentation (A power point presentation) to an audience through *Elluminate* (virtual setting). The presentation is to be Peer-assessed by the participants (S-Education course handbook p.12-13)

A similar task in the ICT in Education in part stated the following:

Each CP to generate two discussions...Moodle Discussion Forum. One discussion will be on an emerging issue in the integration of ICT in education in the developing world; and the second to generate debate on a learning object sourced from the internet or library (ICT in Education course handbook, p.3).

Further analysis of students' work on Moodle site revealed that the SMTE subsequently generated a database that had links to useful website resources. They also engaged in relevant discussions such as ICT policies and practices in East Africa, and collaborative online learning. Gamma, the ICT in Education lecturer, also engaged SMTE in online discussions, gave online tasks, and offered individualized assistance online.

The discussions in Moodle site and presentation on Elluminate are a reflection of a learning community which is important for TPD. Steketee (2005) describes such forums as types of communal partnership within which learners, together with their facilitator and resources, construct new knowledge and understandings. This was important considering the nature of work that SMTE were being prepared for; the professional development of other teachers. Further, the tasks provided a forum for individual learning which UNESCO (2008) describes as building "a learning community in the classroom in which students are continuously engaged in building their own and each others' learning skills" (p.8). As Jung (2005) points out, South Africa has advanced in TPD because it has "developed extensive online resources and encouraged active exchanges of new pedagogical ideas to upgrade teachers' knowledge and skills at the national or international level" (p.99). It is important therefore for Mathematics Education course to include that aspect of preparing SMTE in integrating ICT for professional development. A good start may be introduction of SMTE to various GeoGebra online discussion forums.

Considering that one of the expected future roles of SMTE is to engage in the professional development of self and their colleagues, the two tasks cited indicate an attempt towards preparing SMTE to use ICT for professional development (PD). Such preparation of teachers to use ICT for professional development is encouraged by Gaible and Burns (2005) who argue that ICT facilitates professional development of teachers. This is in line with UNESCO's (2008) ICT-CST policy goal of Knowledge Creation approach which infers that SMTE should be prepared to continually engage in and benefit from knowledge creation, innovation and life-long professional development.

4.4 PREPARATION APPROACHES FOR ICT INTEGRATION

The two set of self-administered questionnaires, respective course handbooks and interviews revealed two scenarios concerning the approaches of preparing SMTE for ICT integration, namely, the actualized approaches and intended approaches. The actualized approaches were two; Subject Specific and ICT Pedagogy. The intended approaches were in respect to the need to permeate the courses with ICT and adopt practice driven approach.

4.4.1 Subject Specific and ICT Pedagogy Approaches

Analysis of findings from the questionnaires and respective course handbooks in relation to the teaching methods, tasks and duration of the course revealed that two main approaches were mainly used in preparing SMTE for ICT integration as shown in table 3.

Table 3 *Duration, Teaching Methods and Approaches*

Course	Course Duration	Teaching Methods	Approaches
Mathematics Education	32 weeks	Demonstration, Lecture, Hands on, Inquiry based, Experiential learning	Subject specific
Science Education	32 weeks	Demonstration, Hands on, Inquiry based, Lecture, Experiential learning, Practical application	Subject specific
ICT in Education	16 weeks	Lecture, Practical application, Experiential learning	ICT pedagogy

The course structures and content for Mathematics and Science Education courses was specific to practicing mathematics and science subject teachers. This probably led the courses in adopting the subject specific approach in preparing SMTE for ICT integration. According to Rees (2002), this approach is based on the belief that teachers are more likely

to use technology in their classroom only after personally experiencing the power of technology as an effective tool themselves. In the two courses, this approach focused on knowledge of the learning technologies that offer affordances to particular content areas. For example, in Mathematics Education SMTE were introduced to integration of CABRI for teaching geometry. In Science Education, SMTE were introduced to ICT integration in teaching about HIV/AIDS as articulated by Alpha. Alpha stated "...to teach health education...about HIV/AIDS....so you want them [SMTE] to be able to go to search engines, be able to locate the information at the internet. So you give them a task" (interview excerpt, 28-04-2010). The emphasis in this approach is probably in line with Mishra and Kohler (2006) assertion that teachers need to know not just the subject matter they teach but also the manner in which the subject matter can be changed by the application of technology" (p. 1028).

ICT in Education was an elective course that was open to all the MEd students from both Teacher Education and Education Leadership and Management specializations. The practical tasks designed were in consideration of the diverse composition of the course participants. The following is an excerpt of a practical task that catered for both specializations. The task also signifies the ICT pedagogy approach used by this course, perhaps owing to the diversity in the entry behavior of the course participants:

Participants to observe a lesson in a class where ICT has been integrated in a school....CPs will then use appropriate theory to suggest mechanisms of enhancing the learning experience using the available technology in the class/school. Basing on this they will prepare a lesson on the same or a similar topic. The CPs will conduct the improved lesson to the class....Alternatively, CPs may observe the integration of ICT in management of school or other educational institution and select an aspect of such integration which needs improvement. They will then propose enhancements which can be implemented in the school or institution. (ICT in Education course handbook, p.4).

Basically, the objective of ICT pedagogy approach is to show course participants how ICT can be integrated as teaching and learning resources across the curriculum (Steketee, 2005). Although this seemed to be an appropriate objective, there were calls for the ICT in Education to focus on specific subjects as articulated by Moja. In reference to the above assignment Moja stated "...in this particular instance [assignment] it didn't matter whether I was a science teacher...but you see when you go to the field you have to actually be able to know how to integrate in terms of [specific subjects]" (interview excerpt, 06-06-2010). Further, research findings indicate that preparation approaches providing teachers with access to a range of ICT applications in the context of their subject area have been more successful than the stand alone ICT units (Steketee, 2005). Therefore, it would be perhaps

appropriate for ICT-Education to adopt the subject specific approach. Additionally, systemization as a way of linking ICT-Education course with the other two courses was necessary. The need for systemization was echoed by all six students in their questionnaire responses since they advocated for ICT-education course to be a core course for all SMTE.

4.4.2 Permeation of ICT and Practice Driven Approach

During the interviews, the Mathematics and Science Education course lecturers were asked whether their courses adequately prepared SMTE for ICT integration. Their responses revealed that there was need to upgrade the preparation approaches to make the preparation more effective. Alpha responded “yes and no...at least it [Science Education course] shows you the possibilities” (interview excerpt, 28-04-2010) and cited that time was insufficient. Beta stated “in as far as mathematics is concerned....I have a feeling....we are not doing enough to prepare our CPs...,if they are to become exemplary teachers, to go and integrate ICT....my view is that we are far from the real mark” (interview excerpt, 07-05-2010). These responses by the lecturers and the need to uplift the level of confidence of SMTE, as identified in section 4.3.3, probably imply that the approaches in the various courses were in need of upgrading. Beta, as indicated in the excerpt below, suggested an upgrade that called for permeation of the whole preparation of teachers with ICT.

Beta: I would expect the whole teaching of mathematics education here [at ACADEMIA] to be permeated with ICT...we are not using ICT to deliver the course. We are bolting it on...because of circumstances....it is not correct to just bring ICT and just bolt it on in the fifth week or sixth week. It is supposed to permeate the whole course. Throughout the semester you need to be using ICT....teachers have to be prepared and preparation has to go beyond simply being told that the ICT can be very useful in teaching....their own preparation has to incorporate ICTs (interview excerpts, 07-05-2010)

In the kind of upgrading suggested by Beta, which in my view is a more effective way of preparing teachers for ICT integration, ICT is integrated into teacher preparation to facilitate some aspects of professional development. For example, information obtained from questionnaires, interviews, and course handbooks made reference to the use of internet by SMTE. In particular, as pointed out earlier, use of internet was mainly used for the purpose of information search. It is worth noting that, to some extent, this is a form of permeation. However, there was need for increased permeation to cover more aspects of the courses.

Emphasizing the need for permeation of ICT in courses preparing teachers for ICT integration, Jung (2005) points out that in such upgraded courses participants are exposed to new and innovative ways of learning that promote practical understanding of what

learning and teaching with ICT looks and feels like. Additionally, Desimone (2009) points out that, such courses offers opportunities for teachers to become actively engaged throughout the course in the meaningful analysis of teaching and learning using ICT. If preparation for ICT integration permeates various preparation experiences of SMTE, then they may be better equipped and more confident to integrate ICT in their own classroom. The above arguments for permeating the courses with ICT rather than bolting ICT on the courses are in line with SITE's (2002) three principles stating that: ICT should be infused into the entire teacher education program; ICT should be introduced in context; and students should experience innovative technology-supported learning environments in their teacher education program.

Notably, the approaches used in the three courses did not focus on the preparation of SMTE to acquire practical skills of developing contextually relevant ICT products. The need for this kind of preparation was echoed by Beta and Moja. Beta stated "...I would like us to embark on ICTs not only as consumers but also as producers....contribute to the field of ICT....so our mathematics courses should bear in mind [that] ultimately we need...scholars [SMTE] who will be contributing to ICT" (interview excerpt, 07-05-2010). Moja also pointed this gap when he was asked about active engagement of the ICT in Education course. Moja stated "apart from knowing how to prepare maybe an audio...media product but at the end...it should have gone to the next [practical] step" (Interview excerpt, 06-06-2010).

SMTE need to acquire professional literacy of designing, at the very least, simple contextual ICT products, e.g., designing simple ICT projects that can be used in students' assessment and also produce simple documentaries for use during teaching. Preparation in this area is important considering lamentation by SchoolNet Africa (2004) that there are serious concerns in Africa regarding the shortage of locally developed, contextually relevant ICT products and course content for both teachers and learners. TPD programs should therefore prepare SMTE who upon graduation will be in a position to develop contextually relevant ICT products and content. This is achievable if the practice driven approach is adopted in the preparation of SMTE for ICT integration.

Conclusion

5.1 Attributes of Courses Related to Preparation of SMTE for ICT integration

All the three courses had attributes of preparing SMTE for ICT integration. Lecturers were involved directly in preparing SMTE while support staff offered technical assistance related to ICT operational skills. Preparation of SMTE for ICT integration was defined by several attributes. First, ICT in Education course used the ICT pedagogy approach whereas Mathematics Education and Science Education courses applied the subject specific

approach. Each course exposed SMTE to a variety of new and contextually available ICTs. Exposure included learning the operational skills of some selected ICTs. The Preparation for ICT integration focused not only on operational skills but also diverse issues meant to position ICT within teaching and learning. For example, ICT in Education course introduced SMTE to ICT integration models and frameworks, whereas Mathematics Education and Science Education courses reviewed selected subject matter and contemporary pedagogies in teaching various concepts. Emphasis was also placed on constructivism approach to teaching and learning. Practical opportunities during lectures and practicum were available for SMTE to practice acquired professional literacy of integrating ICT. Further, SMTE were introduced to the use of ICT for professional development of self and others. This took the form of online mini-conference presentations, information search via internet, and active engagement in online discussion forums. Although ICT integration competencies of SMTE were not assessed, the SMTE portrayed inherent characteristics that could probably be attributed to the professional development received from the courses. Responses given by SMTE suggested that they perceived ICT integration positively, were confident, and showed behavioral intention to integrate ICT in their future practice. These characteristics were noticeable to those who had prior experience of using ICT and those without.

5.2 Additional Attributes to Enhance the Preparation of SMTE for ICT Integration

Additional attributes were required to upgrade the courses in order to further improve the preparation of SMTE for ICT integration. In particular, there was need to expose lecturers to specialized professional development in preparing SMTE for ICT integration. The nature and composition of the individual courses were essential in preparing SMTE for ICT integration. However, since ICT in Education was an elective course, those SMTE who opted otherwise missed out on important aspects of preparation for ICT integration. Hence, there was need to consider making ICT in Education a compulsory course for all SMTE. Further, there was need for systemization of the preparation of SMTE for ICT integration by way of linking ICT in Education course with Mathematics Education and Science Education courses. One way of achieving this would probably be through designing joint tasks. As a way of equipping SMTE with practical skills to address the shortage of contextually relevant ICT products, there was need for the courses to incorporate the practice driven approach in their preparation of SMTE. This may entail preparing SMTE to produce, at the very least, simple contextually relevant ICT products. In essence, SMTE should be in a position to produce ICT products or modify existing one for use during lessons. The findings also suggested the need to permeate the courses with ICT rather than bolting ICT on the courses. Further, the courses need to provide more opportunities for practical applications of ICT integration. The ensuing recommended sample model outlines the systematization process that may further improve the courses.

5.3 Recommended Sample Model

Science and Mathematics Teacher Educators (SMTE) have a significant role to play in the sustained and effective integration of ICT in schools in East Africa. It is essential, therefore, that due consideration be given to the nature and composition of professional development programs they undergo. This is because inherent attributes of a program significantly influences the acquisition of professional literacy necessary for effective ICT integration. Figure 4 is a visual representation of a sample model of preparing SMTE for ICT integration. The model is a synthesis of findings from the empirical research and the literature review. The model is made up of three major stages, namely, Input, Customized Teacher Professional Development (TPD), and Output. The argument in this model is underpinned by SITE's (2002) principle of infusing TPD program with ICT and introducing ICT in context. The underlying assumptions in this sample model are that the SMTE have had the experience of teaching without integrating ICT or where ICT integration was practiced it did not enhance student learning. Therefore, the focus of the in-service model is preparing SMTE for meaningful ICT integration that facilitates their professional development and enhances student learning.

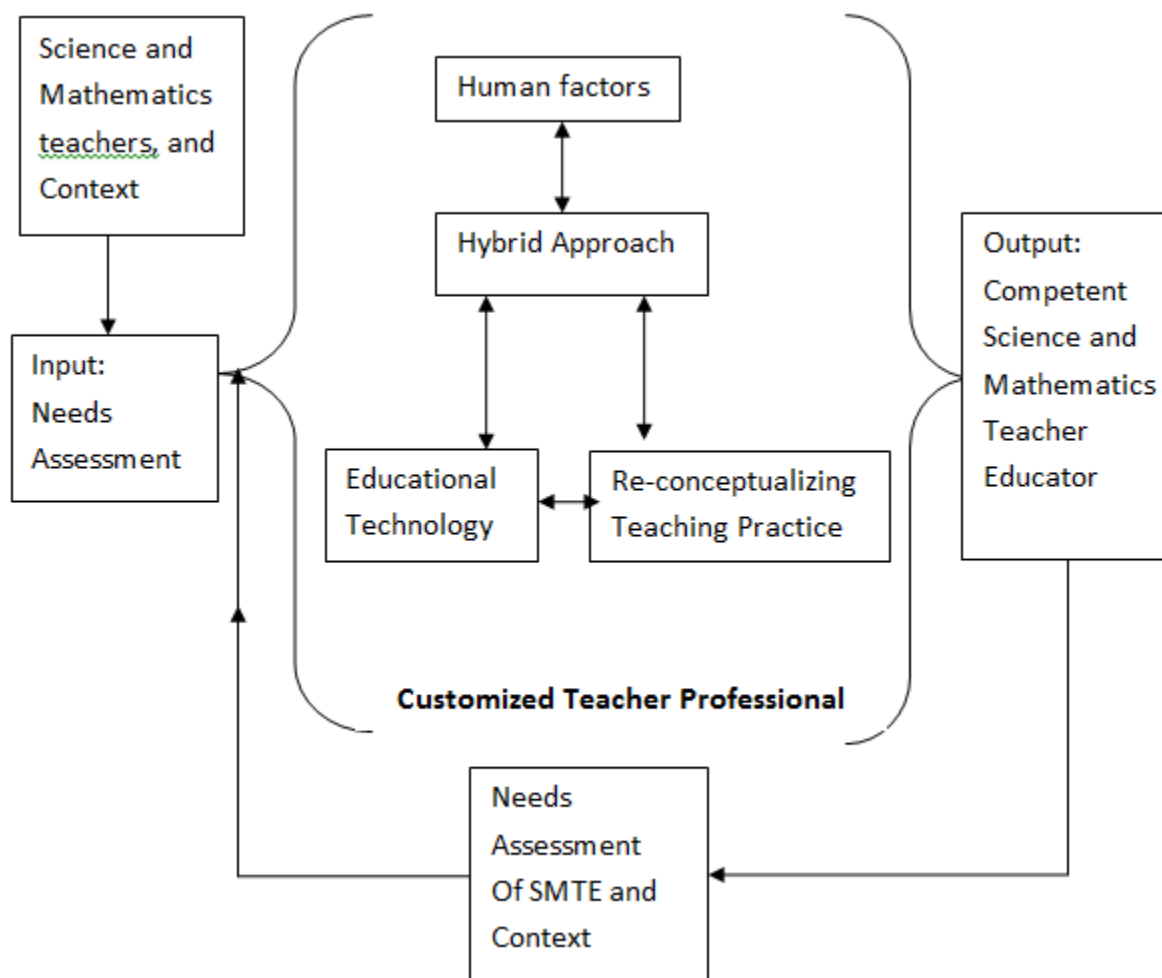


Figure 4. Sample Model for Professional Development of SMTE

At the input stage a needs assessment of the context and individual science and mathematics teachers is carried out. This facilitates, among many other things, an understanding of their needs in terms of ICT facilities, competencies, and their perception of education. The findings are used to design a customized TPD.

The customized TPD program consists of four attributes, namely, Hybrid Approach, Educational Technology, Re-conceptualizing Teaching Practice and Human Factors that are interrelated and influence each other. The expected output is a competent SMTE who has the capacity to integrate ICT effectively to enhance student learning, and facilitate professional development of self, and other teachers.

Hybrid Approach is the core attribute which concerns the mode of delivering the customized TPD program. It highly builds on two SITE's (2002) principles: permeating the entire course with ICT to allow the SMTE experience ICT integration as learners; and availing opportunities for practical application of professional literacy acquired in real classroom situations. It is no longer sufficient to in-service SMTE with Knowledge and skills only, additionally,

professional literacy should also be nurtured through practical applications. In particular, practical applications that extend the preparation beyond the ICT consumerism level to the level of production of contextually relevant ICT products.

The Educational Technology includes three aspects. The first is equipping SMTE with operational skills of a variety of ICT in order to improve on their technology literacy which is essential for effective integration. This will facilitate them to perceive the ease of using ICT. However, much focus should be on contextually accessible ICT for the TPD program to have immediate benefits. The second aspect is the orientation of SMTE to a variety of ICT integration frameworks such as Technological Pedagogical Content Knowledge by Mishra and Koehler (2006) for effective integration. To facilitate professional literacy, it is imperative that lecturers guide SMTE to teach specific subject matter with technology in the actual classroom. The third aspect is practical understanding in the use of ICT for professional development of self and others.

Several aspects of Re-conceptualizing Teaching Practice include broadening SMTE's perception of education, introduction to learner centered approaches to teaching science and mathematics, attending to the mastery of subject matter, upgrading pedagogy and pedagogical content knowledge, and review of educational policies related to ICT integration. Re-conceptualizing Teaching Practice and Educational Technology influence each other and constitute the content of the customized TPD program.

Human Factors include facilitating SMTE to develop positive attitude towards ICT and enhance their confidence during practical integration of ICT. In this model, Human Factor is a consequential inherent construct, i.e., it largely depends on the actualization of the other three constructs: Re-conceptualizing Teaching Practice; Educational Technology; and the Hybrid Approach. These three constructs defines the nature and composition of the course which ultimately determines whether SMTE will actually integrate ICT in their practice.

The recommended sample model is cyclic because new ICTs that have implications in education are developed frequently. Further, the education sector is dynamic and therefore engagement in ongoing TPD is important to keep teachers up to date with current trends in education. This is probably achievable through lifelong learning. That is why a needs assessment of the output and context is necessary in order to continue engaging SMTE in professional development.

The model requires a context in form of a school or institution of learning as well as support from educational stakeholders. Core stakeholders are the lecturers and potential science and mathematics teachers to be prepared. The lecturers who are the navigators ought to

have specialized professional literacy related to ICT integration in education. This will enable them to effectively facilitate professional development of SMTE for ICT integration. Additionally, support staffs should be available, where possible, to offer technical assistance to lecturers and students. It is hoped that adoption and implementation of these attributes, in consideration to contextual needs, will facilitate SMTE to acquire professional literacy necessary for meaningful ICT integration. Further, it is perceived that the SMTE exposed to the attributes in this model will in the course of their practice of integrating ICT become appropriate role models in facilitating and inspiring other teachers and enhancing student learning of mathematics and science.

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FACTORS INFLUENCING TEACHERS' INFORMAL WORKPLACE LEARNING

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ABSTRACT

This paper is based on a study that to investigate the influence of the workplace of a rural public secondary school in Kenya on the workplace learning of the teachers.

A qualitative research approach was used and data was collected using interviews, observations and document analysis. The research participants included the head teacher of the school and five other teachers.

The study established that the factors that facilitated teachers' learning in the school included; the resource available, good interpersonal relationships, supportive school leadership while the hindering factors included; the type of students, the size of school and the number of teachers, limited school resources and the cultural context.

The findings imply that schools and school leaders should provide teachers with conditions and opportunities to engage in a sustained process of learning. For teacher professional development providers and trainers, the findings indicate a need to increase awareness among the both teachers and school leaders of how workplace learning can be encouraged and enhanced.

Key words: *informal workplace learning, factors facilitating workplace learning, factors hindering workplace learning, self directed learning, teachers' workplace learning.*

Introduction

It is widely acknowledged that teachers play a significant role in helping schools be effective. Leliveld (2006) asserts that teachers are imperative for both quality schools and quality school improvement. While concurring with this assertion, scholars (Little, 2007; MacLeod, 2007) emphasize that the quality of schools cannot be higher than the quality of teachers in them and central to the vigor of and success of a school is the strength of its teacher workforce. It is on this backdrop that workplace learning in the teaching profession is

becoming increasingly critical. Studies (Khamis & Jawed, 2006; Flecknoe, 2005) acknowledge the significance of teacher workplace learning in school improvement (SI) and recommend that the way forward for SI should be to build capacity in the workplace that exposes teachers to learn new ways of being professionals. Another study (Rowden & Shamsuddin cited in Kraussa & Guat, 2008) established that the extent of workplace learning occurring in an organization is strongly related to employee job satisfaction which in turn determines effectiveness. From these views, the significance of teachers' workplace learning for school effectiveness and improvement cannot therefore be over emphasized.

Although teachers' workplace learning has been acknowledged as a significant component of school improvement, very little is known about how the school as a workplace influences this learning, despite research findings revealing that the context in which learning occurs is undoubtedly significant (Murphy & Alexander, 2007; Hodkinson, H., & Hodkinson, P., 2005). According to Lave (cited in Murphy & Alexander, 2007), the recognition that learning is continuously and markedly shaped by the social context in which it occurs is one of the most powerful observations to emerge in recent times. While concurring with this view, Gough (n.d) adds that the values, attitudes, interactive practice within the learning context can have a great influence on learning of the teacher as his/her inner qualities or learning drives. Equally, situative learning theorists observe that the physical and social contexts in which an activity takes place are an integral part of the activity, and that the activity is an integral part of the learning that takes place within it (Cobb & Bowers, 1999). Previous studies on teachers' workplace have focused on the workplace learning or on job learning for novice teachers (Krauss & Guat, 2008; Wilson & Demetriou, 2007; McCormack, Gore & Thomas, 2006; Harrison, Lawson & Wortley, 2005) and ways in which teachers learn in the workplace (Schuck, Aubusson & Buchanan, 2008; Lee, 2007; Hodkinson, H., & Hodkinson, P., 2005). There is little known about how the school as the teachers' workplace influences what and how teachers learn. Moreover, very little is known about on the subject of workplace learning in the East African context and in Kenya in particular. This study therefore sought to fill these identified gaps and explored how the context of a particular rural public secondary school in Kenya has influenced its teachers' learning.

Factors that influence workplace learning

There is a continuing debate on factors that influence teachers' workplace learning. There seems to be a great variance in the results of studies, perhaps due to differing study and work contexts. In a study on teachers and workplace learning Kwakman (2003) revealed two task factors (work pressure and job variety) and two work environment factors (collegial support and intentional learning support) as influences on secondary school teachers' participation in workplace learning activities. Another study by Hodkinson and Hodkinson

(2005) identified three dimensions influencing experienced teachers' learning: the dispositions of the individual teacher, the practices and cultures of the subject departments, and the management and regulatory frameworks at schools and national policy levels. In contrast, Lohman (2006) is resolute that it is the personal dispositions that play a key role in individuals' workplace learning. He identified seven personal characteristics that enhance teachers' motivation to engage in informal learning at the workplace as initiative, self-efficacy, a passion for learning, interest in the profession, commitment to professional development, a nurturing personality, and an outgoing personality. On his part, Clarke (2005) asserts that successful workplace learning is influenced by a number of workplace environment conditions, such as a supportive training and development infrastructure, empowerment and effective communication, opportunities for reflection and job challenge and opportunities for learning. Further, Eraut (2004) in a study of informal learning at the workplace classified the factors influencing learning into; learning factors and context factors. The learning factors include the challenge and value of work, feedback and support, and commitment and confidence. The context factors include the allocation and structuring of work, encounters and relationships with people at work, and the expectations of each person's role, performance and progress.

The common threads in this debate on the factors influencing teachers' workplace learning seem to be: school culture, school leadership and organizational structures, interpersonal relationships, personal dispositions and nature of the work/job. It is the first three (school culture, school leadership and organizational structures, interpersonal relationships) however, that are of significance to this study.

School Culture

An examination of school culture is important because, as Goodlad's study (1984) points out, "alike as schools may be in many ways, each school has an ambience (or culture) of its own" (p. 81). Besides, research into school culture has highlighted different forms which may have an impact on teacher learning and professional development in different ways (Little, 2001). Many scholars recognize school culture as a dominant influence on the success of improvement initiatives in schools including teacher learning (Deal & Peterson, 1998; Fullan, 2001a, 2001b; Nemsar, 1983). Nemsar aptly captures this: "without a school culture that supports learning from teaching, we cannot take advantage of the educative potential of teaching experience nor guard against its miseducative tendencies." (pp. 167-168). Successful schools, therefore, are those that have developed a shared 'technical culture' including common purpose, expertise and methods for analyzing and solving curriculum and instructional problems (Glickman, Gordon & Ross-Gorgon, 2001). Katzenmeyer & Moller (2001) concur with this view when they state that school-wide focus

on learning, inquiry, and reflective practices as well as encouragement for taking initiative are some of the aspects of school culture that could influence teacher learning.

On the other hand, lack of clarity about organizational and professional direction and purpose (Duke, 1994) may affect how teachers learn and what they learn. Writing about schools in the United States of America (USA), Schussler (2003), laments that many public schools lack a clear vision and can neither define their values nor their ultimate goals. This is noteworthy because a school's vision and values determine what the teachers pay attention to and therefore what they are likely to learn.

Research findings (Smylie, 1992) indicate that a collegial and collaborative school culture, though insufficient on its own, is however, a necessary condition for promoting TL. On the other hand, isolation of teachers caused by traditional schedules and structures (Coyle, 1997) breeds a culture of isolation that perpetuates a lack of collective inquiry around practice. This commonly leads to the 'Crab bucket' culture (Duke, 1994). in which teachers drag each other down instead of supporting and stirring one another It is possible that different cultures may co-exist in a given school, and consequently, avail different opportunities for teacher learning and development. The dominant culture in the school will have the greatest impact on the teachers' learning.

Organizational and Leadership Structures

Murphy & Alexander (2007) point out that the organizational characteristics of schools affect the conditions of teaching and learning. Similarly, the prevalent leadership culture in schools is believed to have a great influence on TL within the school because "teachers seem to need a strong leadership to examine the teaching and learning in their schools". (Bezzinna, 2005, p. 166). Experts on school restructuring call for transformational leadership, in which school leaders foster a collaborative and professional culture, facilitate teacher development, and help teachers to solve problems (Green & Etheridge, 2001) as it provides a conducive environment for TL to take place. This is contrary to a school leadership that is embedded in "transactional leadership based on power, top down decision making, and having rewards controlled by the leader (Leithwood, 1992). This does not provide a supportive environment for effective TL and may lead to reluctance by teachers to "advance" and violate egalitarianism norms (Little, 1995). This view is supported by the Institute for Educational Leadership report (2001) which states that the traditional top-down leadership structures often work against teachers' opportunities to learn. Similarly, hierarchical, instead of horizontal, relationships with peers, where for example, teacher leaders exercise authority instead of working collaboratively in learning and decision-making endeavors, does not augur well for effective TL (Darling-Hammond et al.,

1995; Cooper, 1993). Principally, the American Federation of Teachers (2002) guidelines recommend that the very organization of a school should promote and provide for continual and purposeful reflection on teaching and learning.

Interpersonal Relationships

Stamp (cited in Mitchel & Sackney,2000) underlines the significance of interpersonal relationships in workplace learning by argueing that human relationships are critically important to creating a sustaining and sustainable workplace context, There is growing evidence that teacher workplace learning is most powerful, long lasting and continuous when it occurs as a result of being a member of a group of colleagues (Lieberman & Miller, 2007) that function as professional learning communities. The essence of professional learning communities is that "people often need help in order to use relevant knowledge that they have acquired and they usually need feedback and reflection so that they can try out and adapt previously acquired knowledge" (Bradford et al, 1999, p. 12). According to Pouravood cited in Hoban (2002), learning communities assist teachers to change in a complex world by, for example, enabling the teachers to negotiate knowledge according to their unique contexts.

Literature reveals a growing emphasis on teacher collaboration as a key factor in fostering teacher and school development, as well as in implementing successful innovation and change efforts (Flores, 2004; Lima cited in Flores, 2004). This literature reveals that collaboration has become a kind of universal remedy reiterated by policy-makers, educational researchers and other stakeholders. This is reaffirmed by Glickman, Gordon and Ross-Gordon, (2001) who state that "successful schools are... engaged in continuous dialogue about their teaching practice and they collaboratively research, design experiment with and improve curriculum and teaching" (p. 7).

The Study Context.

Schools in Kenya are categorized into; public and private schools. Private schools are established and managed by individuals and private organizations, while public schools are funded by the government and parents and are managed through a board of governors (BOG) in the case of secondary schools, and a school committee for the primary schools (Ministry of Education, 2004). The schools are located in both rural and urban areas and although they are not officially classified as such, schools in rural and urban settings tend to have some distinctive characteristics based on the cultural mix of society, economic circumstances and technological development of the society in which they are located.

The study

In order to gain insight into the influence of the workplace on teachers' learning, the study was guided by the following questions: What factors support teachers' professional learning in the workplace?, What factors hinder teachers' professional learning in the workplace?

Research approach and design

Since the study sought to understand the influence of the workplace on teachers' learning in a particular secondary school by highlighting the factors that support or hinder their learning, the study lent itself to the qualitative approach, more specifically to a case study design. We considered the qualitative approach suitable because first, the nature of the variables under study, that is, the influence of workplace conditions and the learning of teachers are not easily quantified. Secondly, we intended to study the phenomenon in its natural settings and a qualitative approach is the best suited for soliciting participants' stories from a natural setting.

Furthermore, since the study sought to establish teachers' experiences of learning in the context of a particular rural public secondary school, the contextual nature of the case study and its strength in addressing contemporary phenomena in real-life contexts made it the most suited design for the study. Besides, a case study enabled the researchers to study the various facets of the influence of the school on teachers' learning.

Research site

The research site was a rural public secondary school. Our interest in a public secondary school was because it represents a typical secondary school in Kenya. Ministry of Education (MOE, 2007) statistics indicate that 88% of secondary schools were public schools, with private schools constituting 12% of the total number of schools. Additional statistics show that a large percentage of these schools are located in the rural (Ibid). The selected school has typical characteristics of a rural school. It is located in a rural setting, about 50 kilometers from the nearest major town, and five kilometers from the main tarmac road and a similar number of kilometers from the nearest other secondary school. The school, like many rural schools in Kenya, has adequate basic facilities such as buildings and play grounds but lacks other teaching and learning materials such as books, equipment and computers. It is set in a basically subsistence mixed farming community whose culture as pointed out by teachers interviewed, is characterized by sluggishness, lethargy and slowness. Most teachers as well as students in the school come from the local community. This is significant

because according to Villegas-Reimer (2003), school culture can influence the teachers' sense of efficacy and professional motivation and therefore impacts on teachers' learning.

The school, which is a public co-educational day secondary school, was started 29 years ago (by the time of the study) as a community school and later handed over to the government and has grown over the years into a two streamed school. The school currently has a population of 140 students and 10 teachers. Although the school has adequate physical structures and space as well as electricity and housing for the teachers, it lacks other basic facilities. The only school science laboratory and library are ill equipped. The library basically has class texts, copies of one daily paper (both English and Kiswahili). One of the classrooms serves as the staffroom, and although having adequate desks and chairs for the teachers, had no other facilities and was rather plain. The teachers desks are arranged along the four walls, with one large table in the centre of the room used to serve tea/lunch. The school has one computer which serves the administration as well as the departments and the teachers. Internet connectivity is limited and is by use of a modem or mobile handsets.

Research procedure

We used purposive sampling to pick a sample of six teachers, from the ten teachers in the school, targeting those who were likely to have relevant and useful information for my study. However, bearing in mind that purposive sampling should be able to give enough variation in the data, from the different teacher sub-populations in the school, we considered sampling the head teacher because as the head of the school, he was likely to have information on the facilities as well as programs in the school that can support teacher learning. For teachers, we sampled teachers with varying teaching and leadership experience so as to get the experiences over the different career phases. We also intentionally focused on those who had served longest in that particular school, as they were likely to have had more experiences of workplace learning in the study school.

We used one on one interview as the primary data collection method and observation and document analysis as secondary methods. The rationale for using multiple forms of data collection was to establish credibility and validity in the findings of the study through triangulation. The basis for using one to one interview was that the effect of the work environment on a teacher's learning is personal and can only be best understood as explained in the teacher's own words. We used interviews to collect data on what teachers thought had facilitated or hindered their self directed learning in the workplace. Also collected through interviews was information on resources in the school that can support professional self directed learning as well as the ease and frequency of access to these resources. All interviews were audio recorded using a digital audio recorder.

Observation was used to collect data on observable structures and expressions of the culture of the school that were significant to teacher learning. The observations also enabled the researchers get first hand information and also made clear the discrepancies between what people said in the interviews and the actual practice or state on the ground. Document analysis was used to collect documented information that was significant to the study such as information on professional development programmes and collaborative activities. The documents analyzed were the minutes of past staff and departmental meetings from January 2006 to the time of the research.

The Findings

Facilitating Factors

Available Resources

The available resources had played a significant role in the learning of teachers in the school. One resource was the school's ICT facilities which consisted of one computer, that had Internet connection using a modem and mobile telephone lines. The computer too had a number of peripherals such as the scanner and printers. The school also had an e-instruction software/programme; 'Encarta'. Two teachers said had personal laptops which they occasionally used to source for materials for teaching using the school's modem and peripherals. They also used the same to teach as alternatives to the projector. T1 said:

... we are using a programme called Encarta which has all the learning materials...we don't have a projector. Mostly I carry my laptop and place at correct convenient position for the students. Of course the laptop is personal...

Reading materials were another resource. These included educational magazines, seminar notes that were compiled bound into booklets, various education sector documents from the ministry of education and the daily newspapers. Some teachers interviewed indicated that the daily papers had quite educative articles and pullouts on issues in education as well as teaching and assessment materials especially for the languages (Kiswahili & English). The resourcefulness of these daily papers to teacher learning was captured by one teacher who while commenting on reading materials in the school that have helped him learn said: "...some of these papers they have columns which feature matters related to academics especially on set books and even the grammar part of Kiswahili" (Teacher Interview). The set books referred to here were the Kiswahili literature books that are examined at the end of the secondary school cycle in Kenya, by the Kenya National Examination Council (KNEC).

The presence of resourceful members of staff was another significant resource. The researchers' interaction with the teachers revealed that there was a 'mix' of age, experience and exposure. Several teachers interviewed indicated that among the resources in the school that could help any teacher coming to the school to learn and grow were the resource persons amongst the staff. The deputy head teacher, for example, was very knowledgeable about ICT and ICT resources. In reference to the deputy head teacher one teacher said:

T: when I came to this school, I met the deputy and he was a good computer student. He had a lot of resources. So some of the programmes he was able to give and share... .If somebody has a good programme he will tell you I have this program. Can you check it is it working? And the latest, I have the latest and so on

Other long serving teachers, one of whom had had experience as a head teacher before joining the school were a resource to the younger, less experienced teachers as exemplified by the following excerpt:

....So we are able to learn from other teachers experiences. Somebody has been a principal somewhere. Some of the teachers here are senior and I'm young and they have a lot of experiences and when we talk they tell many things, what happened, if you do this what will happen and the best way we can do things I think get to learn a lot from there.

School Leadership

The school leadership was found to have facilitated teacher learning to some extent. For example, the school leadership supported and facilitated teachers to attend external workshops and seminars organized by the district education office and/or other education stakeholders such as publishers, despite the limited school resources. The head teacher stated in the interview that he ensured that the teachers are supported to attend external workshops and seminars, whenever they were organized. This was corroborated by the teachers interviewed. For example, one teacher said "most workshops we have had are not internal, but every time the school sponsors us. We go out for one two, three days then we come then we come to inform the rest". Further, since not all teachers could attend the external seminars, the head teacher said he ensured that those who attended disseminated what they learnt to the rest of the teachers. This was corroborated by the teacher interviews and by documentary evidence in several staff meeting minutes, showing that teachers who attended seminars often gave reports during staff meetings or were required

to prepare written reports. The head teacher himself, perhaps acting as a role model, also reported back whenever he attended heads meetings if there were any issues of relevance to the teachers as indicated in documents (Staff Meeting Minutes).

Further, support of the school administration for teacher learning is perhaps captured best in one teacher's words:

...one good thing about the schools' administration is that from all the schools I have been, I would like to say that I find that this school is very open to ideas... at least they listen to your side and give a feedback and then all of you can make a decision pertaining to all the ideas that have been put on the table. That has enabled me to grow very much. I didn't find that in many other schools .

Interpersonal Relations

The interpersonal relationship amongst teachers was found to be amiable. The common adjectives used by teachers interviewed to describe this relationship included; 'cordial', 'friendly', 'good', 'very cordial,' 'very well'. Observations of the teachers over the period of the data collection confirmed this and the staffroom, where most of the teachers worked from, had quite a pleasant atmosphere throughout. One teacher summed it as:

... one thing in this school that exists so well is that we are all friends. I cannot hide even if the idea is not good for the person I will always ask the person and the person does not take it personally .

Networking

The school had networks with other schools in the zone and the district, a factor which gave opportunity for teachers to learn from teachers in the other schools. What is more, almost all the networking activities at zonal level were initiated by the school leadership of the study school. In the school, networking involved setting and marking of joint examinations, holding of joint symposiums, games and lately, joint motivational talks for both teachers and students in the zone. Interview his interview the head teacher said

we are the centre of coordination in this zone. we came up with the issue of symposiums, they have picked up, we came up with the issue of zonal exams which had gone under, they have picked up, we came up with the issue of motivational talks, they have picked up. Our field is mostly used for all (Zonal games) because it is very flat, my deputy is the chairman of deputy head teachers in the district...I am the chairman of the Zonal head teachers

association...so most of the schools, they have at least something to pick from us and we have something to pick from them. in short it is a good relationship".

In addition, there was an incidental observation when I witnessed the head teacher, two teachers and all the form four students left for a jointly organized zonal motivational talk hosted by a neighboring school. There was also documented evidence that the school had forged partnerships with other organizations. For example, minutes of staff meetings showed that teachers in the zone had organized joint symposiums in the various subjects, with each school hosting at least two subjects. In addition, documents (staff meeting minutes) stated that the head teacher informed the members that the school had now partnered with friends from the USA. This partnership, though still in its infancy, was to eventually lead to an exchange program for both teachers and students. In an interview, one teacher in reference to the partnership said:

we are partners with a group ... our friends from the US. And they always come here with new things. They have taught us new games, they give us ideas of what happens in the US. They give us new experiences from what happens in the US. They have visited us twice from the US. So we get to learn informally with the .

The 'partners' were members of the school's sponsor church from America, who often visited the local church as well as the school. It is important to note that most public secondary schools in Kenya are affiliated to religious organizations, recognized by the Ministry of Education as the sponsors.

Hindering Factors

Lack of challenge from students

The school had been admitting students with quite low marks from the primary school cycle over the years. This was confirmed through teacher interviews as well as the analysis of documentary evidence in minutes of staff meetings showing the cut-off marks for the students to be or had been admitted to form one. As a result, teachers complained that they did not face enough challenge from students in class to stir them to learn or read more widely. One teacher while confirming the type of students in the school claimed that he does not enjoy teaching in the school because having 'below average' students made teaching tedious. The same teacher admitted that if he had students who were inquisitive he would really read widely. Another teacher captured it as:

Yes, there is that tendency for you to relax because ...they are the average students who don't give you any challenges at all, at all

Inadequate Number of Teachers

The fact that there were very few teachers in the school limited consultations opportunities amongst teachers of the same subject. Some teachers noted this as an impediment to their learning. One teacher, who had taught previously in a larger school with many teachers, was very candid on this matter. He said:

you find that not a lot of consultation because in the department you can be alone. In my former school we were eight so consultation was broad but here I find that sometimes I am just alone in my subject. So I am the only one who makes decisions there- in terms of setting and everything.

The lack of adequate staff also meant that the teachers had to carry more workload, which in turn reduced the time they could devote to professional learning, as was captured by one teacher in the following excerpt:

we don't have all the (required) teachers here, not like the school I was ... in this school you find that occasionally you have to do an extra work because we don't have enough teachers.

Another teacher confessed that he did not do some 'things' he believes would increase his learning in the profession because of lack of time. However, he did not elaborate on what these 'things' would be.

Limited School Resources:

The limited resources hampered teacher learning in the school. For example, the science teachers who had attended an INSET organized by the government complained that their ability to practice what they had learnt was greatly hampered by the limited resources in the science laboratories. This was confirmed by documentary evidence in the minutes of a staff meeting in which the head of the science department reported that poor stock in the science laboratory had hindered the implementation and actualization of the SMASSE techniques. My own observations in the only school laboratory confirmed this. This is significant as it highlights the influence of the workplace on the teachers' capacity to internalize and practice what is learnt from the workshops.

Similarly, not all teachers had access to the ICT facilities in the school because the ratio of computers to the number of teachers was very high. One teacher said that although there were "quite a number of e-materials in the computer (internet), but the problem is that we have only one computer so all cannot access it. Some (*teachers*) are not even aware that

there are so many e-books..." (Teacher Interview). This was corroborated by the head teacher. In addition, the fact that the same computer served the administrative purposes in the school further limited access. As a result, only a few teachers had been able to benefit from learning and teaching with ICT resources. One teacher said during interview; "I think I would develop much if I had access to information especially through the ICT" " (Teacher Interview). There was also limited access to other reading materials in the school. Some teachers believed that their apparent lethargy in reading was due to the fact that they had limited access to reading materials, arguing that the daily paper, which was the only material easily accessed, was read daily by almost all the teachers. Further, the head teacher indicated in his interview that finances were the most constraining thing in creating opportunities for teacher learning.

Culture

Both school and local culture were found to be an impediment to teacher learning. Teachers interviewed pointed to sluggishness, lethargy and slowness as an aspect of the local culture that had influenced the teachers. The head teacher said:

... this is one area that is 99% dominated by people from the same community and the way they do their things is that they are very slow. They don't take things seriously....the teacher now will also be forced to fit within that slowness. So a teacher may come with a lot of innovation, with a lot of energy...but you find that now the teacher goes down because of the culture now overshadowing whatever the teacher is.

This was corroborated by another teacher who said "there is a tendency of being relaxed (sic), like when we are opening school right now, there is that tendency of relaxing(sic), we don't pick up very fast. This is contributed by the culture of the students and I think the community".

Discussion

The findings show that teachers were able to learn from the available resources in the workplace, which included the reading materials, the internet and resource persons. This perhaps indicates that resources play a crucial role in workplace teacher learning. It is imperative therefore that teachers access adequate resources in their workplace. It is our opinion that although the schools resources were apparently limited, the available resources had a positive impact on the teachers' workplace learning.

These findings also show that the school leadership was a facilitating factor in the learning of teachers in the workplace. This perhaps indicates that the school leadership appreciated the need for teacher to continue to learn. It also perhaps indicates the school leadership's understanding of need to support teachers to learn in the workplace. Several studies (Clement & Vandenberghe, 2001; Fernandez, 2000; Moore, 2000), report that the leadership of the principal is crucial to support the professional development in schools. Fernandez (2000) identifies certain characteristics that are common to all supportive principals as including, among these: visibility, modeling, support and high expectations. The principal in this case portrayed these characteristics to some extent. These findings mirror findings of a study on the impact of school cultures on and leadership on new teacher learning in the workplace (Flores, 2004) in Portugal, which found that encouraging, supportive and informative leadership was a crucial feature in the accounts of teachers positive experiences.

Similarly, the findings showed that cordial relations amongst teachers that had facilitated teachers to exchange ideas at personal level and also participate in general staffroom talk and debates. There was also evidence from the teacher interviews as well as informal conversations of cordial relationships between the teachers and the school's administration. Current trends in education are based on the recognition of the role of others in the learning process as going beyond stimulation and encouragement for individual construction of knowledge but as a major determinant of what is learnt and how it is learnt (Putman & Borko, 2000). Furthermore, Eraut (2004) argues that relationships play a critical role in workplace learning and that the emotional dimension of professional work is much more significant than normally recognized. It is my argument thus that although the personal relationships amongst the teachers in the study school facilitated some learning, the apparent low level of professional collegiality may have limited the learning.

Further, the findings indicate that networking had facilitated the learning of teachers in the school. This perhaps indicates the significance of networks as a source of teacher learning. Huberman (2001) details the importance of using teacher networks as a means of providing support for teacher learning and proposes a model that involves teachers both in the same school and in different schools, who share a common discipline, subject matter or activity to be worked on. It is my view that the ability of the school to network with other schools had facilitated the learning of teachers in the school.

However, the findings clearly demonstrate a lack of challenge in the teachers' work as a result of teaching below average learners. Although having bright or above average students does not necessarily translate into motivation for the teachers to read more, bright or above average students are likely to probe and ask the teacher more questions about what they

are learning and thus prompt the teacher to read more widely and in the process learn also. This could perhaps mean that the type of students in the school that one teaches is an important factor in motivating and stimulating learning in the workplace. Teachers, like other professional, need to encounter challenges in their work to spur them to greater heights of learning. Eraut (2004) argues that there is a relationship between challenge, support and confidence for learning to occur at the workplace. He contends that "if there is neither challenge nor sufficient support to encourage a person to seek out or respond to a challenge, then confidence declines and with it, the motivation to learn." (p. 270). It is my contention, thus, that the type of students in the school, made the teachers' work less challenging, which to some extent, had a negative effect on teachers' workplace learning.

Similarly, the findings reveal that inadequate staffing limited teachers' workplace learning. This perhaps indicates that the size of a school as well as the staffing levels have an effect on teachers workplace learning. Although adequate staffing does not necessarily translate into workplace learning, it does increase opportunities for interaction with teachers of diverse experiences. It also does lessen the workload, hence creating time for teacher learning. As Eraut (2004) affirms, opportunities for meeting, observing and working alongside people who had more or different expertise and for forming relationships that might provide feedback are essential to workplace learning.

In addition, the findings show that teacher lacked time to learn in the workplace. This perhaps indicates that time to learn in the workplace is an essential factor. Teachers need time to make professional development an ongoing part of their work on a daily basis. According to Bush (1999), the depth of practical knowledge expected of the teachers is immense and he points out that policy makers have consistently indicated that time is a great challenge to effective professional development. While agreeing with this, Villegas-Reimer (2003), adds that this is particularly the case in the developing countries, of which Kenya is one. It is my opinion thus that the size and staffing levels of the study school did have a negative impact on the teachers' workplace learning. The findings clearly demonstrate the limited resources for teacher learning in the school. It perhaps indicates the limited workplace learning opportunities in the school. Provision of resources largely depends on funding. Although Bush (1999) says funding alone is not enough to provide effective professional development opportunities for teachers, Villegas-Reimers (2003), reiterates that funding for teacher professional development is a major challenge faced by the teachers worldwide. However, Hodkinson and Hodkinson (2005) explain that:

as with other workplaces, the learning of staff is secondary to the prime productive activity of the firm. This fact combined with continual pressure on scarce resources,

means that some changes that might be beneficial for teacher learning will be difficult to accommodate (pp. 125-126).

Hence, the apparent low resource level of the school had a negative impact on teachers' self directed workplace learning.

Lastly, the findings not only demonstrates the influence that the local culture has had on how the teachers work in the school, but also the consequent influence that this has had on the teachers' ability to learn in the workplace. It also suggests the powerful influence of culture in the workplace. According to Villegas-Reimer (2003), school culture can influence the teachers' sense of efficacy and professional motivation. The culture thus, had a negative effect on the workplace learning of teachers in this school.

Implications of the Findings

For Schools and School Leaders

The findings imply that the schools should provide teachers with conditions and opportunities to engage in a sustained process of learning. This is because workplace conditions play a key role in enhancing teacher learning in schools.

The findings also have implications on the role of the school leaders, particularly the head teachers in creating and sustaining an environment that would encourage ongoing teacher learning in the school. As Fernandez (2000) affirms, leadership constitutes one of the overarching influences in fostering a sense of professional community amongst teachers. Moore (2000) offers suggestions for school principals to support professional development of teachers, which includes, among others, planning ahead, establishing routine, tapping internal resources and establishing mentoring programmes. These would perhaps help create a workplace that encourages teachers' learning.

Similarly, relationships in the workplace need to be built and sustained. Although individual teachers have a role to play in creating and sustaining these kinds of relationships, the school administration is considered to play a significant role in bringing this about. The implication here is that the school leaders need to focus on and take a leading role in creating and sustaining cordial and collegial interpersonal relationships amongst the teachers, if the teachers are to benefit from learning from one another.

For Teacher Educators

Due to the significant role that workplace learning plays in teacher development, there is need to increase awareness among the teachers, but more importantly amongst the school leaders of how this learning can be encouraged and enhanced. Professional development providers and trainers need to focus on this. The school leaders need to be aware of the important role they have in bringing about meaningful self directed workplace learning.. Teachers also need knowledge on the ways of getting the most out of collaboration. This will help maximize on the benefits of for example, collaborative/group/ cooperative teaching. This awareness can be created through professional development workshops for school leaders.

For Teachers

The findings also imply that teachers need to identify and make the most of the available opportunities for self directed learning that their various workplaces offer. Among these are the opportunities to learn from others. However, learning from others requires that individual teachers seek to build and maintain relationships and partnerships that can facilitate learning from each other in the workplace.

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USING LESSON STUDY PROFESSIONAL DEVELOPMENT: SUSTAINABLE AND GENERATIVE MODEL TO BUILD CAPACITY

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Teachers are often at the heart of implementing curricula with little support. Teachers are wrestling with a lot of issues e.g. reflection-in and -on practice, emerging pedagogical paradigms, understanding content, learners, and institutional culture. These ongoing discrepancies experienced and realized by implementer presents an important problem for discussion, calling for an ongoing forum and form of professional development. This paper describes a Japanese model of teacher professional model that is self-sustaining, the Lesson Study. The fundamental steps of Lesson Study consist of planning, shifting through curricula materials, implementation of the lesson, and reflecting on it.

WHAT IS LESSON STUDY?

It is a form of professional development that brings together teachers to work in a sustained and focused manner on a school wide goal that all teachers have agreed is of critical importance to them (Fernandez & Yoshida, 2004). For instance, teachers can conduct lesson study that looks at the entire curriculum being implemented to a specific content at their school. Their discussions not only dwell on instructional strategies, but may evolve to exploring their prior perceptions, their beliefs, and their experiences with these ideas when they were students.

HOW DOES LESSON STUDY WORK?

The key steps involved in carrying out a lesson study by a group of practitioners based on the Japanese lesson study model are to:

- Plan a lesson collaboratively
- Teach and observe the lesson by colleagues
- Discuss the classroom observations
- Revise the lesson based on the reflections
- Reteach the revised lesson plan in another class

WHY IS LESSON STUDY IMPORTANT?

The benefits of lesson study as a mode of professional growth are numerous such as fostering collaboration. Takahashi and Yoshida (2004) point out that lesson study provides the context for teachers to focus their discussions on planning, implementation, observation, and reflection on classroom practice. By looking at actual classroom practice, teachers are able to develop a common understanding or image of what good teaching entails, which in turn helps students understand what they are learning.

Collaboration is an ongoing significant component of the teachers' professional growth or development. It positively impacts on the teachers' content knowledge, pedagogical knowledge, and pedagogical beliefs. Indeed, several research studies and non-research based studies support the classroom-based collaboration idea among teachers. Based on research, West and Curcio (2004) define the concept of collaboration-site as an ongoing forum for teachers to enlarge their content knowledge and instructional practices. They state that collaboration-site differs from laboratory site and demo sites in that teachers actively engage in "content and pedagogy" (p. 2004) as opposed to copying ideas of experienced teachers.

Anyways, collaboration comes in different forms and the successful ones reflect cases imbedded in ongoing actual classroom situations like the lesson study. Takahashi and Yoshida (2004) pinpoint this significance of teachers' collaboration when they use a lesson study. They say that, "The collaboration through lesson study helps reduce isolation among teachers and develops a common understanding of how to systematically and consistently improve instruction and learning in a school." (p. 438).

Special strengths of lesson study are (i) being on site, (ii) having teachers as the specialists, and (iii) does not require additional funding to be implemented; if contrasted with other forms of professional development such as workshops, seminars, or in-service courses. As teachers debrief they pinpoint out what went well; areas requiring improvement, students' responses, how they did it, hypothesizing sources of difficulties, and proposing feasible solutions.

CONCLUSION

The outcome of lesson study aids in exposing issues pertaining to the teaching profession and builds capacity. Lesson study is a powerful intervention that influences content knowledge and instruction in classes. Working collaboratively, raising questions, or just hearing what others suggest about educational issues makes participants' rise above self.

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DETERMINANTS OF PARENTAL PARTICIPATION IN HOME-BASED SEX EDUCATION FOR ADOLESCENTS IN NAIROBI PROVINCE, KENYA

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Abstract

Background

This study focused on parent's level of education, parents' knowledge and attitudes about sex education as determinants of parental participation in home based sex education.

Methods

The study adopted a cross-sectional survey design. The data analysis procedures engaged the linear regression approach.

Results

Parents' level of education is a significant predictor of parents' knowledge about sex education.

($F = 4.796$; $p = 0.03$) attitude ($F = 6.180$; $p = 0.014$) towards sex education. This shows that parents who had more years of schooling had more positive attitude towards sex education and were more knowledgeable about the subject. Findings show that Parents' level of education, Parents' knowledge about sex education and Parents' Attitude towards sex education are not significant predictors of parents' participation in home based sex education.

Conclusions

Parents have impressive knowledge and positive attitude towards provision of sex education in the family. Parents are afflicted by many challenges such as embarrassment, cultural and religious taboos. Thus parents do need external support in facing these challenges.

Key words: Parental knowledge, parental level of education, parental attitude, parental knowledge, Home-Based Sex Education, Parental Participation

Background

Sex education is a broad term used to describe education about human sexual anatomy, sexual reproduction, reproductive health, emotional relations, reproductive rights and responsibilities, contraception, and other aspects of human sexual behaviour (Arcus, 1993; Bredehoft, 2003; Duncan, 2005; Powell, 2007). Common avenues for sex education are parents or caregivers, school programs, and public health campaigns. Sex encompasses education about all aspects of sex, including information about family planning, reproduction plus information about all aspects of one's sex including: body image, values, decision making, communication, dating, relationships, sexually transmitted infections (STIs) and how to avoid them, and birth control methods (Family Health International, 2008).

In Kenya, the development of sex education as an educational field can be traced back to the early 1970s when the then Ministry of Education and Culture integrated sex education as a sub-unit in the then "Population Education Studies." During the early 1980s the Government of Kenya through the Ministry of Education decided to integrate sex education in '*Population and Sex Education*' into biology, social education and ethics, geography, history and civics as combined course.

The reaction to Population and sex education was a challenge that made the subject become a major issue in the country. Any attempts to provide sex information to young people were denounced by politicians influenced by major religious organizations. As a result, protest demonstrations through the major towns were organized. These demonstrations climaxed with the burning of contraceptives and population and sex education books. These opponents advocated that sex education be left to parents, and that parents be involved in any decision that would affect their children's sexual matters. As a result population and sex education was withdrawn from schools. The topic of population and sex education remained dormant until 1999 when the then Kenya President Moi declared AIDS a national disaster. Consequently, AIDS education was implemented in all schools and colleges in January 2000 in the form of *Life Skills Based HIV and AIDS Education*. Elements of sex education integrated in the life skills education syllabus include: reproductive health issues, drug and substance abuse, growth and development, friendship formation, emotional relations, effective communication and decision making.

Sex Education for Adolescents

It is conceded in the available literature that lack of access to information about sex education predisposes young people to sex related problems. The Ondimu study (1997) "*Determinants of Adolescent Reproductive Problems in Kenya*" that made use of medical service records for 1,756 women aged 10 to 20 years in seven randomly selected health facilities indicated that introduction of sex education for adolescents is one way of

alleviating reproductive health problems among adolescents in Kenya. Ondimu's findings are corroborated by findings in Olugbenga 2005 study; *"Adolescent Sex in South Western Nigeria"* that involved 30 teachers, 10 school guidance counsellors, 30 parents (10 men and 20 women) and 20 students confirms the paucity of sex awareness among adolescents. This qualitative investigation suggested that the teaching of sex education is a vital solution to adolescents' sex problems. The Ondimu and Olugbenga studies are consistent with Were's study (2007) *"Determinants of teenage pregnancies-the case of Busia District in Kenya"* which indicated that lack of effective parental guidance on issues of sex was reinforced by cultural beliefs that inhibit such discussions. Were's study, indicates that access to sex education is seen to reduce the probability of teenage pregnancy. The influence of cultural beliefs in hampering effective parent participation in sex education was also studied.

Public health studies advocate the education of women, especially mothers, stating that educated mothers are highly likely to pass on their education to their children, as well as enforce in their homes healthy practices thereby protecting entire families from disease. Whereas this is usually true in regard to most infectious diseases, it is not usually the case when it comes to sexually transmitted infections (STIs) such as HIV/AIDS. For instance, Mbugua, (2007) in his study *"Factors Inhibiting Educated Mothers in Kenya from Giving Meaningful sex Education to their Daughters"* involving high-school students (aged 17-19) and interviews with 10 high-school teachers indicate that most educated mothers in urban Kenya experience socio-cultural and religious inhibitions which hinder them from providing meaningful sex education to their pre-adolescent and adolescent daughters. In their 2008 study, Bulanda et al, using data from the National Longitudinal Study of Adolescent Health to determine what aspects of parental involvement are related to sexual initiation, whether parental involvement explains the association between family structure and sexual debut, and whether these relationships differ among boys and girls showed that among adolescents, four aspects of parental involvement namely shared dinnertime, participation in shared activities, relationship quality, and communication about sex are significantly and independently related to sexual initiation. When these young people have positive relationships with their parents, share mealtimes, and participate in shared activities, they are less likely to initiate sex. With a few exceptions, these parenting practices are not related to sexual debut among adolescents. The content of familial sex communication focusing on the importance of providing accurate sexual information between parents and their teenager has also been examined.

Findings in Kiragu, Obwaka, Odallo and Hulzen study (1996), *"Communicating about Sex: Adolescents and Parents in Kenya"* which involved 1,476 adolescents 15-19 years of age and 2,894 of their parents show that cultural beliefs and subjective perceptions are seen to play a vital role in the content of familial sex communication. For instance, both parents and

children were most likely to report having discussed school, future careers, and alcohol/drug use during the year preceding the survey. Topics least likely to be discussed included boy-girl relationships, acquired immunodeficiency syndrome (AIDS), sexual relations, abortion, contraception, and puberty. The influence of the parents' presence on adolescent decision making about sex issues has been explored. The Owuor (2002) study "*Parental Presence and Adolescent Reproductive Health among the Nairobi Urban Poor*" that involved a random sample of 4,564 households representative of all Nairobi slums and targeting heads, women of reproductive ages, and adolescents indicated that when the parent is present in the household, adolescent girls are less likely to be involved in sex ($p < .05$), less likely to have been sexually active ($p < 0.1$) and less likely to have ever experienced an unwanted pregnancy ($p < .05$) than when no parent is present in the household. The Owuor findings are strongly supported by Erulkar, Linus, Onoka, Nyaga, and Muyonga (2004) project "*Behaviour Change Evaluation of a Culturally Consistent Reproductive Health Program for Young Kenyans: The Nyeri Youth Health Project In Kenya.*" The project sponsored by Kenyan Family Planning Association and involving a sample of selected, respected young parents, explored the beliefs of adults/parents, young people and community leaders on who should provide information to young people. The general opinion was that this should be done by adults, not by peers. Selected, respected young parents were given one month of training on community, family and individual values; sex; gender roles; relationships; pregnancy; STIs including HIV, harmful practices such as female genital cutting, substance abuse, children's rights, advocacy and planning for the future. As counsellors, known as 'Friends of Youth', they then counseled young people. After the project had run for two years, evaluation report indicated that adolescents and youth in the intervention area were much more likely to discuss issues of sex with adults, and to protect themselves better against HIV infection and unwanted pregnancy, as compared to a control area. The Erulkar et al (2004) project, Owuor (2002) study clearly indicates that parents have a role and exert significant influence in the lives and decision-making processes of youths in the choices they make about sex.

Following these literatures there is a general concession that parents' participation in sex education is influenced by various factors including knowledge, attitudes, perceptions, and cultural beliefs about sex education (King, 1997; Risi, 2000 and Mbugua, 2007). Notwithstanding this reality, there is little evidence from an African context that is documented to show the co-relation between the factors of parents' knowledge, attitude about sex education and level of education. This phenomenon strengthens the need for these relationships to be established. Thus this study, employing linear regression, made an attempt to explain the correlation and magnitude of correlation among these variables.

The Problem and Its Relevance to the Knowledge Field

Sex education is recognized to be an area of important life skills essential for effective management of adolescence sex challenges. There is an increasing demand for information on certain vital elements of sex education mainly; understanding one's self and others; building self-esteem; making choices about sex; forming, maintaining, and ending relationships; taking responsibility for one's actions; understanding family roles and responsibilities; and improving communication skills. This demand is attributable to the proliferation and complexity of reproductive health problems including HIV among the urban youths (Wang'ondou, 1997, NASCOP, 2007). Literature shows that adolescents in urban centres are more susceptible to myriad of high risk sex behaviours (Balmer et al, 1997; Erulkar et al, 2004; Toscano, 2006; Mbugua, 2007) yet many adolescent-focused programs have not been successful because they lack parental support (Odimegwu, 2001). Yet numerous studies (Pick et al, 1995; Kiragu, 1996; Risi, 2000; Owuor, 2002; Erulkar et al, 2004; Mbugua, 2007) have consistently shown that sex education to young people is best done by parents. This position is also held by the Pontifical Council for the Family: *The Truth and Meaning of Human Sex Guidelines for Education within the Family*, 1995.

The influence of parents' knowledge, attitude, about sex education is generally conceded in the literature (Pick et al, 1995; Kiragu, 1996; Risi, 2000; Owuor, 2002; Erulkar et al, 2004; Mbugua, 2007). However little has been done to examine the influence of these factors on parental participation in home based sex education. This perhaps is the reason why the existing efforts by parents among other stakeholders have not provided a firm foundation for the management of adolescent sex challenges (Kiragu et al, 1996, Wangui, 1997; Ondimu, 1997). Thus, these relationships must be identified. Therefore, this study illuminates the extent to which parent's level of education, parent's knowledge and attitudes about sex education explains parental participation in home based sex education.

Hypotheses

The present study sought to find out the relationship that exists between parents' knowledge of sex education; parents' attitude towards sex education; parents' level of education and parents' involvement in home-based sex education. Based on these variables, the researcher developed the following hypotheses:

- There is no significant relationship between parents' level of education and parents' knowledge about sex education.
- There is no significant relationship between parents' level of education and parents' attitude towards home-based sex education.
- There is no significant relationship between parents' level of education and parents' participation in home based sex education.

- there is no significant relationship between parents' knowledge about sex education and parents' participation in home-based sex education.
- There is no significant relationship between parents' Attitude towards sex education and parental participation in home-based sex education.

Methods

This study used a cross-sectional survey design to collect data from the participating parents. The data were collected by means of questionnaires distributed through the assistance of head teachers in Nairobi secondary schools. With the assistance and permission of cooperating school administrators and personnel, questionnaires were sent to parents, filled out by either parent, and then mailed back to the researcher. The envelopes contained information about the study, instructions, and invitation to voluntarily participate. A total of 200 copies of the questionnaire were distributed, and 183 copies were returned, generating a return rate of 91.5%. Thirty-three questionnaires were later excluded because of incomplete data, and the final sample contained 150 parents. The parents included 42.7% fathers and 57.3% mothers. Most parents (60.7%) were 40 years old or over (mean age = 43.15; $SD = 7.08$). Most participants (72.5%) were married, 16.1% were single, 2% divorced; and 9.3% were widowed. Most parents (58.4%) had completed 12 years or more of formal schooling. The mean number of years that fathers had spent in formal schooling was 12, while the mean number of years for mothers was 13.07.

Measures

Parental Participation in Home Based Sex Education

Parental participation in home based sex education for adolescents was measured by use of a 15 item '*behaviour*' scale. The scale assessed parent-child communication regarding what and how much parents talk with their adolescent child about sex education matters in the family. The scale ranged from 'never talked' 'talked once in a month', 'talked 3 times in a month', talked 'once in a week' and 'talked more than once in a week'. For example, "How often during the past year have you talked with your child about what is right in sexual behavior?" (0 point for never talked, 1 point for talked once in a month, 2 points for talked 3 times in a month, 3 points for once in a week, and 4 points for talked more than once in a week). Parents received a total score based on how each responded to the items.

Parental Knowledge about Sex Education

Parental knowledge about sex education was measured by use of 20 multiple choice test items. The items focused on parents' knowledge about selected aspects of sex education including values, decision making, communication, relationships and sexually transmitted infections (STIs) including HIV. For example, 'Monogamy is when you... a) Decide not to have sex with anyone, b) Only have one sexual partner, c) Have sex with many different people. Knowledge score was calculated by summing up all correct answers (with 1 point for each correct answer).

Parental Attitude towards Sex Education

Parental attitude towards sex education was measured by use of a 20 attitudinal items on a 5-point Likert-scale ranging from (1) strongly disagree to (5) strongly agree negatively stated items and (5)-(1) for positively stated statements. The items were developed by the researcher. A total Attitude score was calculated by summing scores on the 20 items (with a range of possible scores of 20-100 points). The Cronbach's Alpha was 0.70 for total Attitudes scale

Results

Parental Participation in Home Based Sex Education

Findings indicate that parental involvement mean score was 43.83% with a standard deviation of 24.73 (mean score for fathers = 41.8%, sd = 25.56; mean score for mothers = 45.4%, sd = 24.11). Analysis of the extent of parental participation in home based sex education indicates that 44.4% of the parents are rarely involved, 37.3% moderately involved and 18.3% highly involved. Further analysis using independent samples t-test indicates the difference in parental involvement mean score among mothers and fathers is not statistically significant ($t = -0.858$, $df = 140$, $p = 0.392$).

Parental Knowledge about Sex Education

Findings indicate that the sex education knowledge mean score for parents was 61% with a standard deviation of 11.5 (mean score for fathers = 60.86%, sd = 11.43; mean score for mothers = 61.16%, sd = 11.65). Further analysis using independent samples t-test indicates that the difference between mothers and fathers knowledge about sex education is not statistically significant ($t = -0.159$, $df = 148$, $p = 0.847$). Responses of individual knowledge items reflect a good understanding of the concept of home-based sex education.

Parents Attitude towards Home Based Sex Education

Findings show that 80.5% of parents have a very favourable attitude, 17.4% had favourable attitude and only 2% of the parents had unfavourable attitude towards home based sex education (mean attitude score for fathers = 87.17%, sd = 8.908; mean attitude score for mothers = 87.39%, sd = 9.742). Further analysis using independent samples t-test indicates the difference in attitude towards home based sex education between mothers and fathers is not statistically significant ($t = -0.139$, $df = 147$, $p = 0.890$).

Hypothesis Testing

- *There is no significant relationship between parents' level of education and parents' knowledge about sex education.*

In the regression analysis, the model was significant ($F = 4.796$; $p = 0.03$), accounting for 3.2% of the variance. Thus reject the null hypothesis and conclude that Parents' level of education is a significant predictor of parents' knowledge about sex education.

- *There is no significant relationship between parents' level of education and parents' attitude towards home-based sex education.*

In the regression analysis, the model was significant ($F = 6.180$; $p = 0.014$) accounting for 4.1% of the variance. Thus we reject the null hypothesis and conclude that Parents' level of education is a significant predictor of parents' attitude towards home-based sex education. Inference can be made then that parents' level of education is an important factor when related to parents' attitude towards home based sex education. These findings are consistent with Humphrey, Libby, and Nass (1999) who found that after attending a workshop on sex education programs, those with higher levels of education were more likely to have positive attitude about sex education than those with less education.

- *There is no significant relationship between parents' level of education and parents' participation in home based sex education.*

In the regression analysis, the model was not acceptable, ($F = 0.343$; $p = 0.559$) accounting barely 0.2% of the variance. Based on the results of this study there is not enough evidence to reject the null hypothesis. Thus, it may be argued that parents' level of education is not a critical factor when related to parental participation in home based sex education.

- *There is no significant relationship between parents' knowledge about sex education and parental participation in home-based sex education.*

In the regression analysis, the model was not acceptable ($F = 0.026$; $p = 0.871$) and does not account for any variation. For this reason the results of this study do not provide sufficient evidence to reject the null hypothesis. Thus based on the findings of this study, inference can be made that parents' knowledge about sex education is not a critical factor when related to parents' participation in home based sex education.

- *There is no significant relationship between parents' Attitude towards sex education and parental participation in home-based sex education.*

In the regression analysis, the model was not acceptable ($F = 0.554$; $p = 0.458$) barely accounting for 0.4% of the variance. Hence the results of this study do not provide sufficient evidence to reject the null hypothesis. As a result we can argue out that parents' Attitude towards sex education is not a critical factor when related to parents' participation in home based sex education.

Discussion

This research work has examined parental knowledge and attitude about sex education, level of education and parental participation in home based sex education in Nairobi, Kenya. The study looked into the variables of parental knowledge, attitude and level of education and the extent to which they may predict parental participation in home based sex education for their adolescent children. The majority of parents were found to have reasonably accurate knowledge about sex education. The average knowledge score was 61%. Responses of individual knowledge items reflect a good understanding of the concept of sex education among parents.

The regression results showed that Parents' level of education, Parents' knowledge about sex education and Parents' Attitude towards sex education are not significant predictors of parents' participation in home based sex education. However, Parents' level of education is a significant predictor of parents' knowledge about sex education as well as parents' attitude towards home-based sex education. This shows that parents who had more years of schooling had more positive attitude towards sex education and were more knowledgeable about the subject.

It is evident from the findings that parents who are more knowledgeable do not necessarily talk more with their children about sex matters. Most parents agreed that parents should be the first teachers about sex education, a finding that is consistent with Davis, Koblinsky, and Sugawara's (1986) study *"Evaluation of sex education program for parents of young*

children". Despite these facts, it is clear that majority of the parents do not participate meaningfully in educating their adolescent children about sex matters. This study indicates that parents' participation in home based sex education is wanting with a significant 44% of the parents not concerned at all. This finding is consistent with Mbugua's 2007 study "*Factors Inhibiting Educated Mothers in Kenya from Giving Meaningful sex Education to their Daughters*" which indicated that mothers in urban Kenya experience socio-cultural and religious inhibitions which hinder them from providing meaningful sex education to their pre-adolescent and adolescent daughters. Other scholars that include Kiragu, (1996); Ondimu, (1997); Risi (2000); Olugbenga (2005) and Were (2007) also indicate that lack of effective parental guidance on issues of sex reinforced by cultural believes inhibit such discussions.

As is revealed by this study, parent's level of education was not a significant determinant for parental participation in home based sex education. This finding is in agreement with previous study "*Effects of a sex education program on parent comfort levels when communicating sex information*" conducted by Lundstrum (1996), which suggested that parental educational level was not a significant factor in a parent's ability to communicate sex information with children. However These findings contradicts that reported by Liu, et al. 1997 study "*Sexual behavior in modern China*" which showed that parents with higher educational levels were more likely to answer their children's questions about sex.

Conclusions

This paper focused on factors that determine parental involvement in sex education for adolescents within the family. The focus being parent's level of education, parents' knowledge and attitudes about sex education. The paper concludes that

- i. Parents have reasonably accurate knowledge about sex education
- ii. Parents' knowledge about sex education is a significant predictor of attitude towards home based sex education
- iii. Majority of parents do not participate meaningfully in educating their adolescent children about sex matters.
- iv. Parents' level of education is not a significant predictor of parental participation in home based sex education

Implications

In Kenya implementation of sex education has remained a challenge particularly within the school context. Indeed many parents agree that parents should play greater role than the

school in provision of sex education within the family context. However despite the impressive knowledge levels and positive attitude towards provision of sex education in the family, parents are not participating meaningfully in educating their children about sexuality issues. This is affirmed by Kiragu, (1996); Ondimu, (1997); Risi (2000); Olugbenga (2005) and Were (2007). These scholars point out that lack of effective parental guidance on issues of sex is reinforced by cultural believes that inhibit such discussions.

Thus parents need external support in facing such as embarrassment, cultural and religious taboos. There is need for rational programs that would bring together parents, religious and community leaders to discuss cultural and religious constraints that restrain parents from providing meaningful sex education. Through such programs parents, religious and community leaders would develop culturally appropriate skills and techniques necessary to communicate more effectively about sex with adolescents. Bearing in mind cultural and religious considerations, such skills should be palatable to the very adolescents who are the primary beneficiaries. That is, the intervention should be seen to enhance values and believes about sex, but also structured around building good relationships between parents and their adolescent children.

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SPORT AND ART CONNECTION – HURDLE RUN FOR PRESCHOOL AND SCHOOL CHILDREN

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Abstract

Hurdling (= run over obstacle) is a wonderful and really natural activity both in sport and physical education. Sprint hurdle run is an interesting school physical activity, blending speed, courage and grace.

Hurdles (in school conditions – races with low obstacles) are comprehensive condition and coordination athletic event.

The final results depend on the speed, dynamic strength of lower (jumping abilities) and specific coordination. The latter involves response time, rhythmicity and spatial orientation. Hurdle run is a test of speed (hurdle run is a sprint run), strength (hurdle clearance = hurdle “jumps”), coordination (rhythm, balance), flexibility and lot of mental.

General principles in young children hurdle race are: height of obstacles (75% of leg length), distance of run (20-30 m for preschool and 30-60 m for school), number of hurdles (3-4) and distance to first obstacle (7-8 times of body height).

Hurdles for children obtains 6 stages:

- general (speed running and multiple jumping) preparation,
- stretching (for health and hurdle run),
- runs over points (flat stones, cones, leaves) and lines (cross bars, lines “painted” by foot on the field),
- runs over “areas” (“zones”) obstacles (mattress)
- run over “imitations of hurdles” (first of all – cardboards”),
- runs over light hurdles for children

Each of these stages has a specific type of hurdle training. We presented examples.

Key words: hurdle run, athletics, children

Introduction

The aim of this paper was to introduce into hurdle runs for children.

A hurdle race in a school (even preschool) physical education program is similar to original form of this discipline – it is a perfect obstacle sprint.

In our investigations we try to deal hurdle runs as a specific motor (speed + straight + special endurance) and coordinative (technique) track and field event. This article included drills and training programs to young hurdlers.

In summary: hurdle practice may be an attractive and comprehensive form of motor activity for boys and girls.

Hurdle run – what's that?

- Professional sport – including Olympic Games (from first competition in Athens 1896)
- School physical activity – including sport form youth and preschool running over hurdles and funny runs over other obstacles.
- Recreational type of movement – including children, parents and even grandparents

2. Criteria of obstacles

The criteria of obstacles selection in teaching of hurdling:

1. Safety
2. Availability
3. Possibility of using (light, not making noise, not devastating walls)
4. Realization of motoric requirements of this event (hurdle race is a sprint race)
5. Realization of technical requirements of the event (the movement of trail and lead legs)

Why hurdle races?

Since it is:

1. A natural form of movement. Races over natural obstacles were common even in primitive societies.
2. A cheap form of physical activity. In the school physical education we use carton boxes.
3. A safe (again against accepted opinions) form of movement. Runs over cartons or properly cut sponges even when hit do not cause falls.

4. Combining play and sport - sprint races + ability to clear low hurdles. These races may be carried out during sport competitions as well as fetes.
5. Great test combining motor preparation (speed+dynamic strength), coordination preparation (the ability to keep rhythm, clearing the hurdle with right and left leg, as well as some mental features (courage)).

3. Hurdle run – what’s this?

Hurdle run - physical activity:

- Interesting – fast races over high obstacles
- Excitation – rivalry with (sometimes) falls (Olympic Games in 1992)
- Fascinating – differences in the line are sometimes under 0,01 s (World Championships in 1987)
- For all – from children in preschools to masters over 70 years
- Possible in all places – tracks, fields, school halls, parks, woods ...)

Hurdle runs depend on S’s:(according McFarlane 2004)

1. **Suppleness** (= flexibility) – static and dynamic, important during warm up
2. **Strength** – power and strength endurance
3. **Speed** – it is a basic
4. **Stamina** (= endurance) – especially speed – endurance (particularly in 400 m H)
5. **Skill** (= drills, = technique) – elements of start, hurdle clearance and run between hurdles)
6. **Psychology** – passion, courage

Hurdle run is a test of:

- Speed (hurdle race is a sprint run)
- Endurance (distance 200-400 m H)
- Strength (10 hurdles = 10 „jumps” – „high-long” = 1,20 – 3,50 m”)
- Coordination (rhythm, balance),
- Flexibility (spine and legs’ joints)

Hurdle run is an excellent test of all motor conditioning and coordinative abilities

Rules (according to Iskra & Mynarski 2000) of hurdle race for children in schools -lessons at schools it’s no competition.

General principles:

- A. Height of hurdles – 75% of leg length
- B. Distance between hurdles – 4-4,5 x body height (3 strides rhythm)
- C. Distance – 10-60 m

D. Number of hurdles – 3-5

E. Distance to 1st hurdle – 4-8 x body height.

Table 1. Principles of a hurdle run for non-trained children aged 5-15

Age (years)	Distance (m)	Number of hurdles	Height of hurdles (cm)	Distance between hurdles (m)	Distance to 1st hurdle (m)
5-7	20	3	10-20	4.50-5.00	5-10
8-10	30	3	20-30	5.00-6.00	6-11
11-12	40-50	3-4	40-50	6.00-6.50	7-12
13-15	60	5	60-76	6.50-7.50	8-13

4. Hurdle's glossary

A. Basic hurdle definitions:

“rhythm”

(1) “a regular pattern of movement rehearsed to be as efficient as possible throughout the race...”

(2) [simply spelling] - „number of strides between hurdlers”

(3) “the ability to synchronize one’s cadence (repeated part of movement) with one’s speed, so that hurdling feels like a dance” [poetic definition]

“stride pattern”

- number of strides between following hurdles in individual cases (e.g. tall, fast pupil run in 3 stride pattern but small, slow another run over hurdle in 4-5 stride rhythm)

B.- hurdle arms and legs

In hurdle races we have 2 legs:

- 1) „lead leg” - the first leg to clear the hurdle (straight), movement like as a horse
- 2) „trail leg” - the second leg to clear the hurdle (bend in knee joint) = position of „pissing dog”

.... and 2 arms

- 3) „lead arm” - the arm on the opposite side of lead leg (straight)
- 4) „trail” arm - the arm on the opposite side of the trail leg (bend in the elbow)

Hurdle run – basic mistakes

- Jumping into the hurdles; reason: the hurdles are too tall.
- Running with „chooping” (= taking short) between hurdles; reason: interhurdle spacings are to „short”.

- Running with „over striding“ (= reaching for long strides between the hurdles); reason: interhurdle spacings are too long.
- „Vertical hurdle“ clearance (without „chest over thigh“); bend over the hurdle; reason: poor technique and flexibility.
- Losing the velocity in the second part of distance; reason: poor speed and endurance abilities.

5. Six stages of children's hurdle run

STAGE 1 - general motor preparation (especially in running speed and jumping abilities)

- hurdle run is a sprint run – children need to run short, flat distances,
- a hurdler is first of all a sprinter,
- hurdle run is a multi (10) „jump“ event – children have to practice all types of horizontal jumps,
- hurdlings is a faultless sprint over barriers.

Even at early stages of training process, it is possible to explain to children the connections between nature, sport and arts. On the occasion of fitness exercises, one can ask children the following questions: who is the fastest runner among the animals? (answer - a cheetah); which animal can march for a long time without water? (answer - a camel); which animal is the strongest one? (answer: an elephant, or maybe an ant?); which animal is the fittest and the most dexterous one? (answer: monkey,); which animal living in Australia is the champion in jumping? (answer: a kangaroo). Answers to these questions may be presented verbally, or through movement or drawing.

STAGE – 2 - stretching (for health and hurdle run)

- flexibility – range of movement in joints (especially – hip, knee),
- flexibility (suppleness) is an important part of a hurdle race,
- types of flexibility exercises in hurdle preparation:
 - static (= stretching, also joga),
 - dynamic (mainly – swinging),
- basic exercises –
 - „hurdle sitting“
 - stretching – it's a base for hurdlers
 - special flexibility (over hurdles).

The second stage of "training" hurdle races may be the next step towards the "play of imagination," linking the phenomena of nature, physical activities and artistic expression. As for stretching the muscles, which are necessary to effectively overcome obstacles, one may use the links between liveness exercises and dynamic forms of movement associated with

animals). For example: which animal does stretch itself and then quickly chase after the mouse?, how does a spider react to the insect by a rapid march around the web ?

Particularly helpful in shaping the motoric imagination of children are yoga exercises, whose structure is associated with specific animals (asanas: rabbit, cricket, cat, crocodile) or plants (tree).

As far as teaching skills involved in hurdle races, one may also use other associations: march of soldiers – sprint march with straight legs, a horse race - skipping B.

It is mandatory in teaching hurdle races to children to describe the position of the trail leg. It seems that a phrase "a peeing dog" is the most accurate - it appeals to children's imagination, refers to nature and it is correct from the point of view of specificity of hurdle races. This way, the collection of animals used to describe hurdle races is complete."

STAGE 3 - runs over point's and line's "obstacles"

The type of obstacles in teaching of hurdling:

1. Point - "ringo" rings, sand bags, rolled sashes
2. Line - boards, sashes, gymnastic sticks, sticks
3. Zone - mattresses, "hula hoop" rings, bike tyres, drown zones
4. Vertical - cones, tires, cartons
5. Vertical- zone Various layout of cartons
6. Hurdles - sponges, foamed polystyrene, mattress, specially constructed hurdles, standard hurdles
 - „hurdles” for preschool and first class school children – points and lines,
 - distance between „flat” hurdles – 3-4 m in preschools, 4-6 m in schools and 6-8 m in physical education high schools,

The greatest creative potential of children is associated with the implementation of point 3 of teaching hurdle races. In all five types of obstacles, one can be creative in researching "hurdles." A few examples are presented below:

- A. Points - each student (team) develops its own "logo" (e.g. size 20 x 20 cm), which is secured to the ground to form a "Pont run."
- B. Line - thin and straight clubs may constitute suitable equipment to learn hurdle race. Children can paint these clubs or tape them over in the patterns of their own choice.
- C. Zone - "zones" to overcome may be made of cardboard paper with distinctive drawings (e.g. featuring animals, flowers, cartoon characters, athletes, etc.). They may also contain

information about a specific branch of knowledge (e.g. concerning geography of Kenya / Poland, history, sports results, etc.). The runners defeated in the race may learn some new and interesting information.

STAGE 4 - runs over areas (zones) obstacles

- hurdle run is a specific run over 10 obstacles; one "hurdle step" (= "hurdle clearance") is 2,5-3,5 m long – it is an "area of hurdle clearance",
- "areas" ("zones") – zones between lines, mattress (placed across or longways),
- width of hurdle areas: from 0,5 (in preschools), across 1-2 (in schools) to 2-3 m (in physical education universities)

Implementation of vertical barriers is mainly related to the use of cardboard boxes, preferably boxes left after bananas. Cardboard boxes of a standard size 60x40x20 are excellent, cheap and safe substitute "equipment" to be used at the initial stage of teaching hurdles. Such obstacles may lie horizontally 20 cm in height (for 5-7-year-old children); when positioned on their longer side they are 40 cm long (for 8-12 year-old children) and when positioned on their shorter side (preferably two boxes placed side by side) they become 60-cm-high "hurdles" (for children and teenagers aged 13-15 years).

STAGE 5 - runs over "imitation" of hurdles

- first of all – "cardboards" – small for small children, the biggest even for physical education students – (see picture),
- from pack matches – to banana cartons (normalized to 20 cm x 40 cm x 60 cm),
- folding hurdle,
- block hurdle

Each of the obstacles may have an individual character - a theme of such a "hurdle work of art" and the technique of its preparation depends on teachers and students. Here are a few examples: technology - drawing with crayons, theme - "Your country"; technique - painting, themes - "you and your family"; technique - glueing over, theme - "National flag"; technique - glueing over with newspapers, theme - "Weird news"; technique - glueing over with colourful magazines; theme - "Your world of sport", "Your world of fashion", "Your world of film."

An obstacle of individual character has a different dimension - it links physical effort with a creative act. The use of vertical-horizontal barriers is associated with an opportunity to create spatial objects, using boxes of different sizes (from packages for matches to cardboards left after TV-sets.). Apart from earlier comments on the techniques and themes of "individualization of cardboard boxes", one should add at this stage an opportunity to

create a set of blocks (cardboard boxes) in the space used for hurdle races. The layout of boxes can vary, depending on the degree of sportsmanship of children and teenagers, the aims of training sessions and the number of cardboard boxes.

STAGE 6 - runs over various types of professional hurdles

- light (2-3 kg) hurdle for youth,
- professional hurdle for athletes (10 kg).

Types of stride pattern:

1. *Odd stride rhythm – one (left or right) lead leg*
 - A. 3-stride rhythm
 - B. 5-stride rhythm
2. *Even stride rhythm – two lead legs*
 - C. 4-stride rhythm
 - D. Various stride rhythms – (e.g. 3-5-7-5-3, 3-4-5-4-3 or “*garden of hurdles*”
 - E. Interval stride rhythm - = „*shuttle run*” – runs in two directions

Races over hurdles in various variants:

- runs over small boxes,
- runs over cartons placed on the longest edge (height 40 cm),
- a.m, cartons placed doubly (it prevents clearing the obstacle next to it),
- a.m. cartons placed on the short basis (height 60 cm),
- a.m. the distances enlarged of 0,5 m and next of 1m,
- a.m. to the set of cartons third is added, placed horizontally in front of the hurdles.

Using professional hurdles, one should pay attention to a few practical observations. First, hurdles, which are heavy (10 kg) and bulky to carry, are not suitable for activities with children. Secondly, hurdles for youths (expensive, sometimes difficult to obtain) are not better than cardboard boxes. Thirdly, hurdles made of paper are safe and they constitute personal property (and therefore are protected.) Fourthly, the experience of teachers and trainers from Europe (mainly from Germany, the Czech Republic and Poland) confirms the advantages of substitute equipment in teaching hurdle races to children.

6. “Training” in hurdle run

10 basic hurdle drills for everybody:

1. Hurdle technique in place (“hurdle sitting”, “pissing dog”)
2. Hurdle “walking” (“marching”) without hurdles (“lead leg action”, “trail leg action”)
3. Hurdle walking over hurdles
4. Skipping at the side of hurdle (“lead leg skipping”, “trail leg skipping”)

5. Running in uneven (odd) stride pattern (3,5 and to the end in 1 stride rhythm)
6. Running in even stride rhythm (4,6 and to the end in 2 stride rhythm)
7. Running in different stride rhythm (e.g. 3-4-5-4-3 strides)
8. Hurdle running on the curve
9. Running from crouch start
10. Running in competitions (from class championships to Olympic Games final)

“Funny hurdles for children”

A. Warm up:

- Sign your carton (paint, stick papers, write)
- Running in the „carton” field
- Circling with cartons in arm
- Jumping over cartons (in the place and as a multi-jumps)

B. Main part:

- Running over low cartons (various – 3-5 m distance between cardboard boxes)
- Running over double cartons (distance between them -5 m, 3-stride rhythm)
- Running „over figure” from cartons
- „Banana cartons” shuttle relay

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SPORT AND ART CONNECTION – SWINGING THROWS - FROM ASYMMETRY AND COORDINATION TO SCHOOL RECORDS

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Abstract

Javelin throw is the most difficult athletic discipline. Swinging throws is a group of the simplest and most interesting plays in a group of school and pre-school children. An ability to throw from above the head was essential in the period of primitive community.

On the effectiveness of throwing classes with children depends e.g. on the equipment, which must be safe, colourful, inexpensive and adapted to the specifics of the event.

Therefore equipment made of paper, rags and plastic bottles made by "young athletes" should be used for teaching athletics throws in schools.

The following elements can be distinguished in teaching methodology:

- functional asymmetry (right and left handed throws),
- throwing coordination (aimed throws and distance throws, throws from different positions - squat, kneeling, lying),
- throws with different equipment (from "fun" to professional).

The work includes many examples of preliminary and basic exercises, as well as outdoor games and activities in preschools and schools.

Key words: swinging throws, aim throws, athletics, children

1. Introduction

The danger of javelin throw makes school teachers reluctant to favour that type of athletics. The usefulness of throws in school athletics depends on:

- the weight of equipment (from putting a crumpled newspaper to professional shot put) – create light/paper shot,

- the kind of equipment (from classic equipment to substitute forms intended for the youngest children) – your own “javelin” from wood stick,
- the type of competition (distance throws and aimed throws) – create the aim from cartoon boxes or plastic bottles,
- the place of training (from stadiums to small kindergarten classrooms) you can exercise in small classrooms,
- the purpose of competition (contest or fun?),
- the form of movement (throws, as well as lifting and carrying) – thrower must be clever and strong.

2. Detail schedule of swinging throws teaching

I. Various equipment

Overhand throws are completely primeval, natural form of physical activity. In primitive societies and among nomadic peoples stone and spear throws determined success in obtaining food.

Modern times require from teachers teaching one-handed throws over the head (= overhand throw). Due to possibilities and safety precautions we use substitute forms of a classic Olympic competition, namely javelin throw. Depending on age one may use the following: socks rolled into a ball, balls of different size made of paper, balls made of sponge, tennis balls, equipment for youth used for throwing (Vortex, plastic javelin), balls for team games (volleyball, basketball, football, handball, baseball), medicine balls (1-4 kg) and classic javelins.

Young children can make and decorate sport equipment on their own. Here are some examples: make a ball of colourful socks or rags, you have at your disposal papers in 3 colours (black, red and green) – make a ball in national colours of Kenya, bring a colourful newspaper and make of it a ball for rounders, bring 1-meter-long rod and make of it a spear with a symbol (of a summer camp group, a tribe), paint a sponge ball in national colours.

Summary:

Create your personal ball
(newspaper + tape, collared pencils or markers)

Stages:

From children equipment (socks, paper-balls, sponge balls)
- across school (vortex, school javelin)

- to professional (classic) (javelin, heavy equipment - save + funny + adequate to event).

II. Various aims – not only distance

To make targets, we must take into account the material they are made of. It is a perfect moment for lesson of ecology when we teach children about necessity of reusing rags, paper, tins, plastic bottles, etc. The most often used targets are the following: cardboard boxes, tins, plastic bottles, targets made of large sheets of cardboard, items designed by children and made of rags, paper, tins and plastic bottles. Apart from an ecology lesson, we may highlight artistic skills of pupils. Here are the examples: paint 3 tins which are targets for lesson of throwing, stick newspapers to a cardboard, fill a bottle with sand and shells.

During the throwing lesson, we may also teach children English, mathematics, history, etc. Here are the examples: stick numbers from 1 to 6 onto 6 tins, after a series of throws count score; there are English words written on plastic bottles, explain their meaning after they are hit; paste various geometric figures (circle, square, triangle), after a throw at the chosen target we say what figure it is.

Throws at target are only one type of overhand throws. Throws over some distance are very popular, being a miniature of modern Olympic contests. While at school, one has to remember to train throws with both right and left hand. It allows one to hone co-ordination skills and train abilities to cope with one's body in various circumstances. Throws over a distance allow one to select the most skilled pupils, who will later on perform long javelin throws.

Targets for lesson of throwing may be different, here are some examples: horizontal target - there is a rubber ring on the ground and one has to throw a ball (a small sack) into it; vertical target - there is a ball in a net hanging on a tree; moving target - the same as above, but the net moves sideways.

Summary:

- Create your aim (= ecologic lesson)

Aims from:

- paper
- plastic bottles, tins (cans)

Types of aims

- A. Distance throws
 - Left and right throw

- Throws from various positions

B. Aimed throws

- Horizontal (areas from papers box)
- Vertical (plastic bottles, tins)

Moving (paper box in plastic net on the line)

Sometimes, we can combine tasks throwing both at target and over a distance. For example: there are empty banana cardboard boxes at a distance of 10, 20, 30 m. One gets 1 point for hitting the box at 10 m, 3 p. – 20 m, 5 p. – 30 m. The score is counted after performing 5 throws.

III. Various positions

Classic thrust position in overhand throws is standing with left foot in front and right hand spread back to the maximum. However, we sometimes use lower positions which limit the distance of the throw and cause the throw to be more a form of play than sport.

While teaching overhand throws, the kneeling position is the one which is the most often used (on one knee or both), followed by the sitting position (cross-legged, upright, Japanese, etc.) as well as lying on the stomach.

Children may invent for fun and recreation other thrusting positions, e.g. scales position or standing on one foot.

When overhand throwing from the spot is taught we use marks pasted on the floor – they show places where left and right foot should be placed. Children may design these marks themselves and paste them onto the floor.

Summary:

Create your position (= coordination abilities)

Basic Position:

- Standing
- Kneeling
- Lying
- Your own position (non-standard and “funny”)

IV. Various hands

6. We often forget that overhand throws are not just to reveal motoric capabilities but also to identify co-ordination capabilities. Hence, at the initial (school) stage one should use throws with both left and right hand. Proper performance of a throw with the opposite

(“worse”) hand allows one to control body movements regardless of the domination of a hand or leg. Besides, throws with the use of the opposite hand may be an attractive form of competition even for children who have less developed motoric skills. Actions which are very easy for the dominating hand (right) may be a real challenge for the opposite one (left).

Summary:

- use your both hands(= asymmetry in throws)

Left + right + both hands:

- Olympic both hands (sum of results)
- „Both hands” to aim
- Proper both hands throws with medicine balls (squat and throw, forward through the legs, over-the-back throw)

V. Basic technique

7. Details of the technique of javelin throw may be too complicated for children and teaching the technique (from their point of view) is difficult and boring.

In teaching overhand throws, one should focus on unambiguous simplified approach to thrusting position concentrated around points A, B and C. One should not bore children with details - the key to get them interested in a given move is simplicity, clear rules and a lot of fun.

Summary:

- standing (ABC)

- and short running (+ D) – with two steps on the next „funny markers” (follow – through step)

Main principles of swinging throws:

- A. Stand on the „funny markers” (the body facing a quarter turn away from the area/target)
- B. The hand (with ball) + farthest away from the area
- C. The leg (opposite of the ball – hand) far foreword

3. Funny games with swinging throws

Due to that one should employ most of all teaching in a form of games. Below 3 games have been presented which help to teach overhand throws.

In the games involving physical movement, one should join physical activities with learning about different aspects of everyday life: ecology, science, sport, etc. Within this current, one may enumerate several ideas: we learn colours (e.g. newspapers that we use to make balls from have different colours), we learn shapes (e.g. the targets may have the shape of a square, triangle, circle, etc.), we compare sizes (e.g. for hitting small targets one scores more points than for hitting large ones), we make our own targets and equipment (we learn creativity, e.g. with the use of items meant to be rubbish: rags, paper, tins, plastic bottles, etc.), we make a hero-warrior, fighting with, for example, a javelin (a Kenyan warrior, European Robin Hood or world champion in javelin throw); boxes with questions may also serve as targets: easy questions in remote boxes, harder questions in the nearer ones. Topics of the questions may be different, e.g. sport (e.g. "the best runners of Kenya), patriotic ("facts from history of Kenya") or related to other subjects (e.g. English vocabulary or details from geography of Kenya).

Three games which can be used while teaching overhand throws to children are presented as examples to choose from.

Examples:

A."Letters"

Place of the game: any flat area,

Number of players: any

Age of players: any

Equipment: paper balls, cardboard letters, tapes marking out the throwing zone

Positioning: one next to another, before the throwing line

Course of the game: in the distance of 10 m from the players, there are cardboard letters scrambled in the area of throwing zone. The task of the players is to arrange any word from a certain number of letters, as quickly as possible. The choice of a letter is made by an accurate throw to it. Each player may perform just one throw and the succession of throws is not specified. The winner is the team who is quicker in this task.

Important: each team has the same set of letters.

B."The Bottle"

Place of the game: any flat and safe area,

Number of players: any, even

Age of players: any

Equipment: paper balls, plastic bottles

Positioning: two rows

Course of the game: ten meters from the rows, there are two plastic bottles (stuck in the ground). At the signal of the teacher, first players in the rows try to aim the bottles. Then, at the signal of the teacher, other pair come to the throwing line. If any throw changes the position of the bottle, it must stay at the place. The winner is the team who manages to pierce the bottle. (both games according Migasiewicz et al. 2005)

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INTERACTION EFFECT OF INTEGRATIVE TEACHING APPROACH AND STUDENTS' LEVEL OF PROFICIENCY IN ENGLISH LANGUAGE ON STUDENTS' ACHIEVEMENT IN SENIOR SECONDARY SCHOOL MATHEMATICS

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Abstract

The author examined the interaction effect of integrative teaching approach and students' level of proficiency in English language on senior secondary school students' achievement in mathematics. The sample comprised 284 senior secondary school two students. Their ages ranged between 17 and 19 years. There were two treatment groups: Experimental Group (Integrative Method) and Control Group (Dominative Group). Data were analyzed using Analysis of Covariance. Results showed that treatment and proficiency in English Language had statistically significant effect on students' achievement in mathematics. More importantly, the interaction effect of treatment and students' level of proficiency in English language was significant. Students who were classified as being high in level of proficiency in English language and were in the integrative teaching approach group performed better than their colleagues in the dominative group. However, generally, students in the integrative group performed better than their colleagues in the dominative group. A major implication of this study is that mathematics teachers should avoid dominating teaching and learning activities in the classroom. Mathematics teachers should assist students who are weak in English Language by explaining mathematics concepts in both English Language and the mother tongue.

Key words: Classroom interaction; Mathematics Education; Dominative Approach; Integrative Approach;

Introduction

African countries must develop their science and mathematics education in order to keep them competitive and relevant in an increasingly technology-based world. This is because mathematics and science has made the world a global village and technology-based. Although many African countries are making effort at improving mathematics education at all levels of the educational system, it appears that the returns in terms of students learning

outcomes are little. For example, in Nigeria, according to National Examination Council (2009), the level of students' performance in mathematics at secondary school level continues to decline. The trends in the performance of candidates who sat for the senior secondary school certificate examination (SSCE) between 2005 and 2009 shows that on the average, less than 25% of the total candidates made distinction and credit level passes (West African Examination Council [WAEC], 2009).

From literature on mathematics education, many reasons have been adduced for this low level of performance of students in mathematics and in the same vein many solutions have been proffered. Notable among these reasons are ineffective teaching methods (Ball, Hill, & Bass, 2005; Ketterlin-Geller, Chard & Fien, 2008), quality of instruction (Adegoke, 2003; Adegoke, 2011) students negative attitude towards mathematics (National Mathematics Advisory Panel, 2008), academic procrastination (Akinsola, Tella & Tella, 2007), lack of proficiency in the language of instruction (Abed & Lord, 2001; Adegoke & Ibode, 2007; Fakeye & Ogunsiji, 2009; Feast, 2002; Mosqueda & Tellez, 2008; WAEC, 2009) lack of logico-mathematical ability (National Mathematics Advisory Panel, 2008; Paik & Mix, 2008) and perceived difficult nature of mathematics (Kroesbergen & Van Luit, 2003; Olatoye, 2007). Many solutions, such as the use of personalization approach, laboratory instruction and multimedia instruction among other intervention programmes have been proffered; yet, students continue to perform poorly in mathematics. However, the issue of how students proficiency in English language interacts with integrative teaching method to increase students achievement in mathematics has not been thoroughly discussed in literature in Africa and other countries which were colonized by Britain.

Britain colonized many African countries including Nigeria, Kenya, and Zambia, among others. As a result of this, English language becomes the official language of these colonized countries. Teaching and learning in schools even from primary school level up to the university are conducted in English language (Adegoke & Ibode, 2007; Dlodlo, 2008). It therefore follows that how well students would fare in academic attainment in Mathematics depends largely on their level of proficiency in English language. In this study, the researcher hypothesizes that students' proficiency in English language is likely to be an essential ingredient to improving their performance in Mathematics.

Although there is a long standing myth in mathematics education that the level of English language proficiency of students is not an issue in instruction because mathematics is a universal language (Callahan, 2005; Gutierrez, 2002), recent researches (e.g. Adegoke and Ibode 2007; Fakeye & Ogunsiji, 2009; Mosqueda & Tellez, 2008) suggest that English language proficiency play a crucial role in the learning of mathematics. For example, among Nigerian secondary school students, the correlation between their English language proficiency level and Mathematics achievement has been found to be high and positive

(Adegoke & Ibode 2007; Fakeye & Ogunsiji, 2009). Also studies such as Abedi and Lord (2001) and Mosqueda and Tellez (2008) found that students' proficiency in English language among Latino English learners plays a significant role in their learning of mathematics, particularly for ensuring that they are able to comprehend, and then apply, complex mathematical concepts.

Solving mathematics problems require analytic reading and skills in translating the verbal statements into algebraic language. For a student to succeed in mathematics he or she must learn these skills. The question that arises now is: should the teacher assume the sole responsibility for giving training to the pupils in analytic reading and problem solving skills through dominative approach? Or should the teacher encourage the pupils to develop analytic reading and problem solving skills on their own through integrative approach? Which method will make the students proficient in solving mathematics problems? What teacher behaviour is dominative and which is integrative? Do these teacher behaviours promote or hinder students learning outcomes in mathematics? To what extent do these behaviour interact with students' proficiency in English language in engendering meaningful learning of mathematics? These are the major focus of this study.

The earliest works on integrative and dominative behaviour in classroom situations were by Anderson (1939), Amidon and Flanders (1967), Amidon and Hough (1970). Notable among the recent works are Adegoke (2003), King and Rosenshine (1993), Rodriques and Bell (1996), and Turner, Midggley, Meyer, Gheen, Anderman, Kang, and Patrick (2002). For example, Amidon and Flanders (1967) examined the influence of integrative and dominative teaching method on students' achievement in geometry in Minneapolis District in United States of America. Turner, et al (2002) examined how students' involvement in classroom teaching and learning processes affected their academic performance.

According to Anderson (1939), dominative behaviour is characterized by a rigidity or inflexibility of purpose, by unwillingness to admit the contributions of another's experiences, desires, purposes or judgments in the determining of goals which concern others. In the classroom a teacher who adopts dominative approach tends to use lecture method often, gives instruction and solely directs teaching - learning activities in the classroom. The teacher usually stifles students' opportunities to contribute to the teaching and learning activities in the classroom. In the classroom context, domination expresses the social contacts between the teacher and the students in which the activities of the students are determined solely out of the experience or judgment of the teacher. The psychological assumptions are that the students in such a social contact learn less and grow less in other respects to the extent that the teacher decides what is to be done and how and when to do

it. Telling them is assumed to be not only psychologically different from asking them, but in general it is assumed to be less propitious from growth, learning, and problem solving

Integrative behaviour, according to Amidon and Flanders (1967) and Fish and Dane (2000) is characterized by flexibility of purpose, by willingness to make allowance for differences in others and always ready to incorporate other experiences and ideas when taking groups' decision. In the classroom, a teacher who adopts integrative approach tends to use discussion and questioning method. The teacher maximizes students' opportunities to contribute to the teaching and learning activities in the classroom. Since integrative behaviour makes allowance for differences in others it is consistent with the concepts of growth and learning (Adegoke, 2003; Turner, et al, 2002).

Findings from studies (e.g. Adegoke, 2003; Amidon & Flanders, 1967; King & Rosenshine, 1993; Turner et al, 2002,) point out that learning outcome of students in class where the teacher adopted integrative approach seemed significantly better than those students who were in the class where the teacher adopted dominative approach. However, there is a dearth of literature on the extent to which the interaction of students' level of proficiency in English Language with integrative approach affects students learning outcomes in mathematics. Therefore in this study, the author specifically advanced only one null hypothesis for testing.

Ho: The interaction of students' proficiency in English Language and teaching approach will not have statistically significant effect on students' achievement in mathematics

Methodology

Participants: The sample comprised 284 (150 boys and 134 girls) senior secondary school Two (SSSII) students drawn from two senior secondary schools in Isokan Local Government Area, Osun State, Nigeria. Their ages ranged between 16 and 19 years (Mean Age = 17.3; SD = 1.07). In each of the schools that were sampled, an arm of science class as well as all the students in the class participated in the study.

Materials: Three research instruments were used. These were modified form of Flanders' Interaction Analysis Classification System (FIACS), Mathematics Achievement Test (MAT), and English Language Proficiency Level (ELPL).

FIACS: Verbal classroom behavior that occurred in the classrooms was measured by a trained observer using a modified form of FIACS. It is based on Flanders's category system of teacher talk, pupil talk and silence; however, it consisted of sixteen categories. It can

capture essential verbal interactions among the teacher and the students during teaching and learning activities in the classroom. (See Amidon & Hough 1970 for detailed discussion on FIACS). It has been effectively used in many cultures.

MAT: This consisted of 40 items on geometry as prescribed by the Mathematics Curriculum prepared by the Federal Ministry of Education, Abuja, Nigeria. The items were developed from topics that were meant for 1st Term of 2010/2011 academic sessions (September - December) in Osun State School Calendar. The reliability coefficient of MAT was 0.79 while the discriminating and difficulty indices of the items ranged from 0.71 to 0.82. The content validity was determined and it was found that the test was valid in terms of content; this was through the table of specification based on knowledge, understanding and thinking.

ELPL: Although there are many ELPL tests, in this study however, the research decided to construct ELPL based on the items normally used by WAEC to grade Nigeria Students' proficiency level in English. This consisted of 60 multiple choice test items on the use of English Language. The items were drawn from past question papers of WAEC between 2005 and 2009. The items covered vocabulary (synonyms) vocabulary in context, word usage and questions on a combination of rhymes homonyms and word completion. The reliability coefficient of ELPL was 0.64 while the discriminating and difficulty indices of the items ranged from 0.56 to 0.62. Based on their scores in ELPT, the students were divided into three English language proficiency groups. Students whose ELPL score were among the top 50% of each class were classified as the high English Language achievement group. Students whose ELPL score were within the bottom 50% of each class were classified as the low English Language achievement group

Procedure:

Four intact classes were used for the experiment. There were two groups. In group one, the teacher adopted integrative behaviour in the class, while in group two, the teacher adopted dominative behaviour. The author of this paper acted as the teacher in the two treatment conditions to avoid differences in personality and appearance. This is line with the suggestion of Amidon and Flanders' (1967) who asserted that the same teacher should dispense the contrasting treatments in order to avoid differences in personality. Many researchers (e.g. Adegoke, 2003; King & Rosenshine, 1993; Rodriques & Bell, 1995; Turner et al, 2002) have adopted this method. However, all the statements made in the classroom were classified by a trained assistant who served as independent observer. This was to demonstrate that desired differences were great enough for students to notice.

All the sessions were video taped. Whenever the teacher talked, the independent observer classified all teacher and student statements according to modified Flanders system of Interaction Analysis. At the end of the eight weeks experiment, the validity and reliability of the observer's judgments were verified by studying the tape recordings that were made of every experimental session. The reliability of the observations in the live situation ranged between 0.79 and 0.81 Scott Π method. This showed that the errors of observations at this level of reliability are extremely small.

Control of learning was accomplished by using pre- and post tests of mathematics achievement.

Experimental Group I: Integrative Teaching Approach

One hundred and forty three students were in this group. The treatment in this group consists of soliciting the opinions or ideas of the students, applying or enlarging on those opinions or ideas, praising or encouraging the participation of students or clarifying and accepting their feelings. The behavior pattern of the teacher was essentially integrative. The teacher expanded the students' opportunities for active participation in the teaching and learning on how the value of Π was determined in the classroom during the experimental weeks. For example, the teacher provided opportunities for students to ask questions to which the teacher encouraged other students to provide answers. Examples of problems on geometry were solved in the classroom (see Example 1).

Example 1 gives excerpts of the interaction in the class while solving problems in geometry.

Example 1: Determining the value of Π from circumference of a circle.

Excerpts of Teacher – students' Interaction in the integrative group

Teacher: Recall that in our previous discussions, we have discussed about the formula for finding the circumference of a circle. Who can remind us the formula?

Students: I sir, (chorus answer)

Teacher: Yes, Taiwo (Teacher points to Taiwo)

Student: The circumference of a circle is equal to Πd .

Teacher: Good, Senabu, (Teacher points to Senabu), what does d mean?

Student (Senabu): The diameter of the circle

Teacher: Who can make Π the subject of the formula?

Students: I sir (chorus answer)

Teacher: Richard (Teacher points at Richard). Come to the chalk board and do it

Student (Richard) (The student moves to the teacher, collected chalk and moved to the board, and writes) π is equal to circumference of the circle divided by diameter

Teacher: Good. Clap for him

Teacher: Tomorrow we shall conduct experiment on how we can determine the value of π . To achieve this I want all you to bring many plates which have circular surface to school tomorrow. Will you do that?

Students: Yes (Chorus answer)

Experimental Group II: Dominative Teaching Approach

One hundred and forty one students were in this group. The treatment in this group consists of stating teacher's own opinion or ideas and directing the student's action. The teacher presented the materials - solving for π in the equation for finding the circumference of a circle in form of lecture. The teacher talked most of the time, explained the materials, while the students listened attentively and took notes. The students asked questions to which teacher provided answers. The teacher also asked questions to which the teacher provided answers whenever they were unable to provide correct answers.

Examples of problems on geometry were solved in the classroom (see Example 1).

Example 1: Determining the value of π from circumference of a circle.

Excerpts of Teacher – students' Interaction in the dominative group

Teacher: Recall that in our previous discussions, we have discussed about the formula for finding the circumference of a circle.

Teacher: (Begins to write the formula on the chalk board and uses the change of formula to express π)

Student: Sir, how did you come about the π in the formula on the chalk board?

Teacher: Just pay attention to what I am doing. You will understand it as I explain. (There was a few minutes of silence and the teacher added) Well you need to cross multiply. Look at what I have done (The teacher points to the chalk board)

Teacher: The value of π is always 3.142 as I have already told you in our previous lesson. We will show this is obtained in our mathematics experiment tomorrow

Teacher: Tomorrow you must all bring at least six different types of food plates of different sizes having circular surfaces. We shall conduct experiment.

The treatments in each of the contrasting groups lasted for eight weeks. In each group there were three sessions of thirty-five minutes per session per week. At the end of the treatments, post test of mathematics achievement was administered to the students.

RESULTS

Testing of the hypothesis

A 2 X 2 analysis of covariance (ANCOVA) tests was conducted to determine the interaction effect of integrative and dominative teaching approach and students' level of proficiency in English Language on students' achievement in mathematics. Students' math previous scores in JSSCE were used as covariates. The ANCOVA test for homogeneity of regression slopes showed that factors and covariate interactions were not significant.

Hypothesis: Interaction of students' proficiency in English Language and teaching approach which the teacher adopts will affect students' achievement in mathematics. Table 1 presents the ANCOVA results and it reveals significant interaction effect of students' level of proficiency in English language and teaching approach which the teacher adopted on students' achievement in mathematics $F(1, 279) = 19.139, p < .05, \eta^2 = .064$. The significant difference observed in the achievement among the groups indicates that the hypothesis is rejected. The effect size of 6.4% is fair.

Table 1: Summary of ANCOVA Results.

Source	Sum of Squares	Df	Mean Square	F	Sig.	Eta Squared
Corrected Model	3260.787	4	815.197	21.376	.000	.235
Intercept	10540.700	1	10540.700	276.402	.000	.498
Covariates	66.479	1	66.479	1.743	.188	.006
TRT	411.734	1	411.734	10.797	.001	.037
ELP	1519.246	1	1519.246	39.838	.000	.125
TRT * ELP	729.887	1	729.887	19.139	.000	.064
Error	10639.790	279	38.135			
Total	216746.000	284				
Corrected Total	13900.577	283				

Note: TRT = Treatment; ELPL = English Language Proficiency Level respectively

As a result of the interaction effect of students' level of proficiency in English Language and teaching methods which the teachers adopted, there is the need to disentangle the interaction. A plot of the students' scores as shown in Table 2 was carried out. Figure 1 shows the disordinal interaction.

Table 1: Descriptive Statistics of Mathematics Achievement: TRT*ELPL

Group	N	Mean	SD	Lower Bound	Upper Bound
95% Confidence Interval					

Integrative					
Low ELPL	58	24.93	2.33	23.23	25.30
High ELPL	76	28.74	8.84	27.91	29.97
Dominative					
Low ELPL	85	25.25	4.15	23.23	25.30
High ELPL	65	27.95	6.95	27.91	29.97

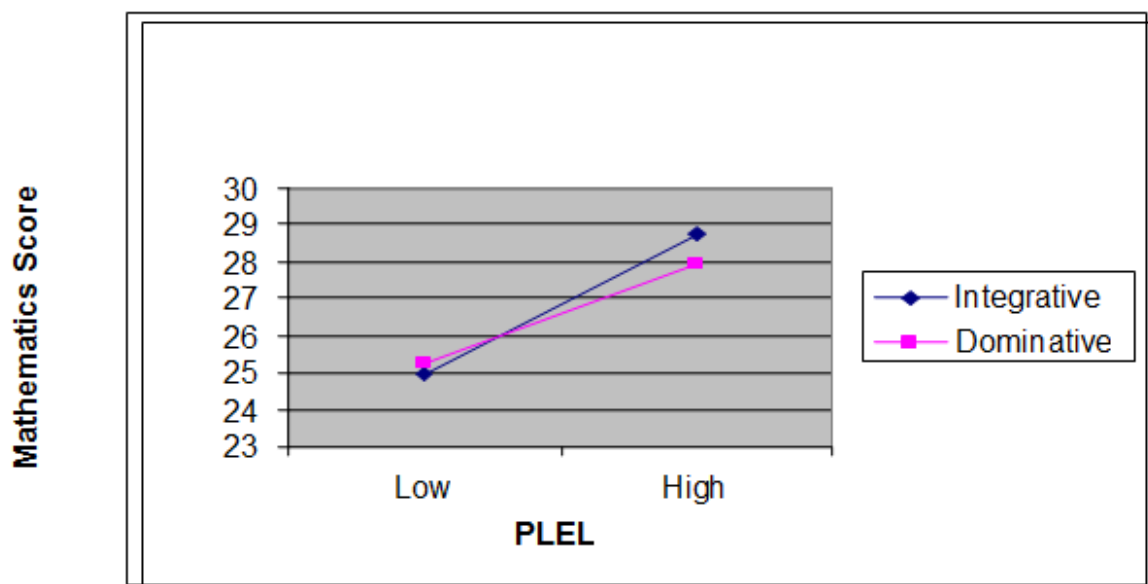


Figure 1: Interaction of TRT and ELPL

Note: TRT represents Treatment (Integrative versus Dominative Approach) while ELPL represents English Language Proficiency level

Figure 1 shows that students who were classified as high in English language proficiency level and were in the integrative group had the best performance among the participants.

Discussions and Implications

The findings of this study show that English Language proficiency of the students has a significant effect on their cognitive achievement in mathematics. Students who were classified as being high in English Language Proficiency performed better than their colleagues who were classified as being moderate or low in English Language Proficiency. These findings were in consonance with the findings of (Adegoke & Ibode, 2007; Fakeye & Ogunsiji, 2009; Feast, 2002). It therefore follows that how well students will fare in academic achievement especially mathematics depend largely on their proficiency in the

language of instruction (i.e. English Language in countries that have adopted English as the medium of instruction in schools).

A major implication of this study is that mathematics teachers should avoid dominating teaching and learning activities in the classroom. Mathematics teachers should assist students who are weak in English Language by explaining mathematics concepts in both English Language and the mother tongue. More importantly, efforts should be geared towards making students more proficient in English Language. Mathematics and English teachers can collaborate to achieve this.

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CORE SELF EVALUATIONS AND EMOTIONAL INTELLIGENCE AS CORRELATES OF JOB SATISFACTION AMONG SENIOR SECONDARY SCHOOL TEACHERS.

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Abstract

Job satisfaction is a pleasure that an employee derives from his job. The level of contentment determines the employee's job satisfaction. It is an attitudinal variable that describes how people feel about their job. This study therefore investigated Core Self Evaluations and Emotional Intelligence as Correlates of Job Satisfaction among selected Senior Secondary School Teachers in Oyo and Ogun States of Nigeria.

Correlational design was adopted for the study. The sample consisted of three hundred participants drawn from twelve selected schools. Simple random sampling technique was used to select the participants. Six valid and reliable instruments were used for data collection; Self Esteem Scale ($r = 0.86$), Generalised Self Efficacy Scale ($r = 0.75$); Neuroticism Scale ($r = 0.86$); Emotional Intelligence Scale ($r = 0.84$); Work Locus of Control scale ($r = 0.76$) and Job Satisfaction Scale ($r = 0.82$). The administration lasted four weeks. Data collected were analysed using Correlations and Multiple Regression Analysis.

The result shows that the independent variables (Core Self Evaluations and Emotional Intelligence) jointly and relatively contributed to the dependent variable (job satisfaction among secondary school teachers). On the strength of the findings, the need to foster the variables of Core Self Evaluations and Emotional Intelligence to enhance Job Satisfaction was stressed and advocated.

Keywords: Core Self Evaluations, Emotional intelligence, Job Satisfaction.

Introduction

The greatness of a nation does not only depend on the abundance of her mineral and natural resources, but on her educational system and its agent (teachers). The teachers are

central to the growth and transformation of the school system and the society in general. They served as a pivot for purposeful, meaningful and effective teaching and learning (Salami 1999; Adokiye 2005). The teachers are saddled with the responsibility of translating the broad national goals of education into reality, by splitting these goals into achievable objectives (Adokiye, 2003). Adeyemo (2000) maintained that reference is often made first to the teachers in diagnosing educational problems, especially failure. It is also not uncommon to hear people remarking that the present day teachers are not as good and committed as their yesteryears counterparts. This attested to the fact that teachers are indeed a critical factor in the actualisation of the school and educational goals. Falayajo, (2004) corroborated this, that in Nigeria education today, teachers are no longer ready and obliged to do work as demanded by the profession because teaching has taken the second place in the scheme of things, thus made the welfare of the teachers to be at the mercy of the policy makers and not a compulsion.

The problems facing teaching profession are many, these include among others; poor welfare system, bad conditions of service, battered image of teachers, politicisation of education, inadequate admission into teaching profession, inadequate teachers training programme and so on (Nbakwem, 2007). Teachers are no longer happy doing their primary assignment and so not committed to the job because they are less satisfied (Obemeata, 2001). For teachers, the issue of job satisfaction becomes very important considering the fact that quitting the job negatively affects the society as a whole (Verdingo, Greenberg, Handerson, Uribe & Schneider, 1997).

In recent years, there has been alarming reports regarding severe teacher shortages. Many researcher and lay people posit that the shortage of teachers is due to both increasing student enrolment and an increasing number of teachers retirement (Ingersoll and Smith 2003). They also found out that the above two occurrence are not the primary causes of staffing difficulties and teacher shortages but that voluntary teacher turnover is the larger problem. Turnover rates in education take place at an elevated rate with approximately 8% of teacher leaving the profession annually (WCOS, 2003). Teachers quit their job as twice of other professions (Hess, 2007). The cost of replacing all public school teachers who have left the profession is estimated to be around 2.2 billion each year (Alliance for education, 2005). Younger teachers tend to leave during the beginning of their careers and older workers leave as they retire (Lachman & Diamant 1987). Men leave the teaching profession more often than women. (Billingsley, 2004, Coladara 1992). High rate of teachers' turnover continue to be a problem in the country. Up to 25% of the new teachers do not return for their third year of teaching and almost 40% leave the profession until their first five years (Groid, 1996).

Teaching work as one of the helping professions is facing serious problems in Nigeria. Teachers no longer satisfied with their job and some are not even committed as a result of poor welfare and incentive systems given to the profession. Some take to teaching because they could not get a better one. Things should not be allowed to continue like this, teachers' job satisfaction need to be given high priority in order to enhance standard of education and also to improve student performance.

Job satisfaction is related to positive outcomes in the work place such as increased organisational citizenship behaviours (organ & Ryan, 1995) increase life satisfaction (Judge, 2000) decrease counter productive work behaviour (Dalal, 2005) and decreased absenteeism (Handy, Woods and Wall 2003). Each of these outcome is desirable in organizational and as such shows the value of studying and understanding job satisfaction (Cook, 2008).

Job satisfaction has also been considered to be a function of the perceived relationship between what one perceives is offering, what an organisation require of its employee, and what the employees are seeking from the firm (Sinclair, 1992). Job satisfaction is an extremely complex construct that no simple model can adequately unfathomed its meaning (Hagerdron, 2000). It is affected by factors such as promotional opportunities, pay satisfaction, considerate and participative supervision, opportunities to interact with peers, a variety of duties and a high degree of control over work methods and space (Villard, 2004).

Bradley and Brain (2003) maintained that employee's job satisfaction is pleasure that an employee derives from his/her job. It is an attitudinal variable that describes how people feel about their job (Agho, Muller & Price 1993). Sousa – Poza and Sousa – Poza (2000) suggested that job satisfaction is determined by the balance between inputs and outputs. It depends on balance between work role inputs (pain) like education, working time, effort and work output (pleasures) like wages, fringe benefits, status, task importance, working conditions and intrinsic aspects of the job. It is a situation when outputs (pleasure) are relative to work role input (pains) (Brader, 2000).

Job satisfaction is a function of expectations and achieved outcomes on job. It is understood to be a sum of cognitive, affective and evaluative reactions resulting from experiences at work (Locke, 1976); job characteristics (Judge, Bono & Locke, 2000) and work environment (Judge & Watanabe, 1993; Shalley, Gilson and Blum 2000). It has been found to be strongly associated with disposition of individuals (Judge, Hellers & Mount, 2000). Evidence from the studies of Awosanya (2010); Judge & Bono (2001); Piccolo, Takahashi, Watanabe & Locke (2005), pointed to the importance of job satisfaction among employees. Apart from

these, other factors that can also influence job satisfaction of public employees include emotional intelligence and core self – evaluations (Judge & Bono, 2001; Vohra, 2009; Awosanya, 2010, Piccolo, Takahashi, Watanabe & Locke 2005) among others.

There is a strong relationship between emotional intelligence and job satisfaction. In Hong Kong, there has been an increasing acceptance of the notion of emotional intelligence as it applies to job satisfaction among Hong Kong educators (Chan, 2002). It is recognised that teachers have to confront students who come to the regular classroom with diverse abilities as well as behavioural and emotional problems. It is therefore contended that teachers need to be prepared in helping students through both teaching and guidance activities that required their emotional intelligence in empathy and social – interpersonal areas (Chan & Hui, 1998).

Emotional intelligence refers to the ability to recognise and regulate emotions in ourselves and others (Goleman, 2001) Peter Salovey and John Mayer who originally used the term emotional intelligence in published writing initially define it as a form of intelligence that involves the ability to monitor one’s own and others feelings and emotions to discriminate among them and to use this information to guide one’s thinking and actions (Salovey & Mayer, 1990). Later they revised the definition and came out with another one that define emotional intelligence as the ability to perceive emotion, integrate emotion to facilitate thought, understanding emotions and regulate emotion to promote personal growth. (Mayer & Salovey, 1997).

Rueven Bar – on, the originator of the term ‘emotion quotient’ defines emotional intelligence as being concerned with understanding oneself and others, relating to people and adapting and coping with immediate surroundings to be more successful in dealing with environmental demands. (Bar on, 1997). Regardless, of the discrepancy in the definitions of emotional intelligence, it is clear that what is being referred to is distinct from standard intelligence or I.Q (Stys & Brown, 2004). However, this study adopts definition given by Mayer and Salovey in 1997.

Core self evaluations was first introduced by Parker (1985) who defined them as basic conclusion, bottom line evaluations that one hold subconsciously, these evaluations pertain to three fundamental areas of every person’s life, self, reality and other people. Judge, Locke, Durhan (1997); Judge, Locke, Durhan and Klinger (1998); Judge Erez, Bono and Thorsen 2003 continued Parkers research by focusing on core evaluations of self specifically, they presented core – self – evaluation as a basic fundamental appraisal of one’s personal worthiness, effectiveness and capability as indicated by the personality trait of self esteem, neuroticism, generalised self – efficacy and locus of control (Judge et al 2003). Core self –

evaluations which is a higher order construct including self – esteem, self efficacy, locus of control and emotional stability has also been related to both performance and satisfaction (Judge & Bono, 2001). Self – esteem is defined as how much value people put on themselves (Baumeister, Campbell, Kruejer, & Vohs, 2003). It is the basic appraisal that people make of themselves. Individual who are high in self – esteem tend to feel good about themselves regardless of their abilities or skills (Chen, Gully & Eden, 2004). Self – esteem is one of the strongest predictors of overall life satisfaction. People with high self – esteem are consider with high self – esteem are considerably happier than people with lower levels of self – esteem (Baumester, et al 2003). Individuals with high level of self – esteem tend to maintain this optimism, even when they face failure (Dodgson & Wood, 1998). Because of this continual optimism, employee with high self – esteem are likely to have high level of job satisfaction.

Generalised self – efficacy is a relatively stable trait regarding beliefs of one’s own competence (Chen et al 2004). Whereas self esteem relates to an individual’s sense of self - worth, self – efficacy relates to perceptions of their ability to accomplish tasks or meet a goal. It is how individual judge their own abilities (Cooks, 2008). Employees who rate themselves as competent and capable are likely to have higher levels of satisfaction because of their general positive evaluations of themselves (Chen, Goddard & Caper, 2004).

Locus of control refers to how people perceive the link between their own actions and the outcomes of their actions (Rotter, 1966). People with an internal locus of control perceive that their outcomes are under their own personal control whereas individual with an external locus of control believe that these outcomes are attributable to people or forces outside of themselves. Employees with an internal locus of control are more satisfied with their jobs because they are less likely to stay in a position which is dissatisfying (Spector, 1982). Though locus of control is theoretically related to generalised self – efficacy, the two concepts differ in one important aspect. Self efficacy pertains to confidence with respect to actions or behaviours whereas locus of control is more concerned with confidence in being able to control outcomes.

Neuroticism also called emotional instability represents the tendency to exhibit poor emotional adjustment. Individual who evaluate themselves as neurotic tend to be very anxious, insecure and hostile (Boudreau, Boswell, Judge & Bretz, 2001). It relates to locus of control in the fact that an individual with internal locus of control tend to have high level of emotional stability and belief that failure is part of progress.

In view of the importance of these concepts to teachers job satisfaction, as well as scanty local empirical studies on the variables, this study sought to examine the influence of core

self evaluations and emotional intelligence as correlates of job satisfaction among senior secondary school teachers. It is therefore necessary to examine core – self evaluations and emotional intelligence on job satisfaction of teachers to enhance the performance of students in their examinations especially the external ones and such a study is important because, it can provide more empirical literature on the variables of study. It is also expected that the results will be a significant addition to literature on the variables.

In literature, many researchers and administrators have noticed the importance of job satisfaction on a variety of organisational variables (Chu et al, 2003). Thus the understanding of employee job satisfaction and its contribution variables are important for any organisation to exert and prosper (Maryyan, 2005).

Job satisfaction is simply defined as the affective orientation that an employee has towards his/her work (Price 2001). In other words, it is an affective reaction to a job that results from the comparison of perceived outcomes with those that are desired (Kaun, 1998). Shortly job satisfaction describes the feelings, attitudes or preferences of individual regarding work (Cheva, 2008) it is the degree to which employees enjoy their jobs (Mc Closkey & Mc Cain, 1987). Also, it is possible to see a number of theories developed to understand its nature in literature. The one adopted in this study is the model that narrowed the scope of the dispositional theory which was proposed by Judge in 1998 as core self – evaluations model.

Judge argued that there are four core self evaluations that determines one's disposition towards job satisfaction; self – esteem, general self – efficacy, locus of control and neuroticism. This model states that higher level of self – esteem (the value one places on self) and general self efficacy (the belief in one's competence lead to higher work satisfaction. Having an internal locus of control (believing one has control over own life and opposed to outside forces having control) leads to higher job satisfaction. Finally lower levels of neuroticism lead to higher job satisfaction. Core self evaluation are fundamental assessment that people make about themselves and their self worth (Brunborg, 2008, Subsequent Studies have shown that level of core self evaluation are positively associated with job satisfaction. (Bono & Judge 2003, Judge, Bono & Locke, 2000). One explanation for this is that positive core self evaluation individuals tend to deny frustrations, disappointment and problems while individual with negative core self evaluation dwell on frustrations and perceive the work place more negatively (Brunborg, 2003).

At present no known local published studies looked at the relationship among core self evaluations, emotional intelligence and job satisfaction among senior secondary school teacher in Nigeria thus necessitates this study.

Research Questions

Two research questions were posed and investigated in this study.

1. What is the joint effect of core self evaluations and emotional intelligence to job satisfaction of teachers in senior secondary schools.
2. What is the relative contribution of core self evaluations and emotional intelligence on senior secondary school teachers' job satisfaction.

Methodology

Research Design

Ex-post – facto research design was adopted in this study. The researcher is only interested in knowing the influence of core self evaluations and emotional intelligence (independent variable) on job satisfaction of secondary school teachers (dependent variables).

Population/Sample

The target population for this study are all senior secondary school teachers in Oyo and Ogun States of Nigeria. Multi stage sampling procedure was used in stratifying the two states along the three senatorial zones. Two public senior secondary schools were selected from each of the senatorial zones based on the inclusion criteria. In all a total of twelve schools participated in this study. From each of the twelve schools, simple random sampling technique was used to select twenty five teachers. In all a total of three hundred teachers participated in the study.

Instrumentation

Six valid and reliable instruments were used in this study.

(a) Self –Esteem Scale

Self Esteem scale constructed by Rosenberg (1965) was adopted in this study to measure the self esteem of the teachers. The scale has ten items with response format based on 5 point likert format of Strongly Disagree, Disagree, Undecided, Agree and Strongly Agree. Items on the scale include: I feel that I have a number of good qualities. I feel I do not have much to be proud of, I take a positive attitude towards myself etc, Items 3, 5, 8, 9, and 10 of the instrument were reversed coded. Apart from the reliability value of 0.84 established by Rosenberg (1965) the scale was subjected to revalidation to determine the suitability to the

study by administering it on 80 teachers that did not form part of the main study sample. Using Cronbach Alpha, the reliability coefficient of 0.86 was obtained. The response on each of the items was used to categorise the participants on the bases of high self esteem and low self esteem,

(b) Generalised self – efficacy scale:

This instrument constructed by Judge et al (1998) was adopted to measure the level of self efficacy of the teachers based on 5 – point likert scale. Among the items in the scale are as follows: when I make plans, I am certain I can make them work. I can handle the situations that life brings. I am strong enough to overcome life's struggles. Items 2, 6, and 7 were reverse – coded because they were negatively worded; apart from the value of 0.73 established by Judge et al (1998), the instrument was subjected to revalidation to determine the suitability to this study. The instrument was administered on 100 teachers that did not form part of the main study sample, using Cronbach Alpha, the value of 0.75 was obtained.

(c) Neuroticism Scale

This study adopted Eysenck Neuroticism scale (1985) to assess neuroticism level of the participants. The instrument of twelve items has a 5 – point likert scale. Among the items in the scale are: my mood often goes up and down. My feelings are easily hurt. I often feel fed up: the scale demonstrated an internal consistency of 0.89. The instrument was also subjected to revalidation by administering it on 80 teachers that were not part of the main study sample, reliability coefficient value of 0.86 was obtained.

(d) Work Locus of control scale

Locus of control of the participants was measured by the work locus of control scale constructed by Spector (1998). It has sixteen items based on 6 – point likert scale. Some of the items read as follows; making money is primarily a matter of good fortune. Get job you want is mostly a matter of luck. Promotions are usually, a matter of good fortune. The scale has reliability value of 0.72 and was also subjected to revalidation by administering it on 120 teachers that were not part of the study sample and a reliability value of 0.76 was obtained using Cronbach alpha.

(e) Job Satisfaction Scale

Job satisfaction of the participants was measured using job satisfaction survey of Brayfield – Rothe (1951). It has five items based on a 5 – point likert scale. Some items in the scale are: I

feel fairly satisfied with my present job. I find real enjoyment in my work. I consider my job to be rather unpleasant. Items 3 and 5 were reversed coded. The instrument has reliability co-efficient value of 0.87. Apart from this, the instrument was subjected to revalidation by administering it on 100 teachers that were part of the study sample. A reliability of 0.82 was obtained using Cronbach alpha.

(f) Emotional Intelligence Scale

Emotional intelligence scale of Schuttle, Malouff, Hall, Haggerty, Cooper, Golden,(1998) was adopted to assess the participants level of emotional intelligence. The instrument has thirty three items based on a 5 – point likert scale. Items on this instrument include; I expect that I will do well on most things I try; other people find it easy to confide in me. I expect good things to happen. The scale has an internal consistency of 0.86. and was also subjected to revalidation by administering it on 120 teachers that did not form part of the study main sample. A reliability value of 0.84 was obtained using Cronbach Alpha.

Procedure and Data Analysis

Consent was officially sought from the principals of the selected schools as well as the selected teachers to participate in the study. Twelve research assistants who were guidance counsellors of the selected schools were trained for a week on the rudiment of the study and administration of research instruments. The instrument were administered at the same time in all the selected schools and on the spot assessment method was used,, thus made it easy to collect the instrument back immediately after response. These were coded and analysed using statistical product service solution (SPSS) Computer Programme. Relationship among job satisfaction,, emotional intelligence and core – self evaluations were tested using Pearson moment correlation statistical analysis. Multiple regression analysis was used to test both the joint and relative effect of the independent variables on the dependent variable.

Results

Table I: Correlation matrix showing relationship among variables.

	Job Satisfaction	Emotional Intelligence	Locus of Control	Self Efficacy	Neuroticism	Self Esteem
Job satisfaction	1					
Emotional intelligence	.817.**	1				
Locus of control	.719**	.822**	1			
Self Efficacy	.582**	.834**		1		
Neuroticism	.553**	.874**			1	

Self Esteem	.536**	.717**				1
Mean	78.333	57.8712	60.3038	63.342	50.232	55.3331
S D	14.28143	9.65540	12.4823	12.4823	7.875	8.6781

Correlation significant at 0.001 level of significance (2 – tailed).

The results show significant positive relationship among the variables and that all the independent variables significantly relate to the independent variable. (Job satisfaction correlated with Emotional intelligence ($r = .817$; $P < .01$); Locus of control ($r = .719$, $P < .01$); Self – efficacy ($r = .582$, $P < .01$); Neuroticism ($r = .553$, $P < .01$); Self Esteem ($r = .536$, $P < .01$))

Research Question 1: What are the joint effect of Core Self Evaluation and Emotional Intelligence on Job Satisfaction of Teachers in Secondary Schools.

Table 2: Summary of multiple regression analysis between the independent variables (core self evaluations and emotional intelligence) and the dependent variable (job satisfaction).

Multiple R (Adjusted) = 0.842					
Multiple R² (Adjusted) = 0.703					
Standard error of the estimate = 1.6207					
Sources of variation	Sum of square	Df	Mean square	F – ratio	Sig.
Regression	745.647	5	372.824	141.927	.000
Residual	307.345	294	2.627		
Total	1052.992	299			

P < 0.05 level of significance.

Constant: Core Self Evaluation, Emotional Intelligence.

Dependent Variable: Job Satisfaction.

The result presented on table 2 shows the joint effect of the independent variables (core self evaluations and emotional intelligence) on the dependent variable (job satisfaction). From the table, the independent variables jointly predict the dependent variable. The analysis of variance performed on multiple regression yielded an F – ratio of 141.927 and was found significant at 0.05 level. Moreover, the five independent variables jointly yielded a multiple regression (R) of 0.842 and adjusted (R²) of 0.703. The independent variable jointed accounted for a variation of about 70.3% of the total variance in job satisfaction of the participants, thus implies that, there are other variables which accounted 29.7% that were not included and treated in this study.

With this result, core self evaluations and emotional intelligence were found to have significant influence on teachers expression of job satisfaction. This could not be a surprise considering the fact that a teacher with high emotional intelligence will be able to understand self better, identify strengths and weakness, manage self and established positive relationship with others. Also the individual may have high self esteem, low level of neuroticism, high self efficacy and internal locus of control. The teachers that possess these qualities will put more effort in the job on the ground that the success of the organisation is also his success. Moreover, these teachers have confidence in their ability and capability and will do everything possible to make the work environment more conducive, this will subsequently enhance their job satisfaction, this finding is consistent with the earlier one by Judge & Bono (2001) and Awosanya (2010), though Judge & Bono study used European participants, Awosanya on own used public servants. Also, the significant influence of emotional intelligence was emphasised by Adeyemo (2007) and Awosanya, (2010).

Research Question 2: What are the relative contribution of Core Self Evaluations and Emotional Intelligence on Teachers Job Satisfaction.

Table 3: Relative contribution of independent variables (Core self evaluations and emotional Intelligence) to the prediction of teachers job satisfaction.

Model	Unstandardised Co – efficient	B Std Error	Standardised Co – efficient Beta	T ratio	Sig.
Constant	9.312	.724		2.305	.05
Emotional Intelligence	.876	.44	.643	22.791	.000
Locus of control	.438	.190	.404	2.428	.000
Self Efficacy	1.316	.058	.613	21.495	.000
Neuroticism	.136	.060	.066	2.273	.025
Self Esteem	.330	.319	.052	1.392	.031

Table 3, shows that each of the variables of study (emotional intelligence, locus of control, self efficacy, neuroticism and self esteem) contributes significantly to the dependent variable (job satisfaction). In terms of contribution, emotional intelligence made the most significant contribution ($\beta = .643$; $t = 22.791$; $P < 0.05$) to the prediction, closely followed by self efficacy ($\beta = .613$; $t = 21.495$; $P < 0.05$) followed by locus of control ($\beta = .404$; $t = 2.428$, $P < 0.05$) followed by Neuroticism ($\beta = .066$; $t = 2.273$; $P < 0.05$) and then self esteem ($\beta = .052$; $t = 1.392$; $P < 0.05$) to the prediction of job satisfaction.

The result, that emotional intelligence is most potent predictor could be attributed to the fact that emotional intelligence skills can nurture interpersonal relationships, enhance individual’s ability to manage self within the work environment and decrease absenteeism.

This result is consistent with the earlier one by Judge & Bono (2001) when they found out in their study that emotional intelligence significantly and positively relates job satisfaction.

Implications, Limitations and Conclusions

The findings of this study revealed that core self evaluations and emotional intelligence significantly contribute to teachers job satisfaction. Therefore, improving and developing core self evaluations and emotional intelligence skills will go a long way in assisting the teachers to enhance and develop adequate job satisfaction. Secondly, since emotional intelligence significantly mediated the relationship between core self evaluations and job satisfaction them emotional intelligence training should be embedded in the training programme of the senior secondary school teachers.

Furthermore, it is important to discuss the limitations of the study all participants in this study were employed in an academic setting which may have resulted in a homogeneous sample. For this reason, these findings may not generalise to individual outside the academic arena. Future researchers may wish to cross – validate these findings with a diverse sample of participants. Secondly, monomethod bias is generally a concern in psychological studies that utilise only one form to data collection. Therefore, future research could adopt the use of other methods.

In conclusion, this study has provided and explained that Core Self Evaluations and Emotional Intelligence actually predict Job Satisfaction of Senior Secondary School Teachers. This has provided a platform from which further research could be launched.

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INTEGRATION OF LEADERSHIP SKILLS, WORK ETHICS AND COMMUNITY

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ABSTRACT

Employee engagement scores increase productivity rise and staff turn over falls. All principals have functions to perform and therefore exist in order to achieve the objectives to the satisfaction of all the community members. School managers have their sustenance from environment and in turn have to affect environment through their output.

Success of leaders depends on how employees sense environmental changes and alter patterns of behavior to fit those emerging conditions. Through cooperative action, members of a school can provide synergistic effects that could not be achieved by the efforts of an individual.

This study therefore sought to investigate the opportunities and challenges affecting leadership and work ethics as a tool in the management of schools. The main objective of the study was to establish challenges of mentoring programmes in education.

The paper has addressed and discussed critical issues relating to leadership and work ethics in relation to change management. There is need for integration of leadership skills work ethics and community for a school to achieve its objectives and goals. This goes to the heart of being an effective and professional leader in the education sector. "Good ideas with no ideas on how to implement them are wasted ideas" Michael Fullan.

OPERATIONAL DEFINATIONS OF TERMS

Principal – The teacher in-charge of the day to day running of the school. It also means headmaster or headmistress.

Leadership – A process within groups in which the principal obtains sufficient commitment of teachers and other stakeholders to facilitate the achievement of organizational goals.

CONCEPTS OF LEADERSHIP

The concept of leadership has attracted widespread attention from many scholars in various fields. This is evident in the proliferation of many publications on the subject. Therefore, it can be argued that leadership is a critical subject in organizational life. Despite this, however no consensus exists on various aspects of leadership including the definition of the word. As such there are scholars engaged in the study.

According to Cole 2005 concepts of leadership are those that are

- Concerned with the results of leadership rather than the inputs.
- Concerned with achievement of the organization rather than the personal goals.
- Infinitely concerned with relationship between the leader and his or her followers.

Further leadership effectiveness or success refers to performance of the following.

The achievement of school goals

- A high degree of commitment to those goals by the group
- A high level of group member satisfaction.

Sisungo 2002, comment on the leadership entails accomplishing goals with and through people, and is concerned with tasks and human relationships in the school, therefore it involves: motivating, directing and communicating leadership therefore is central and is crucial for effective management of the school because it determines creation of values, which facilitates school effectiveness. The head teacher strives to seek the capacity to encourage continuous improvement among followers and to manage change as a matter of course in the pursuit of school goals.

According to Hoy and Miskel (1996), a principal of a school must be a leader with a vision that stresses the development of human capital in the school. This is because visions translate intentions into reality. Sengionni (1991) says that, a vision enables the people in the organization to build a shared consensus about purposes and beliefs that creates a

powerful force that bonds them together around and some signal of what is of value with such bonding in place the school system that is quality driven on the same vein, Peter (1988) say that, effective visions are inspiring, clear and challenging about excellence and make sense. Visions stress flexibility and execution, they are stable and are constantly changing also, they are beacons and controls that are empowering and are future oriented while honouring the past. Visions are delivered in details and not in broad strokes. He further says that vision is only successful if it communicates and effectively institutionalizes a set guiding principle.

Therefore in the research creating a vision is not an exercise in power or coercion, it must grow out of an effective work creating work culture and must be personified and modeled in the action of every employee.

Leadership therefore is a vital element in the social relationship of followers at work. The followers need leaders and leaders need follower. The two must therefore strike a semblance so as to achieve organizational goals Cole (2005).

Owens (1989) observes that there is growing recognition of the relative ineffectiveness of command and coercion as forms of leadership in contrast to the development of organizational environments that are motivating, caring exclusionary and empowering of members as forms of leadership. He therefore notes that, to be a leader means much more than just ascending to a position of leadership, but rather an opportunity to make a meaningful difference in the lives of those being led in terms of achieving personal and organizational goals and not to spend so much energy on bureaucracy or to enjoy the special privileges that come with the status. Oyaya (2001) asserts that a school is a reflection of the head teacher's manipulation of the school community, school activities and school ethos.

This is based on the head teacher's hidden curriculum, wisdom, culture, commitment, communication and tenacity of purpose. Thus the school is likened to the head teacher and the head teacher is likened to the school. If head teacher is a good leader then the school will be able to achieve its goals and if the head teacher is a poor leader then the school will not achieve its goals.

TEAM WORK BUILDING

Putting the 'I' in team. According to Mark Baroni manager of Owen Jackson plant employee engagement scores increase, productivity rises and staffs turn over. Employee engagement

refers to how much employees identify with and are emotionally committed to their work, are cognitively focused on that work, and possess the ability and resources to do so.

Principals as managers of schools should be engaged with subordinates in performing their duties. They should meet on monthly bases and teach new employees school customer service vision. Employee's emotional and cognitive (rational) motivation, the ability to perform the job, a clear understanding of the school's vision and a belief that they have been given the resources to get their job done. Through motivation staff members have inner effect in their direction intensity and persistence of voluntary behavior.

Employees sustain their effort until they reach their goal or give up before hand.

Situational factors can hinder the success of any school such as consumer preferences and economic conditions originates from the external environment and consequently are beyond the employee's and school control search through most annual reports and you will soon discover that corporate leaders view values as the sine quo non of organizational excellence. Google places paramount importance on "Don't be evil" values are evaluative standards that help define what is right or wrong, or good or bad, in the world. They influence our motivation and decisions.

Groups of people might hold the same or similar values which can be called shared values to the team, department, organization, profession or entire society.

Leaders take their substance from the environment and in turn affect that environment through their output. The success of leaders depends on how employees sense environmental changes and alter patterns of behavior to fit these emerging conditions.

Leaders should also note that any new idea being introduced may have different consequences in different situations.

Leaders should introduce organizational learning to continuously learn about various environments in order to survive and succeed through adaptation. The capacity to acquire, share and use knowledge means that organizations have established systems, structures and organization values that support the knowledge management.

ETHICS IN SCHOOL

Ethics and leadership effectiveness go hand in hand. A principal who is not interested or concerned with the people work for him or her will not be effective. A principal who does

not understand how to serve through leading will be a tyrant, and will create a working environment of fear and jealousy. Good ethics are expected of good principals as managers of school however and the best code to follow is shrewd innocence. Even the bible says that Christians should be “Shrewd as serpents, innocent as doves” knowing how to meet lying and scheming with firm integrity and strong leadership is an important business ethics for establishing truth worthy rapport (Bionerd)

An ethical leader is not perfect, but he or she is team oriented and embraces fair workplace policy ethics.

For instance even if a principal’s personal ethics which may actually have a discriminating bias, differ from ethical school practices, he or she still must operate fairly in the school. Values that are based on equality and job site. Discriminating against staff due to his or her gender, sexual orientation, age or any other personal factor is not illegal but also unethical. True leaders inspire and motivate all of their staff to provide them with a sense of empowerment.

Leading by example is absolutely necessary to promote a teamwork environment of ethics. Unethical leadership may occur when principals act on emotion rather than thinking situations through in accordance with school policies, values, goals. Leadership ethics on the other hand, stress on trying to do the right thing in any given situation while acknowledging and learning from past mistakes. A leader who admits his or her mistakes and learn from them to avoid repeating these errors can make a competent leader who is compassionate yet consistent in managing ethics issues.

Leadership ethics refer to fair management practices powered by strong principles. Ethical leaders set reasonable yet high standards of their follower to which they also aware.

They represent the school’s core values and serve as model to others. Unethical leadership occurs when principals act out of a personal sense of morals or on emotions such as jealousy or anger rather than what best for the school

A school being a community which is a unified body of individual in school environment. Also these are people with common interest living in a particular area. Interacting population of various kinds of individual in a common location, they are a group of people with a common characteristic or interest living together within a larger society.

The principals use leadership styles to integrate ethics and community. These are the patterns of behavior used by principals in attempting to influence staff members and make decision regarding the mission, strategy and operations of staff activities (Scholl 2000). To manner and approach in which principal provide direction, implement plans and motivate people so as to achieve the organizational goals. These styles vary from one school to another and it is essential to mention that no two principal can administer and lead their school in the same. (Mwangi and Mc caslin 1995).

An effective and ethical principal has the following traits.

Dignity and respectfulness. He respects the staff. An ethical leader should not use his staff as a medium to achieve his personal goals. He should respect their feelings, decision and values' respecting the staff implies listening effectively to them, being compassionate to them. As well as being liberal in hearing opposing view points.

- i) Serving others. He serves staff. An ethical leader should place his staff interests a head of his interests. He should be humane. He must act in a manner that is always fruitful to his staff.
- ii) Justice. He is fair and just. An ethical leader must treat all his staff equally. There should be no personal bias. Wherever some followers are treated differently, the ground for differential treatment should be fair, clear and built on morality.
- iii) Community building. He develops community, An ethical leader consider his own purpose, while making efforts to achieve the goal suitable to both of them. He is considerate to the community interests. He does not overlook the staff intentions. He works harder for the community goals.
- iv) Honesty. He is loyal and honest. Honesty is essential to be an ethical and effective leader. He always earns respect of their staff.

It is essential to not leadership is all about values and it is impossible to be a leader if you lack the awareness and concern for your own personal values. Leadership has a moral and ethical aspect. These ethics define leadership.

CHALLENGES THAT PRINCIPALS FACE IN INTERGRATING LEADERSHIP ETHICS AND COMMUNITY

These challenges include financial challenges, social cultural challenges, political challenges, professional challenges and discipline challenges.

- (a) Financial challenge

Finance is an important element in the success of any venture. The rising cost of living has impacted the same to education putting a lot of stress on the school and parents. The principals have been very careful in planning their budget and spending money (Mbiti 1999). Lack of proper payments of fees and other monies leads to lack of funds to buy facilities needed in schools like stationery, class textbooks and games facilities. Education being a public venture requires that its managers be knowledgeable in financial mismanagement is a cause of unrest in schools.

(b) The social political challenges

Principals encounter in their leadership.

A school is not an island but a part of the community in which it is located. It is the duty of a principal to enhance harmonious relation among members of the school community and link to the outside community positively.

The school-community relationship is expressed in many ways i.e. through community criticism of the school programs, discussions and meeting with community members.

According to Mbiti (1974), school activities must reflect as far as possible the nature and aspiration of the community. Unless the principal establishes effective communication with the community leadership, he will not succeed in promoting new projects in the school.

Sometimes heads of school receive hostility from the communities where they work. The reasons are varied and examples include, the principal is imposed on them by either the sponsor, Member of Parliament, Board of Governors, chairman or even a councilor, when the principal does not belong to the school community. Some communities incite teachers, students and supportive staff against the principals (Endebero 1986).

PROFESSIONAL CHALLENGES PRINCIPALS FACE IN THEIR LEADERSHIP DUTIES

Lack of professional training and in-service for principals in Kenya According to a research conducted by Kiilu (1977). Some principals are appointed directly from classroom only to get verbal in-service from colleagues and superiors and this makes the work of the principal very difficult when it could have been easy if he had skills.

A change has to be effected from within and changing people's minds as individual and as a group, is never easy but it is critical in education (Fergus 1988).

DISCIPLINE CHALLENGE PRINCIPALS ENCOUNTER IN THEIR LEADERSHIP

A principal must realize that a school is a social institution where both teachers, students and community interact for special purposes and this interaction for special purposes and this interaction is essential (Olembo 1974). There is engagement of students in drug taking. Teachers also misbehave for example.

A primary school head teacher who attacked a head teacher with a Somali sword for reporting him to the TSC was fined Kshs.100 or six months in jail (Wangethi 2001).

It is clear that principals must be careful on how to discipline teachers.

STRATEGIES PRINCIPALS USE TO ENCOUNTER CHALLENGES

Principals attend financial management courses

- i) Avoiding local politics, religious conflicts or groupings and sectarian matters.
- ii) Inviting inspectors and experts to advice teachers to improve classroom instructions.
- iii) Principals must attend in-service courses to keep abreast with new ideas and guidelines Kabiro 1990.
- iv) The community should participate in school activities.

The path-goal contingency theory which was proposed by (House & Mitchell 1971)

Identified factors that contribute to effective leadership and they are as follows.

- (b) The work environment, for example, the task, the reward system and the task relationship with co-workers.
- (c) Leader behavior which encompasses the following supportive leadership, instrumental leadership, participative leadership.

The research was aimed at attaining appropriate style of leadership. Leadership depends on the situation and the situation and that ambiguous and uncertain staff members. However if staff members are sure about what they ought to do, they should be left to work without being directed because the path is clear.

In this theory, the leaders' behavior should motivate the staff. However, their satisfaction should be dependant on their own effective performance. Therefore the principals' behavior enhances staff environment through demonstration, directing, supporting and rewarding them. Further the theory proposes that the principal should influence the path between behavior and goals by ensuring the following.

- (a) Provision of clear definition of positions and task roles.
- (b) Removal of obstacles to performance

- (c) Enlisting the assistance of group members in setting goals.
- (d) Promoting group cohesiveness and team effort
- (e) Increased opportunities for personal satisfaction in work performance.
- (f) Reducing stress and external controls
- (g) Making expectations clear
- (h) Giving feedback
- (i) Ensuring availability of all things that meet people's expectations generally.

CONCLUSION

School principals should encourage all levels of management to try new ideas with no penalty for failure. Also develop a culture that is built for change.

The control mechanisms that maintain equilibrium in any system are dependent upon accurate feedback from various parts of the system and its surrounding environment.

A school is like a system (Gestalt Therapy verbatim. It is a set of mutually interdependent elements. Mutual interdependent means that a change in any one element causes some corresponding change in others.

School management does not change until external catastrophes bring them near the edge of annihilation. This is unfortunate because at that point, they are usually low on ideas and have cynical demoralized personnel. "The secret of successful change" explains symmetrix incl. chairman George B} Bonnet. Principals can create change by setting aggressive, external threat based and then demanding that be attained in aggressively short time frames. Staffs are supposed to be aware of what they have to do to gain rewards such as a rise in pay or status. Also hard work is sometimes punished rather reinforced, by loading more work on to conscientious staff. Think reinforcement can be achieved via monetary reward. But while this may well be the case generally, for staff recognition and praise can be more potent reinforcers.

The staff should participate in the formation of policies that serve as a guideline for school operations with this kind of leadership a higher degree of staff satisfaction is always realized.

According to Holdford 2003 principals who practice the democratic style give staff a say in decision that affect their work lives. This approach generates a sense of ownership by the staff in a school's goal, nurtures the generation of ideas and helps build trust and respect.

An effective leader is one that managers to appeal workers rational exchange motive (Ivancerich et al 1994)

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CHALLENGES FACING TEACHERS IN INTEGRATING EDUCATIONAL TECHNOLOGY INTO KISWAHILI TEACHING. A CASE OF SELECTED SECONDARY SCHOOLS IN KISII COUNTY, KENYA.

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Abstract

Information and Communication Technology (ICT) has brought about profound changes in this 21st century era. ICT has changed the way people communicate and do business. In education, the role of ICT and whether or not it positively influences the learners' attitudes to work and particularly in language (Kiswahili) has been a matter of much debate. Globally, Kiswahili is taught as a language in universities such as Harvard, Yale, Germany, Osaka-Japan, China, South Korea, South Africa, Ghana and Nigeria just to mention a few. Further, the African Union meetings recognize Kiswahili as one of the languages of communication. The use of ICT creates an environment which moves away from the traditional teacher-centered approaches that have been devoid of learner enjoyment and explorativeness which are important characteristics of effective and meaningful learning. ICT allows learners to create, collect, store, use knowledge and information; and it enables learners to connect with people and resources all over the world (Alberta Learning, 2000). The emphasis of teaching Kiswahili language in Kenya is becoming commonplace. The professional development of teachers on the use of ICT enables them develop and update themselves on the ever changing trends and techniques of integrating Educational Technology (ICT-based) in teaching. The Ministry of Education in Kenya as in many countries in the world realized and accepted the importance of ICT in teaching. It was with this regard that New Partnership for Africa Development (NEPAD) a pilot project was started with an aim of trying to find out the possibility of realizing the dream of integrating ICT in teaching in secondary schools. However, like any new project, there is a possibility of certain challenges such as students' attitudes and how to impart knowledge and skills which may first need to be addressed in order to guarantee full implementation and success of the project in Kenyan secondary schools. The presenters of this paper did a study of selected secondary schools in Kisii County Kenya. The purpose of the study was to investigate the professional preparedness of the Kiswahili teachers in integrating educational technology into the teaching of the language and establish challenges teachers face while trying to integrate technology into Kiswahili instructional process. The findings have important implications for

the future integration of educational technology in the teaching of Kiswahili in Kenya. Will this dream come true? The presenters will share their findings and experience.

Specific Objectives

- i) To investigate the preparedness of Kiswahili teachers to successfully integrate educational technology into Kiswahili instructional process.
- ii) Examine the :a). Tools, b). Methods and c). Processes employed by teachers while integrating educational technology into Kiswahili teaching.
- iii) Establish challenges teachers face while trying to integrate educational technology into the teaching of Kiswahili language.
- iv) i)Examine ways of overcoming these challenges and the viability of full and proper integration of educational technology into the Kenya Secondary Schools.
- v) To investigate the relationship between teachers experience and their adoption of the integration of educational technology into Kiswahili teaching.
- vi) Establish whether the differences among teachers of different years of teaching embede integrating of educational technology into Kiswahili teaching.

Background to the study

Many claims have been made in literature about the motivational effects of information communication and technology (ICT) and its educational benefits for students. It has brought about immensely tremendous changes in Agriculture, Medicine, Engineering and other fields (UNESCO,2002).Industry and corporations have retooled the work place to become more efficient (Bitter & Pierson,2005).This is an era where the ability to read, write, and count is not enough as technology is being widely adopted in the society today. Online job postings, newspaper and other printed advertisements show that companies or institutions prefer to hire computer literate or highly professional individuals in the use of technologies. As Bitter & Pierson (2005) argue, 'technology is a given order in our society'.

Fast development of ICT has redefined our ways of living and working, a phenomenon referred to as the 'information society' a society which uses ICT regularly, or 'a knowledge society', to stress that the most valuable aspects are intangible-human and social capital-and that the keystones are knowledge and creativity (Plomp, Anderson & Quale,2003, Kozma, 2003, Commission of the European Communities, 2000).ICT provides the tools needed by the information society. Hence. teachers too are almost inevitably presented with the demand to integrate educational technology (ICT-based) into the teaching and learning process so as to empower learners to fit into this era of technology. Today, school teachers in many countries of the world are working with learners who are growing up with

ICT as a non-remarkable feature of their world. The changes have been faster and more sweeping than anyone imagined in three decades ago (Facer, Furlong, Furlong & Sutherland,2003).With skills in ICT are becoming a necessity that individuals have to be equipped, educational institutions are strapped with the burden to provide new facilities to help prepare learners for the versatility roles they play in the knowledge and digital economy (Zindi & Aucoin, 2005).

By integrating educational technology (ITC-based) into Kiswahili classroom instruction, teachers are demonstrating their students' innovative ways of learning (Steketee, 2006).Thus, the educational system plays a versatile role in the society for it is considered as the force that when functioning properly, promotes literacy or, when failing, allows illiteracy (Bitter & Pierson, 2005).Countries such as Australia, US, Japan, Malaysia, Singapore and Philippines has ongoing initiative on integrating educational technology (ICT-based) in education. Some have created competency standards for technology (Bitter & Pierson, 2005). However, integrating educational technology (ICT-based) is still a complex process of educational change, and the extent of ICT application in many countries and schools is extremely varied in most cases, very limited (Grabe & Grabe,1998, Scrimshaw,2004, Loverless, & Dore,2002).

In most parts of Africa, for example, there is no basic infrastructure to enable the use of ICT equipment to even provide basic access to digital information. In this regard, Castells (1998) argues that; before moving to electronic networks, Africa must be provided with a reliable electronic supply, which is still lacking. Moreover, in this part of the world, Kenya inclusive, (except South Africa), the delay in the realization of the structures required to guarantee the availability of ICT in teaching and learning process is made worse by the absolute shortage of skills on its use. Therefore, in the present scenario, Africa is excluded from the ICT revolution, except for a few financial and international business nodes that are in any case directly linked to global networks and completely bypass African economies and societies (Castells, 1998, Grabe & Grabe, 1998).This has led to what is generally termed in ICT as 'digital divide' ; a term used to denote the discrepancy between countries who can benefit from the progress of ICT in order to develop their socio-economic structures and, on the other hand, those that are excluded from this process (2001).

In spite of this, several international agencies are now focusing their attention on the issue of the digital divide (UNESCO,2005, Tucker, 1986).African governments and non-governmental and corporative organizations have also started initiating projects dealing with the issue of digital inclusion and ICT thus New Partnership for Africa's Development (NEPAD) joint ICT programme is an example of such ventures. It aims at ensuring that African youth graduate from African schools with skills that will enable them participate

effectively in the global digital era. It also aims at imparting ICT skills to young Africans both in primary and secondary schools as well as harness ICT technology to improve, enrich and expand education in African countries, Kenya included.

The idea of integrating educational technology for teaching purposes in subjects like Kiswahili arouses mixed feelings and is met a variety of reactions. The fact that computers are used in the teaching of other subjects and are put to a great many applications in Kenya makes one suspect that no field lies completely outside their scope and that they might indeed be of some use. To many the prospect of using computers is not without appeal; it is a kind of challenge which one feels drawn to respond to. At the same time the technology frightens us, especially in Kenya whereby the new constitution recommended that Kiswahili language becomes an official language in the country together with English. Teachers have qualms about dehumanization in a subject which is concerned with human communication (Kenning & Kenning, 1983). It is also known that language teaching does not escape the waves of fashion; we remember the errors of the past, the theories and inventions which failed to come up to expectations. Is the use of computers in language teaching, as critics say 'the language laboratory all over again'? Kenning & Kenning (1983). The presenter of this paper sort to investigate the challenges facing teachers in integrating educational technology (which is ICT-based) into the teaching of Kiswahili language.

Such anxieties can be dispelled only by a proper acquaintance with the facts. To begin with, a computer is nothing more than a tool, an aid to be used or not, as the teacher thinks fit. The computer, like any other electrical or mechanical gadget, provides a means of amplifying, or extending the effectiveness of our natural talents and capabilities. And like other such machines, without the human input and control, are useless. Used properly, however, they can be very effective indeed, enabling the individual to carry out tasks inconceivable such as giving individual attention to the learner, consoles and replies them, acts as a tutor , assessing the learner's reply, recording it, pointing out mistakes, giving explanations ,it guides the learner towards the correct answer , and generally adapts the material to his or her performance .Thus the computer promotes the acquisition of knowledge, develops the learner's critical facilities, demands active participation, and encourages vigilance. The computer can be used to generate examples, to illustrate certain operations, or to simulate conversation.

The computer has a number of advantages over normal classwork. It offers privacy which relieves learners from the fear of being ridiculed for their mistakes by their classmates especially in language. It allows learners to work on their own, in their own time and most importantly at their own pace, especially the 'enchanter' for spelling of words in the language. The challenge is, will the same 'enchanter' be realized in Kiswahili? Kenning and

Kenning (1983), notes that 'computer's contribution to a course hardly depends on the quality of the program, its obeying and on the particular, on the program writer's ability to anticipate all contingencies'. To the teacher, the computer offers the opportunity to make better use of their time and expertise. It provides a means of useful occupying part of the class, it opens up the possibility of small group activities. Through its record keeping facilities it gives teachers access to detailed information on the learners, but also enables them to evaluate the material and methods they have been using.

Purpose of the study

This study aimed at investigating the integration of new, ICT-based educational resources, media and technology in Kiswahili teaching in secondary school instruction in Kisii county Kenya.

Integration of education technology maybe said to refer to the process of determining where and how technology fits into Kiswahili instructional process. According to Roblyer (2003), it refers to the process of determining which electronic tools and which methods of implementing the are appropriate for given classroom situations and problems. This study examines the tools methods and processes employed by teachers while integrating educational technology (which is ICT-based) into Kiswahili teaching in classroom settings and problems.

Rationale for integrating technology into Kiswahili teaching.

Educational technology is defined as the resources available at a given time and by the ways in which educators apply them to solve their present challenges and problems. It can also be defined by the larger context of how the society influences and shapes the use and impact of the available instructional resources. However, in spite of these changes, each time and season in the history of education requires that teachers appropriately integrate educational technology into their Kiswahili teaching. Instructional technology and resources when properly, effectively utilized and integrated into instructional processes, have proved to have several inherent advantages and help to achieve a lot(Moore et al. 2003).

The main reason of integrating technology into Kiswahili teaching is to gain learner attention. Students cannot learn without sustaining their attention which Hung & Khine (2006) refers as 'engaged learning'. Betz (1990) notes that visuals attract attention which is paramount in teaching and learning process. Many distractions compete for learners' attention making it important to employ attention catching devices to focus their thoughts on the lesson. Further, Roblyer (2003) argues that there is substantial empirical evidence indicating that teachers frequently capitalize on the novelty and attraction of media

involved to achieve the essential instructional goal of capturing and holding students' attention. Although other aspects of instruction ought to direct students' attention towards meaningful learning. The use of visuals and interactive features of many modern technology resources seem to help focus student's attention and encourage them to spend more time on learning tasks.

Russell, Molenda and Heinichs (1985) also assert that learners have progressively observed more information and vicariously experienced many phenomena than ancient people. This is because of the adaptation and widespread use of modern technology in education which has greatly increased their exposure to information and varied learning experiences. Due to that, proper and innovative use of resources can provide hitherto unattainable opportunities to individualize and humanize instruction. Instructional technologies in Kiswahili teaching also help to provide with necessary concrete experiences and integrate prior experiences. According to Dale (1969), when obstructions have inadequate foundations, challenges arise. If learners have very little iconic experiences in acquiring a particular idea, the idea will probably have no real meaning for them. If verbal symbol does not resemble anything that learners can do and see, they may have difficulties in relating it to their own experiences.

Concrete experiences facilitates learning and the acquisition, repetition and usability of abstract symbols Dale (1969) and Russell, Molenda and Heinich (1985). Wittich and Shuller (1973) also confirm that effective learning begins with first-hand or concrete experiences. Hence, a learner who has the advantage of reacting to well-selected and well used media and materials can learn more effectively than one who is provided with largely verbal symbols (information) and materials. Ornstein and Levine (1997) have observed that various learners do not learn well when instructions begin with obstructions. Thus, Kiswahili teachers should present concrete materials before obstructions, allow more physical movement, provide opportunities for students to learn in collaborative groups or pairs and take other steps that accommodate different behavioral patterns and learning styles. There are a myriad range of media to opt for. Kiswahili teachers should learn how to use new resources not merely because of enriching or supplementing their present media and strategies, but also as part of modern learning systems (Grabe & Grabe, 1998).

Integrating educational technology into Kiswahili teaching also help teachers to engage learners through provocative tasks. To make learning effective and more meaningful to students, teachers often try to engage them in creating their own technology-based products. This promotes innovativeness, self-expression, and a feeling of self-efficiency among learners resulting in professional-looking products that learners can view with pride (Roblyer, 2003). It also increases the learners' perception of control as many of them are

motivated by feelings of being in charge of their own learning (Newby et al. 2006). Hence, this compels the learners to declare and have interest in learning.

Instructional resources are valuable because Kiswahili teachers can use them to motivate learners, structure learning experiences for underachievers in the subject, and tailor learning materials according to the needs of each learner's preferences in learning; be it visual, audio, or manipulative (Lang,1995). Well- selected instructional resources to present concepts in such away as to prove interest and stimulate involvement (Newby et al.2006). Technological media have unique instructional capabilities that facilitate unique learning environments or contribute unique features to make traditional learning environment more attractive and effective. Roblyer (2003) argues that modern technology promote learning by linking learners to information resources. This lets them access primary source materials, obtain information and have experiences that they could not otherwise have had. They also help learners visualize problems and solutions and link learners to learning tools especially when using computers.

Educational technology integrated into Kiswahili instruction can enrich learning settings by showing things that are far away, that took place in the past, such as the historical development of Kiswahili, that are too complex to understand at first sight with explanation only, or things that cannot be seen, heard or perceived by other channels. Kemp & Dayton (1985) further note that they can also, through the power of pictures, words and sound, compel attention, help an audience understand concepts and acquire information too complex for verbal explanation alone. Moreover, technology can help overcome the limitation of time, size and space, making learners enjoy learning and retain more information for longer periods of time. too complex for verbal explanation alone. Moreover, technology can help overcome the limitation of time and space, making learners enjoy learning and retain more information for longer periods of time.

The education system in Kenya is striving to reinvigorate and read-vine itself, its instructional goals and objectives as well as methods in line with the demands of the new constitution on the status of Kiswahili language, vision 2030 and the complex demands of life in the technology driven 21st century.

This include such activities as collaborative /co-operative learning, multi-grade learning, programmed learning, shared intelligence (intellectual partnerships) experiences and problem solving and higher order skills especially in language teaching (C. Kenning and Kenning 1983) Roblyer, 2003. Instructional technology stimulates problem solving among learners. According to Erickson and Curl (1972), instructional media rich opportunities for students to develop communication skills while actively engaging in meaningful problem

solving activities, in groups or in class projects. This therefore, means that students can better and enjoy learning because it appeals.

Instructional technology also can help increase learning and teaching efficiency leading to better results.

According to Wiltich and Schuller (1962), the use of audio visual media make it possible to improve learning efficiency by choosing for classroom instruction audio visual experiences which reinforce one another. When these media are properly coordinated in classroom use, the learning results can be much more that the sum of individual parts.

The use of modern technology leads to increased teacher productivity as it makes working easier, faster and enjoyable. For example, computer based programmes make production and management of instructional materials easier for teachers (Newby et al. 2006, Roblyer 2003). Monitoring learners progress is also easy for teachers when using technology as the learners are performing, teachers are able to tell whether learners are or are not learning.

Under the 8-4-4 system of education in Kenya, Kiswahili teachers have a lot of context to cover within limited time allocations. Teachers continually complain of inability to cover the syllabus in time and adequately prepare learners for the national examinations. Yet, instructional media and technology can help them reduce the length of time required for instructions as most media and technology contain and can help present a lot of subject content in summary form. Moreover, the students can study the details of the media at a time and place more convenient to them thereby catering for individual differences and preferences.

The main purpose of teaching is to give knowledge, information, values and skills to the learner. Instructional resources help the learner to be more knowledgeable, keen and appreciative of the media in general. It also promotes the sharing of ideas, thoughts, feelings and knowledge (Hung & Khine 2006). This informs and enlightens learners before they are persuaded to change their altitudes, or adopt desirable responses or actions which are expected of them by their teachers, communities and the world in general. Integrating modern technology into Kiswahili teaching can assist learners acquire technology literacy, information literacy and visual literacy among other skills (Newby, 2006, Roblyer, 2003). As learners interact with modern media, they get to discover how to get information from them and use them to inform others especially in Kiswahili Language which is evolving and widely used even in African Union (AU) meetings. The learners can also learn how to use theses media to create different visuals and effects that they need and the impact of such visuals on other people.

Due to rapid technological changes, instructional resources have become part and parcel of the instructional process. Russell, Molenda Heinnich (1985) observe that any institutional setting, or otherwise, can become a classroom and sometimes near total dependence upon instructional technology. Such media as tapes, records, films, transparencies filmstrips and slides have overtaken in the facilitation of learning. More, modern media are also making it possible for students to use all their senses. Hence, instructional media are becoming increasingly valuable, especially computers and related technology. The use of computers and related media (ICT) is widely being embraced into the instructional process as part of the rapid technological changes occurring in the world today.

However, for any instructional media to benefit instructional processes, they must be properly integrated into and appropriately used during instructional transactions. It is essential for an institution to have good, appealing media and in fracture and it is another thing together to utilize them effectively. Integration of instructional media and technology into Kiswahili teaching is a process that may not be easy for many teachers, it calls for a lot of understanding, effort and appreciation from teachers considering that media and technology change often, and rapid changes in Kiswahili language as a growing language get may teachers ill-prepared.

This study aimed at establishing the challenges of integrating educational technology into Kiswahili teaching. A case study of selected secondary schools in Kisii County, Kenya. It also investigated the extent to which Kiswahili teachers and learners are prepared for the ICT world.

Challenges of Integrating into Kiswahili Teaching

Integrating educational technology into Kiswahili language teaching and the curriculum in general is not an easy task. Teachers and educators in general face a myriad of challenges both intrinsically and extrinsically, which they have to endure as they try to fully integrate technology into their teaching. From the research findings, one of the challenges was the preparedness and readiness to appreciate and embrace technology and media themselves (Newby et al. 2006, Roblyer, 2003) Kiswahili teaches sometimes view technology as a burden to their simple teaching life. However, Kiswahili teachers need to develop a more positive view of technology if they desire to remain relevant and competitive in this digital era.

Instead of seeing technology as a foreign invader to confuse and complicate the simple life of the past, Kiswahili teachers need to recognize that technology is very much our own response to overcoming obstacles that stand in the way of a better life, rather than an

obstacle in its way. According to Grabe and Grabe (1988), colleges of education have not been responsive to the expectation that new teachers will come into classrooms prepared to use the resources the schools have purchased. Therefore, many Kiswahili teachers graduate but still feel either not prepared or poorly prepared to use technology.

One of the reasons for such a feeling of inadequacy on the part of the new teacher is because colleges of education are less equipped than some of the schools where their graduates will be working. Most college faculty members also are unable to make appropriate use of technology in their own lecturer rooms and unwilling to try because of anxiety or lack of interest. Moreover, the common teacher preparation curriculum is designed in a manner that most experiences with technology are focused in a single course that concentrate on learning to use the technology rather than on learning how to facilitate learning with the technology. (Newby, 2003, Grabe and Grabe, 1998).

Secondly another challenge closely related with the training, teachers' lack of sufficient understanding of terms and concepts in Kiswahili related to technology. Teachers with a precise understanding technology are able to understand information with users and experts of technology and to ask and answer questions in order to expand the knowledge as Roblyer, (2003) observes. Kiswahili teachers without such understanding cannot know what to communicate, what to expect, what to ask or answer or even where to start when faced with the challenge of integrating technology into Kiswahili teaching which an evolving language is.

They instead develop a phobia for anything technology and fear trying out new ideas hence disadvantaging themselves and their students.

Frequent technological changes also pose a big challenge to educators. A general overview of the history of the educational technology continues to show that resources and accepted methods of applying them changes, sometimes quickly and dramatically. This therefore places a special burden on the already overworked Kiswahili teachers to continue learning new resources and changing their teaching methods (Grabe and Grabe, (1998) and Roblyer, (2003). Yet it seems evident that Kiswahili teacher have failed to keep up with the very fast technological changes.

The implication, hence, is that the latest technologies are in limited use in education and in schools in particular Newby et al. (2006) and (Grabe and Grabe, 1998) assert that the challenge of remaining current is so real to teachers. Technology changes daily and thus Kiswahili teachers should update themselves whether already trained or not.

Due to financial constraints and strained budgets schools rarely afford to allocate funds to update their technology. Education cannot afford most current technologies since their schools are always ever in dire financial strain. According to Roblyer, (2003), the implication is that schools lacking the infrastructure necessary to keep up with new technologies. In effect, this simply implies that schools cannot take advantage of the newest most powerful technological developments and innovations in the market.

Teachers discretion is one of the most important challenges facing the integration of technology into the Kiswahili language teaching. Kiswahili teachers have need, and expect freedom to make decisions on what and how to select , prepare and use their teaching process.

However some study findings by loveless & Dore (2002) , Smeats, 2005 and Niederhauser & Stoddart, 2001, argue that ICT is hardly used as a tool to support learning process; but rather the focus is on skill based ICT use . The worst and most difficult challenge that Kiswahili language teachers are facing is to identify specific teaching and learning problems and challenges that technology can address or how it can innovate important educational opportunities that did not exist without it as Roblyer, (2003), advises. As part of this process, Kiswahili teachers are argued to decide what they need to make when these changes occur, where and how technology fits excreta. This is what may be termed as integration.

Kiswahili teachers may, however, decide not to integrate modern technology into their teaching. They may be a well versed with the content to teach without any media especially when they feel and contend that they are able and well experienced to achieve their instructional goals and produce desirable results, with or without instructional media. Scott and Usher (1999) found out those older teachers having successfully established rout lines that meet their criteria of good teaching, have complacency, and hence are reluctant to change their usual practice, especially if they do not understand the rationale for change. This study too tried to find out whether there were differences among teachers of different years of teaching experience in embracing technological change. It also tried to establish challenges teachers face while trying to fully integrate educational technology into Kiswahili teaching and how they were coping with these challenges. It also tried to establish ways of overcoming with these challenges, and hence examine the viability of a full and proper integration of educational technology into Kiswahili teaching in the Kenya Secondary Schools Curriculum.

Provision and Use of Instructional Media and Technology in Kenya

Since independence there has been the problem of adequate, quality and relevant instructional resources in Kenyan school. Several ideas, policies and recommendations suggested have yielded very little positive results. In 1964, the Kenya Education Commission also referred to as Ominde Report recommended for the use of radio as a teaching aid to help reduce the teachers' handicap caused by the lack of adequate resources to teach different subjects in order to reach as many learners as possible.

It also called for the use of simple locally made teaching aids since ready made resources were expensive and scarce. Teachers were trained on how to make and use these resources.

Views of the Ominde Report were better supported by the report of the National Committee of Education Objectives and Policies (1976) commonly referred as the Gachathi Report, which also proposed that the government should make use of television and other forms of mass media, encourage schools to increase the supply of locally made teaching aids, carryout research on the feasibility of using programmed learning and other related media in schools and that from the same locality be grouped together to share the use of more expensive instructional facilities. The report further suggested that the government should expand the curriculum syllabi and subject courses and change the education system altogether.

In 1981, the report of the presidential working party on second university in Kenya, popularly known as the Mackay Report; called for the adoption of the prevocational education and other recommendations made by the Gachathi report. In 1984, the government implemented the recommendations of Mackay report but it soon became apparent that the government lacked the capacity to adequately provide the resources needed by schools. In view of this, the report of the Presidential Working Party on Education and Manpower Development for the next decade and beyond (1988- the Kamunge Report – recommended for the introduction of cost-sharing in all public learning institutions. Henceforth, the government was to employ and remunerate teachers in public schools while parents, guardians, communities and sponsors were required to provide for both physical (infrastructure) and learning facilities in their respective schools.

Cost sharing initiative, however, did not improve the provision of necessary facilities to schools. Most schools continued to lack both physical and instructional facilities as parents and local communities could not meet the schools' educational needs. Studies done by various scholars have continued to show lack of instructional resources at different institutions and levels of learning. Such studies were done were done among others by Ole Shunguya (1995), Kimui (1988), Nyongesa (1990), Gacegoh (1990), Okoko (1991), Kimani (1999), Orina (2001), Mogeni (2005) and Kwaka (2009) reveal a continued lack of

instructional technologies at different learning institutions in Kenya. The few available media are not properly handled, utilized and stored. There is a tendency of poor management of the of the few media available in schools.

Instructional resources suffer negligent, ignorance, disuse and underutilization. Maintenance of media is very poor as institution lack proper maintenance culture.

Lack of funds is one major reason given by teachers for lack of Kiswahili instructional resources in schools. Funds also lack towards the maintenance of instructional resources. School managers find it difficult to free meager financial resources available in schools to invest in educational technology which require intensive capital. Instead, the funds are used to purchase text books which are very basic instructional resources. Further, some institutions even lack appropriate current text books Corina, 2001, Mogeni, 2005. School managers' predicament further aggravated by the fact that they have to pay salaries to the auxiliary staff. Currently, the government does not pay salaries to the auxiliary staff. This has serious implications on the school managers' decisions. Despite the fact that the government declared free secondary education, the managers have to decide between paying these salaries and investing on instructional resources and technology.

Studies done by scholars such as ole Shanguya (1995) also reveal that many teachers, though professionally trained qualified do not use instructional media and technology while teaching. Textbooks and chalkboard continue to dominate as almost prevalent teaching method (Mueni, 1999; Mogeni, 2005). Many Kiswahili teachers lack on job training and appraisal on the use of instructional resources.

The major reason for this scenario is that many schools lack funds to invest in staff training to enable keep a breast with the current trends in educational technology and gain the necessary skills of life.

Many schools lack proper storage facilities; many instructional media suffer mismanagement and misuse. Many resources are kept in places where users may not access them more easily and conveniently. For example, school managers' offices and cupboards are the most probable places where you can get most modern and more expensive instructional media kept for lack of a more secure storage facility. According to Mogeni, (2005) some resources such as radio, video television sets and computers are kept under key and lock in the managers' offices yet teachers seem not to know or remember that their schools have these resources. Such a scenario could be mainly attributed to the problem of storage and therefore accessibility is a problem. No doubt then that many teachers fail to recognize and remember to interrogate these media in their teaching.

However, teachers' ignorance on the availability of resources in their schools could be attributed by the fact that some of them are rarely consulted or involved in the procurement process of these resources (Orina, 2001, Mogeni, 2005). Involvement and consultation of teachers in the procurement process and management instructional media and technology is very crucial if school managers aim at gaining teachers co-operation in integrating media into instructional process.

This could encourage them to strive to interrogate the media into the Kiswahili instructional process and to work towards achieving the schools' other goals and objectives (Olembo, et al; 1992)

In the new constitution inogulated in 2008, its chapter two, section seven; Kiswahili has raised its status. It is now both a national language. However, it does not state how Kiswahili teachers are to integrate educational technology into this language teaching. This promoted the presenter of this paper to carry out an investigation on the challenges facing teachers in integrating educational technology into Kiswahili teaching. Integrating educational technology into

Kiswahili instructional process will envisage new media and technology that would also promote e-learning as a viable tool for instruction in this 21st century; make learners, teachers and their surrounding communities (Schools/institutions) access on line information in the subject and other areas of interest and to make them ICT literate (NEPAD e-Africa Commission 2007)

This would enable them benefit from e-learning and from the use of modern educational technology in their instructional processes.

Instructional Methods	Instructional media	Learning environment
Kiswahili	Objectives	Instructional materials
Teachers	Technology	
Students	Tools	Instructional Activities

Review of related Studies on Utilization of Instructional Media in Kenya

Studies done in Kenya on the availability and utilization of instructional media generally reveal that our schools have scanty resources whose utilization is wanting. For example, Munyilu (1985) s' study in Kithonzweni zone, Machakos district, showed that most primary schools experienced a severe shortage of textbooks, stationary and teaching aids. Although

teachers appreciated versatile role played by resources, they used only a few in their teaching.

Msei (1985) also found out that most teachers in primary schools in central division, Machakos District, did not use teaching resources and that where they were, they lacked variety and suitability. The study also revealed the need for action by the Ministry of Education to improve the methods of using resources by organizing seminars, symposia and workshops to equip the teachers with the skills and awareness to effectively use instructional technologies.

Another study by Oure(1985) in primary schools in Busia district, Western province also revealed an acute shortage of books and non-books materials used for instructional purposes. The organization and use of available materials in teaching and learning was generally poor in all subjects. Funds allocated for instructional equipment were inadequate. There was an acute shortage of storage rooms for instructional materials in terms of buildings, shelves and cupboards and no libraries.

According to Ogoma (1987), resources mostly used by teachers for teaching social studies in Nairobi primary schools were non-recommended textbooks, charts and regalia. Most of these were bought while both teachers and pupils improvised some. Audio and visual resources such as cassette players and projectors were lacking in most schools.

Resource persons were rarely used, citing language barrier, time and lack of information on which expertise to invite.

A study conducted by Kimui (1988) revealed that Kenyan teacher training institutions lacked many instructional media as print media and the chalkboard were widely used.

According to Gacegoh (1990)s' study in Christian Religious Education in Embu district showed that the most commonly available instructional materials were textbooks, pictures, charts, maps, newspapers and magazines. Further, many of these resources were inadequate. There was an acute shortage of audio and resources like video, films, slides tape recorders and radio due to lack of funds to purchase them.

Okoko (1999) revealed too that that there was an acute shortage of textbooks in the teaching and learning of History in secondary schools in South Nyanza. However she did not look at other instructional media during her study. Ogechi (1992) in his study on the available teaching aids for teaching Geography in secondary schools in Nyamira district were print media and other non-print resources available were under-utilized.

In his study, Kimani (1999) observed that there was a shortage of instructional resource for teaching History and Government on the instructional method and resources used in teaching the subject in secondary schools in Thika district. According to Mueni (1999) in a related study however, revealed that there existed a wide range of resources which could be used to teach History and Government but most of them were inadequate in terms of quality and quantity thus embedding their utilization.

Orina (2001) also found out that print media were widely used and the availability, acquisition and use of instructional media besides print in teaching Geography in Secondary schools of Kisii district were limited. He also revealed that the least available resources were geographical magazines, encyclopedia, posters, models, Cameras television sets. The available resources were found inadequate, but most of them were accessible to teachers while some were inaccessible to the students in some schools.

According to Mundui (2002)s' study, she observed that teachers did not make use of either authentic or audio visual resources while teaching spoken English in secondary schools in Thika District. She further established that teachers rarely employed activities that could enhance active learner participation, thus making learning monotonous.

Adafu (1996) in a study observed that most secondary schools in Lamu district lacked adequate instructional resources for the teaching and learning of Kiswahili. Most teachers did not make any effort to use simple aids such as charts, cartoons and comics. There was an acute shortage of audio visual resources such as the video, film and radio cassettes.

Mongare (1996) also reported that teachers did not use sufficient resources and methods of teaching Kiswahili in secondary schools in Nyamira district.

He further noted that teachers rarely attended seminars courses and symposia. He therefore recommended that there was a great need for teachers to take part in professional activities such as seminars, workshops, courses and symposia. He further pointed out that the Ministry of Education should organize such activities regularly. This would enable teachers to interact with other experts, thus helping them to keep up with the latest developments in their subject or education in general. Mogeni (2005) also observed that many teachers had very little awareness of and thus rarely used many resources available in their schools. They therefore mainly embarked on the use of textbooks and chalkboard. In his study of investigating the utilization of resources in teaching Kiswahili in public secondary schools in Transmara district, he revealed that teachers rarely prepared or used locally available resources because some of them felt that some resources made them

take a lot of time to prepare and use them while teaching. Teachers also felt that some resources were unsuitable for use in teaching their subject. Schools lacked proper storage facilities mainly due to lack of funds to build them.

As revealed by studies reviewed above, most learning institutions across Kenya have been found wanting in terms of instructional resources in most subjects. Most of them lacked these resources and the few available were under-utilized. This could be because teachers do not know the importance of integrating technology into teaching or have negative attitudes towards the use of resources. There could also be other factors influencing the teachers' use of resources in their subjects. Moreover, most of the studies examined mainly the issues of availability and utilization of basic and traditional education media, resources and technology but did not focus their attention on the challenges facing teachers in integrating educational technology (ICT-based) into Kiswahili teaching process which the current researcher sort to investigate in selected secondary schools in Kisii county, Kenya.

Methodology

The study sort to establish the challenges that faced teachers in integrating educational technology into Kiswahili teaching in secondary schools in Kisii county, Kenya. The researcher used a descriptive survey design. This was a descriptive research that involved describing and interpreting events, conditions, or situations that were occurring in the present as Picciano (2004) observes. Kiswahili teachers were the target population. Sample and sampling procedures, research instruments mainly questionnaires for Kiswahili teachers were administered after piloting was done, class observations and interviews. Data was collected and analysis done(Murray and Lawrence, 2000)asserts. Figure 2:Graphical illustration of research design used summary.

Target Population

(Kiswahili teachers in selected secondary schools)

Purposive Sampling

(Ten selected secondary schools)

Data collection

Questionnaires for Kiswahili teachers

Interviews for Kiswahili teachers

Class observation of Kiswahili teachers

Data analysis:

Presentation of findings, Conclusion and Recommendation

Findings of the study

One of the objectives of the study was the teachers' preparedness to integrate educational technology into Kiswahili instructional process. The findings of the study revealed that the teachers' academic and professional qualifications were; 60% of the respondents were Bachelor of Education (B.ed.) graduates, 30% Diploma in education holders, while 10% were Bachelor of Arts with post graduate diploma (B.A/P.G.D.E).

In the case of classroom observation, 50% of the teachers were Bachelor of education (B.Ed) graduates, 30% had Diploma in Education while 10% were Bachelor of Arts (B.A) graduates with post graduate diploma in education (P.G.D.E).10% more S1 teachers. From the findings, it was evident from both questionnaires and classroom observations that majority of the Kiswahili teachers in the selected public secondary schools in Kisii County were professionally trained and qualified. It is expected that with such qualification, Kiswahili teachers can easily integrate technology into their instructional processes. However, the findings of the study established that Kiswahili teachers' academic and professional qualification had little influence on their preparedness to integrate educational technology into their instructional process. It emerged from the classroom observation carried out on teachers that these teachers hardly use other instructional resources apart from textbooks and chalkboard/black walls in their teaching. The scenario was widely that of "talk and chalk" in all selected schools.

Moreover, teachers gave a number of different factors that influence their choice and use of instructional resources in teaching Kiswahili.50% of the teachers were influenced by the availability of the resources, the learners' level of understanding, knowledge and skill on use of the technology and the form taught. 40% cited the topic they were going to teach, 30% cited the usefulness and suitability of the resources. The available time for preparation of the resources, accessibility of the resources and 20% were influenced by the desired outcome of the lesson on learners. Past studies revealed that teachers' academic and professional qualifications had little influence on the teachers' selection and use of instructional resources (Orina2001).

Some of the teachers were unaware of the existence of some of the resources while others were ignorant of their suitability in the teaching of Kiswahili. All the teachers confided to the researcher that they had never seen hardware resources such as slides, projectors, Liquid Crystal Display (LCD) and software. Some teachers guessed that some may be suitable if they existed.

Further, most teachers were generally in support of integrating educational technology into the teaching of Kiswahili. They felt confident if educational was integrated into Kiswahili instructional process. However, all retaliated that notion that with or without integrating educational technology into Kiswahili teaching, teaching could take place effectively and efficiently. 50% of the teachers agreed that how they could start to employ (integrate educational technology) was a big challenge as some had no skills on the use of some had no skills on the use of some technologies such as computer and above all, the methods to employ in teaching Kiswahili using modern technology on Kiswahili sub-topics was an uphill challenge.

The overall implication and conclusion arrived at is that the teachers were generally aware of the versatile role played when educational technology is integrated into Kiswahili instructional process especially those that they were familiar with. They understood the benefits accrued from the use of resources but did not desire to take time in selection and preparation or use one they don't have a knowhow. This could be an indication that they shy of from modern technology especially ICT-based thus teachers don't bother to integrate educational technology into Kiswahili teaching. However, Pribram, (1991) argues that the use of a combination or the use of different instructional resources and methods in the teaching of a particular subject is imperative for it makes learning integrative and conceptualized. Use of instructional methods and media enables students to see relationships and to make connections. It helps to break boredom and make learning more interesting. According to UNESCO (2000), the quality of education could be improved the diversification of content, media and methods. Teachers argued that the time available to complete the content/concept to be taught was an important criterion for selecting the method to be used because some methods for example field work demand more time than a method like lecture which most of them used or class discussion.

Teachers therefore suggested that to overcome the challenges, schools and the government should sensitize them on how to integrate educational technology into Kiswahili instructional process, avail more instructional resources especially computers, set aside more funds for maintenance, build special classrooms that can accommodates the technology thus the use of computers hence enabling students to learn without moving up and down to computer laboratories.

Conclusion

Based on the findings of the study, the following were the conclusions made:

- Although many Kiswahili teachers in the selected secondary schools in Kisii County were academically and professionally qualified, they needed regular seminars, workshops and

skills on the use of technology especially computers in order for them to be able to integrate educational technology (ICT-based) into Kiswahili teaching.

- Print media was commonly used in the selected secondary schools in Kisii County. Moreover, many of the instructional resources were inadequate both in quality and quantity; despite their being accessible to the teachers.
- The teachers appreciated the role that will be played in integrating educational technology into the teaching. However, they hardly knew how to use the ICT-based technology. This is because they mainly used textbooks.

Recommendations

Based on the findings of the study, the following recommendations were made:

- Regular review of the teacher training institutions with a view of improving on the trainees' skills and attitudes to meet the demands of the digital era.
- Use educational technologist to sensitize teachers on how to integrate technology into their teaching especially the teaching of Kiswahili.

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A PARADIGM SHIFT OF NEW WINE IN AN OLD SKIN: ANALYSIS OF THE CURRENT BTVET STATUS AND PROSPECTS FOR SUSTAINABLE DEVELOPMENT IN UGANDA

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ABSTRACTS

A well-trained human resource in technical and vocational skill is a prerequisite for the knowledge and technology based economy. Although there have been several attempts to elevate the status of Technical Vocational Education and Training(TVET) in Uganda, the attitude of the public has been negative towards this kind of education. If this state of affairs remained unattended to, then Uganda as a country would remain technologically dependent on and perhaps technologically backward. What should be done about this scenario? What is the status of TVET now? This paper was to establish the status of BTVET in the country, identify the factors responsible for the negative attitude to TVET, establish the steps taken by government to curb the negative attitude, and to give suggestions on what should be done to avert this crisis in the education system in the country. Then paper examines the new BTEVT act which was enacted in 2008 and forecasted the prospects that await TVET and sustainable development in the country. Descriptive study design was used. The study instruments (attitude scale, questionnaires and interview schedules) were constructed and used in the study. The data was then subjected to SPSS editor program for data analysis. Key recommendations have been made especially on the awarding system, the use of the qualification framework, the use of competency based education and training (CBET) to ensure that the contribution of this type of education is attained.

Uganda today stands at the dawn of petroleum production, having realized her wealth which had hidden underground for millions of years untapped. As the Albertine region of the country ooze out with the oil from the unlimited underground wells, a new era has dawned that calls for a stock-taking on all aspects of the social life of the society. Education as an engine to the ordering of the social, economic and political lifeline cannot be aside, but it is always called upon to answer the call for transformation of societal life. In recent times Technical Vocational Education and Training (TVET) has come to the limelight all over

the world as a vanguard for technological industrial and sustainable development (Maclean and Wilson 2009).

The recent development in Uganda on BTVET (as TVET is called) has been the recent passing of the law called BTVET act. This is the first time in the history of education in Uganda that an Act of parliament has been passed in order to guide the development of TVET. Is it a paradigm shift of the new wine in an old skin? What prospects do we have in light of sustainable development in line with the new discovery of the oil wells in the country given the status of BTVET?

BTVET means Business, Technical Vocational Education Training. BTVET institutions are categorized under three divisions of Business, Technical and vocational education. Under the business division there are five government aided colleges of commerce and over 400 private institutions offering commercial courses in a diverse areas of study including catering, marketing, procurement, computer science, accounting, store management , secretarial studies. All these institutions provide courses up to the diploma levels (Okinyal, 2006). Under the technical education division, there are 4 government technical colleges, 34 technical institutes, 27 technical schools, 3 farm schools. Under vocational training there are 4 vocational institutes, 17 community polytechnics and 46 departmental training institutions (MOES 2007).

Despite the presence of these institutions in the country, the general education system in the country is still characterized by;

- Education at all levels is being too academic and theoretically oriented right from the primary section even up to the TVET Institutions because of lack of technology. Consequently, the students completing general primary, secondary and even higher education are hardly capable of coping with practical problems and doing things with their own hands.
- Any work that requires practical skills is meant for people who are believed to have no academic powers. There has been too much concentration on academic learning and passing examinations to the neglect of knowledge and skills needed to solve life problems.
- TVET programmes which are still being offered in those institutions are of uneven quality. However this scenario will soon change as the country implements the Uganda vocational qualification frame work which has just been designed by the Directorate of industrial training with the technical help from friendly countries. This will harmonize the kind of education given to TVET institutions which has been heterogeneous.

PURPOSE OF THE STUDY (OBJECTIVE)

The purpose of the study was to find out the state of BTVET today, and also to delve out the prospects for sustainable development in light of the BTVET Act 2008.

Methodology.

Descriptive study design used,

Both qualitative and quantitative methods used.

100 students (questionnaires)

20 lecturers of the technical colleges (questionnaires),

10 retired members of the public (interview guides),

4 officials from the ministry of education and sports (interview guides)

Study finding

While a large number of students want to acquire basic knowledge and skills from early stages of primary education, there are still negative attitudes to technical and vocational careers. The reasons for that were given for this kind of attitude are because;

- Technicians are despised,
- poor payment to technicians,
- lack of employment,
- lack of teaching aid,
- high risks and danger in technical work,
- insufficient government funding,
- industrial sector is still narrow,
- technical education is tedious,
- lack of career guidance,
- poor equipments,
- poor payment from government,
- poor leadership in TVET institutions,
- less staffing,
- lack of government policies,
- Lack of industrial attachment.
- Technical jobs are perceived as dirty jobs,
- TVET courses are very hard; this is so because the students in the country are not exposed to any technology learning early enough. By the time they join TVET institutions

they find completely new areas of learning had not been given to them earlier in their educational path.

- few lecturers in the institutions,
- some are forced by parents to take the courses,
- Among the reasons that have continued to facilitate the negative attitude towards TVET, is the terminal nature of TVET education in the country. This type of education has generally been terminal type of education with no vertical mobility and access to higher education. Some courses in the TVET such as shoe-making, carpentry and joinery, motor vehicle technician, tailoring end at a certificate level only. This is very discouraging especially in a situation where the university education is seen to be very important in the status quo of the educated people.
- Besides the study discovered that the government policy has been one of the factors that influenced the negative attitude to rage on in Uganda for a long time. There have been no serious policies on the industrial training in the country and this discouraged the development of technical vocational education there. Besides TVET had been neglected and a stigma had developed against it from the colonial time this scenario needed positive policies to change but it took long for this to be forthcoming. Although government had outlined its intention to change the status quo of TVET in the education white paper of 1992, nothing practical was done about it until 2008 when an act was passed in the parliament that may now help in elevating the status of TVET in the country.
- Training of TVET teachers has been very poor to the extent that more than a half of the teaching staffs hold only diploma certificates and very few have qualification equivalent to the degrees in the Ugandan education system. The staff development policy has not been in place and as such most of the teaching staffs in the TVET institutions are of very low educational standards.
- On the other hand, an area like funding has not been handled properly since TVET was not a priority area in the education funding. Because of this, the institutions are still running on machines and equipments that are outdated and obsolete.
- Therefore those who go to Technical and vocational education are to some extent still considered academic failures.

The middle class in Uganda prefer their children taking academic education to TVET. Few may be willing to take his or her child to a technical school after primary seven. They prefer their children to continue with the theoretical general education to the university without any technical or vocational skills.

Although vocational education has not enjoyed a lot of popularity in other parts of the world, the wrong in an education system can only be corrected by a proper policy. The policy inputs determine the out put. An act called BTVET **act** was passed in an attempt to

right the malady that has bogged down the TVET system in the country since colonial time. No policy that was directly to guide the development of TVET had been made before since 1962 when Uganda got her independence. By this act the policy that is to guide BTJET are well laid down; what impact will this new law have on the development and change of attitude towards TVET and the sustainable development? Objectives of the BTJET according to BTJET Act 2008;-

- To provide access to BTJET to a large number of persons
- To make BTJET affordable
- To enhance the productivity capabilities of the individual for employment and self-employment.
- To monitor gaps between supply and demand for skills; and
- To facilitate sound and sustainable financing and funding mechanisms for business technical vocational education training...”

The specific objectives are; a)

- to promote an integrated, demand driven and competent based modular BTJET system where learners enter the system at various points suited to their skills and needs, with their qualifications certified and recognized at various levels;
- To promote the development of formal and non-formal institutions in the public and private sector;
- To incorporate and support training by non public BTJET institutions and non formal enterprise based training; to recognize skills that are both formally and non-formally acquired;
- To link formal and non-formal education and training and their respective curricula,
- To establish a qualifications framework based on defined occupational standards and assessment criteria for the different sectors of the economy,
- to promote types of BTJET qualifications and the number of people to be trained in accordance with the market requirements...”

The BTJET **act** also specifies the categories of TVET providers into two that is; public and private providers;

Public providers are: 1) Community polytechnics 2) Vocational training centres and institutes 3) Technical institutes 4) Technical colleges and specialized training institutions. Private provides: Non governmental organizations, religious organizations etc, 2) non-formal providers (people promoting indigenous skills 3) formal enterprise training (this shall

provide industrial training which shall include apprenticeship training and skills upgrading courses).

The Act also sanctions the continuation of the Directorate of industrial training which will be under the supervision of the industrial training council. The Directorate is to play the following roles; “to identify the needs of the labor market for occupational competencies that fall under the Uganda vocational qualification framework (UVQF), to regulate apprenticeship schemes; to foster and promote entrepreneurial values and skills, as an integral part of UVQF, to accredit training institutions or companies as UVQF assessment centers; to assess and award Uganda vocational qualifications, to promote on-the-job training in industries for apprenticeship, traineeship and indenture training and for other training such as; further skills training and upgrading and to prescribe the procedure for the making of training skills.”

“The UVQF shall follow principles of competence based education and training which includes: Flexible training or learning modules for Assessment and certification, Assessment of prior learning, Recognition for formal and non formal training, Self-paced or individual learning and Work place learning”

- How will this **Act** improve on the attitude that has been endemically negative? How will it promote the sustainable development which is an issue of concern as we suffer the impact of environmental degradation and the global warming and vie for all aspects of sustainable development? To begin with, the **act** widens the training concept of TVET in the country and gives a guide to the development of this type of education that will see it popularized. The BTVET **act** being implemented brings in a new era on technical vocational education and training in Uganda because of the following reasons that are pertinent;
- Now those people who are willingly getting trained from non formal education line will be assessed by the Directorate of industrial training and certified. This will give chance to the local artisans to have a qualification based on the criteria determined under the Uganda vocational qualification framework. The frame work is a new innovation in our education system.
- Secondly for the first time in the history of TVET education in Uganda the government has thought about introducing the training levy that the industries will have to contribute for the industrial training of the Ugandan TVET students. This had not been the case before 2008. The industrial training in the country had been a challenge to the TVET providers because the funds for industrial training had been very meager. Now with the introduction of this levy, there is a bright light in the tunnel for TVET education in the country.

- The act also permits the TVET curriculum designers to include those subjects that are deemed to be necessary for the development of TVET. This will give a chance for the sustainable development to be included in the TVET curriculum in the country and some other entrepreneurial subjects that can be a great motivation for the learners of TVET professional subjects. The aspect of sustainable had not been included on the curriculum except for Kyambogo University where some aspects of environmental studies were included on the training syllabuses of TVET training. There is a challenge to go further to include this on all the curriculum of TVET in the country. This is a challenge that the Directorate of industrial training will have to take up in collaboration with Kyambogo University for the good of tomorrow's generation in Uganda.
- By the law permitting industries and businesses to train the workers who will in turn be assessed by the directorate of industrial training and given a Ugandan vocational qualification based on their competence the TVET will be popular and the country will also be able to benefit much from the imported technology mainly from the investors who are highly treasured in our country. One of the reasons that had made TVET to be unpopular in the country had been lack of modern machineries (Uganda is still in 1960s as far as technology is concerned). There is need for the redirection of the industrial training by the directorate of industrial training so that those that are awarded with the Uganda qualification should have some elements of sustainable development in their training.
- As we are aware Technical and vocational education, as an integral component of life-long learning, has a crucial role to play in this new era as an effective tool to realize the objectives of a culture of peace, environmentally sound sustainable development, social cohesion and international citizenship (UNESCO,2006). Uganda which has gone through over twenty years of conflict is in dire need for peace. The generation that has grown through the period of war in the northern part of the country is now enrolling for studies in TVET institutions to get training that can help them resettle after living in the Internally Displaced Peoples' Camps (IDPS).
- The greatest challenge that is facing us as the TVET teacher trainers is to train teachers who will in turn prepare the young ones to ensure the sustainable socio-economic development of the country.
- There is need to include many competences in the TVET curriculum that can create awareness of the sustainability in the areas of peace, social cohesion and the better life of tomorrow's generation. With the status of TVET that has been very low in the country, the curriculum development has not kept in line with the fast development in the world of technology and coexistence.
- As it is insinuated by the UNESCO ,The TVET of the future must not only prepare individuals for employment in the information society, but also make them responsible

citizens who give due consideration to preserving the integrity of their environment and the welfare of others (UNESCO, 2006).

- TVET must be geared towards playing an instrumental role in developing a new generation of individuals who will face the challenge of achieving sustainable socio-economic development. A well trained technical workforce is essential for any country's efforts to achieve sustainable development. On the other hand the following recommendations are good for Uganda; Looking at the findings of this study, the following are the recommendations of the study;
 - A vocational university named Uganda technical vocational university established to give awards in recognition of both formal and non-formally trained Ugandans in the BTVET fields would do much to develop the TVET education system in the country.
 - There is need to integrate development issues in the syllabus of the BTVET institutions to cope with the need for sustainable development.
 - Effective curriculum planning and development in this area should be a dynamic process. It must respond both to the needs of the individual and to the technical requirement of the job, as well as to the changes in job patterns caused by scientific and technological development and socio-economic change.
 - There is need for serious campaigns on the importance of TVET in the development of the country. This can be done through exhibitions, trade shows and award of honorary degrees to the professionals who have excelled in technology innovations.
 - Increased budget in favour of TVET is highly recommended. Whereas government has done a lot about the education system by elevating the literacy state of its citizens by spending much in the university primary education and now the universal secondary education, the literacy needs to be extended to the technology areas.
 - Quality assurance needs to be looked into at all levels of TVET including the university level to avoid the heterogeneity that have been common on the courses offered in the TVET institutions.

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RETHINKING THE APPROACH TO TEACHING ENGLISH IN AFRICAN COUNTRIES: IMPLICATIONS FOR TEACHER EDUCATION IN KENYA

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Abstract

Kenya, as one of the countries that continues to use English as the medium of instruction for schooling, faces challenges of falling standards in spoken and written English in schools. Although this issue is not unique to Kenya it is an issue that needs to be addressed in the effort to improve teacher education and ultimately all education in Kenya. One effort to address this issue was the adoption of the integrated approach to teaching English, but after being in effect for 15 years it has not realized the anticipated success. This paper addresses ways of rethinking the integrated approach. It proposes the incorporation of practices of literacy across the curriculum into the Kenyan Teacher Education Program as a model for teaching English in secondary schools. It broadens the conception of the integrated approach to include other subjects in addition to English literature. The starting point of this paper is an interrogation of what it means to teach English in general and more specifically in schools. Consideration of the varied dimensions of this question can lend itself to a more precise identification of the needs of a teacher education that prepares teachers of English for Kenyan schools. It examines the question of standard language and which form of language should be the model for instruction in teacher education and ultimately the secondary and primary schools. The paper considers the concepts of BICS (Basic Interpersonal Communication Skills) and CALP (Cognitive Academic Language Proficiency) in the Kenyan context and how this understanding impacts the teaching of English. The scope of this paper extends beyond Kenya to include other countries that continue to use English, an inherited language, as the medium of instruction in schools.

Introduction

The European colonial legacy has left behind in African countries, and other former colonial territories, their language as one of its most enduring features. Many of these territories, particularly African countries, continue to use the colonial imposed language—English, French, or Portuguese—as an essential language of education. Colonial languages were

introduced during a period when there was an infrastructure of colonial administrators, who spoke the respective languages, and access to education was limited to an elite. However, after nearly 50 years of political independence, administered by the indigenous population, with an expanded system of education at all levels, the role of the former colonial language can be called into question. Twenty-five years ago Coombs (1985) contended that language of instruction is the least appreciated of the educational issues debated in the education arena. This continues to persist.

One response to the recognition of the importance of language of instruction in some countries has been to move towards a greater use of the mother tongue in education. As early as 1953 UNESCO noted the importance of education in the mother tongue (UNESCO, 1953). More recently, research has pointed to the importance of children developing literacy in their first language before acquiring literacy in a second language (Cummins, 1979; Skutnabb-Kangas, 2000; August & Shanahan, 2006; Kosonen, 2009). Over the past 20 years many former colonial territories have move towards education in indigenous language at varying degrees, ranging from the first 3-5 years of primary school (e.g. Kenya, Malawi, Botswana) to the entire primary school (e.g. Tanzania, Ethiopia), to the entire system of education (e.g. Hong Kong, Malaysia). The new South African Constitution recognized 11 official languages and proposed a trilingual education policy (DAC, 2003), though it has yet to be fully realized.

However, English persists as the language of instruction in many former British colonies. This paper will focus on Kenya, one such country. The decision to focus on Kenya was influenced by the author's involvement in a collaborative project between a Kenyan institution and a U.S. institution that is looking at teacher education reform in Kenya and the recognition that language is an important part of teacher education. Kenya continues to use English as the medium of instruction for schooling, from Primary 4 through to university. One of the challenges of retaining English as the language of instruction has been falling standards in spoken and written English in schools, particularly at the secondary school level (Okwara, Shiundu & Indoshi, 2009; Nabea, 2009). Kioko & Muthwii (2001) have attributed some of the wastage in the educational system in Kenya to the language situation in the country, contending that the language of instruction significantly impacts students' success in other subject areas.

One means that Kenya has sought to address the issue of falling standards of English in the educational system was through the adoption of the Integrated Approach to teaching English at the secondary school level (Okwara, Shiundu & Indoshi, 2009). This approach involves exposing students to literary texts to help them improve their language skills, while increasing their appreciation of literature. It is premised on the view that language is not

learned in a vacuum and that the 4 language skills—speaking, listening, reading, writing—should complement each other (KSCE, 2002). Yet, after being in effect for 22 years it has not realized the anticipated success; there is even a suggestion that this program may contribute to falling standards of students' competence in English (Okwara, Shiundu & Indoshi, 2009).

This paper addresses ways of rethinking the integrated approach. It proposes the incorporation of practices of literacy across the curriculum into the Kenyan Teacher Education Program as a model for teaching English in secondary schools, recognizing that the texts for teaching language can come from any subject area. The starting point of this paper is an interrogation of what it means to teach English in general and more specifically in Kenyan schools. Consideration of the varied dimensions of this question can lend itself to a more precise identification of the needs of a teacher education program that prepares teachers of English for these schools. It examines the question of standard language and which form of language should be the model for instruction in teacher education, and ultimately secondary and primary schools. The paper considers the concepts of Basic Interpersonal Communication Skills (BICS) and Cognitive Academic Language Proficiency (CALP) in the Kenyan context and how this understanding impacts the teaching of English. One impetus for this paper is the current efforts to improve teacher education in Kenya. Part of addressing how to improve the teacher education program in Kenya involves a consideration of how English is taught, since English is the language of education for most of formal schooling in Kenya. This paper offers a means of reconceptualizing the teaching of English in Kenya, bearing in mind that students are simultaneously learning English and learning in English.

What Does it Mean To Teach English in Kenya?

Consideration of what it means to teach English in Kenya must take into account the students' purpose for learning English. Teaching English as a foreign language, for academic and cultural enrichment, requires a different focus than teaching English as a tool for accessing school-based knowledge. Because English is the language of instruction in Kenyan schools, where students come to school speaking languages other than English, it is the vehicle for understanding and reproducing content taught in school. Children begin learning English in primary one and continue learning it for the 8 years of primary school, while utilizing English as the language for learning school subjects from Primary 4.

The primary school syllabus states that “between Standards 1-3 students are expected to acquire sufficient English vocabulary and language patterns to enable them to use English as a medium for learning from Standard 4 onwards” (Bunyi, 1997, p 38). This means learning

English vocabulary and grammar as well as the basic skills of listening, speaking, reading and writing. However, the language policy states that English, Kiswahili and the mother tongue should be given equal class time during the first 3 years of primary school (Bunyi, 1997), though this policy is not implemented throughout Kenya (Mathooko, 2009). When one acknowledges that less than one-fourth of the Kenyan population speaks English (Nabea, 2009), it is unlikely that the majority of these children speak English outside of the school. Sure & Ogechi (2009) have found that by standard 8 some students are unable to communicate effectively in English; they are largely passive recipients, exhibiting rote learning. They also ascertained that teachers manifested difficulty explicating scientific and mathematical concepts simply and clearly due to their insufficient lexical resources. This is not surprising when one considers the amount of time it takes to learn a second language.

Cummins (1979, 1980, 1984) has divided language proficiency into the two categories: Basic Interpersonal Communication Skills (BICS) and Cognitive Academic Language Proficiency (CALP). BICS refers to those skills necessary for communicative competence, i.e. vocabulary, grammar and rules for appropriate use of language in daily communication. He contends that all healthy human beings automatically acquire BICS in their mother tongue. In the context of learning English as a second language, it usually takes 3-5 years for students to become as fluent as their native English speaker peers. However, since it is improbable that students in Kenya will be interacting with native English speakers outside the school, it may take some of them even longer than 5 years to develop BICS. CALP refers to higher order thinking skills necessary for academic success. This typically takes 5-7 years, or more, to develop. Bearing in mind Sure & Ogechi's (2009) implicit observation that by some standard 8 students have not developed BICS, as they are unable to communicate effectively in English, it becomes clear that they will encounter challenges in coping with the academic English demands of secondary school.

When students enter secondary school in Kenya, it is assumed that they have a basic competence in English, since they have been exposed to it for 8 years and have used it as a medium of instruction for 5 years. The objectives of English language teaching in Kenyan secondary schools, which Kenya Institute of Education (K.I.E., 2002) has outlined, are presented in Table 1 along with the language skills most closely associated with those competencies.

Table 1: Objectives of Teaching English in Kenyan Secondary Schools

Competencies	Skills
listen attentively for comprehension and respond appropriately	L/S
use listening skills to infer and interpret meaning correctly from spoken discourse	L/S/W

listen and process information from a variety of sources	L/A
speak accurately, fluently, confidently and appropriately in a variety of contexts	S/A
use non-verbal cues effectively in speaking	S
read fluently and efficiently	R/A
appreciate the importance of reading for a variety of purposes	R/A
develop a life-long interest in reading a wide range of subjects	R
read and comprehend literary and nonliterary materials	R/ Lt/A
read and analyse literary and non-literary works from Kenya, East Africa, Africa and the rest of the world, and relate to the experiences in these works	R/ Lt/A
appreciate and respect own as well as other people’s culture	R/W
make an efficient use of a range of sources of information, including libraries, dictionaries, encyclopedias and the internet	R/A
use correct spelling, punctuation and paragraphs	W
use a variety of sentence structures and vocabulary	W/A
communicate appropriately in functional and creative writing	W/A
write neatly, legibly and effectively	W
use correct grammatical and idiomatic forms of English	W
think creatively and critically	W
appreciate the special way literary writers use language	R/Lt
appreciate the universal human values contained in literary works	R/Lt

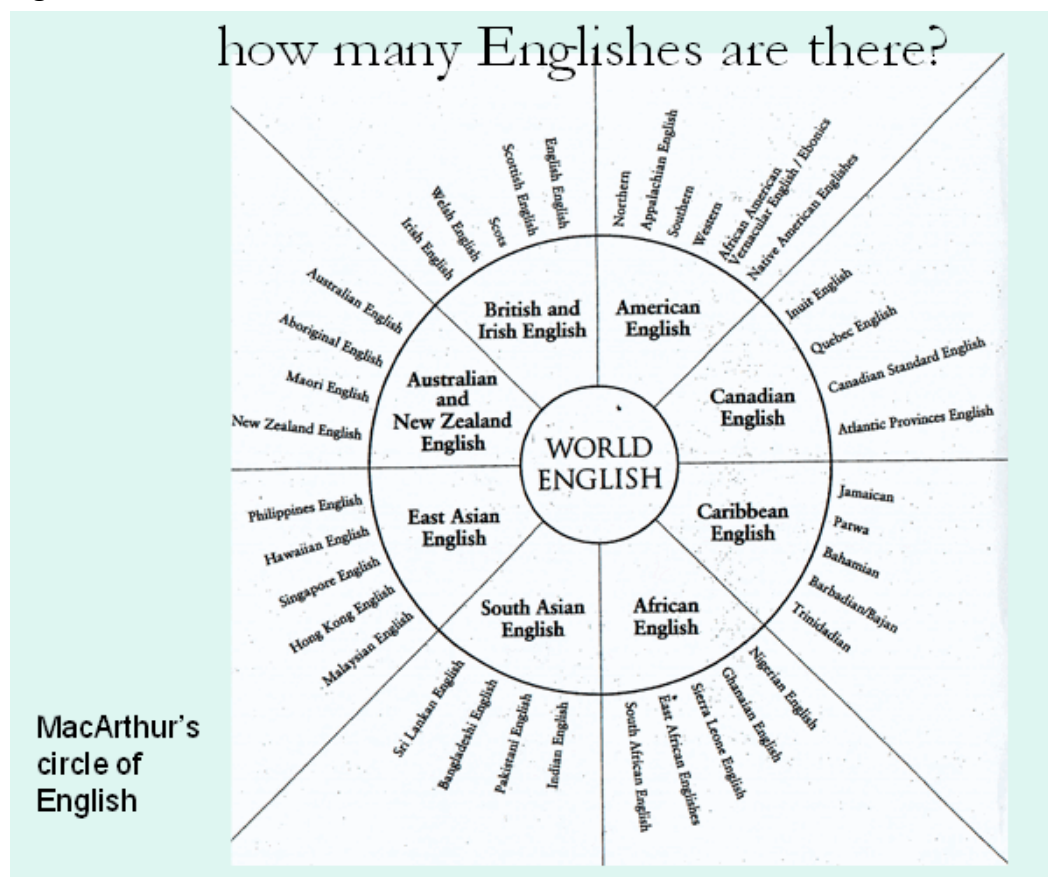
These competencies, which each focus on one or more of the basic language skills—listening (L), speaking (S), reading (R), and writing (W), plus vocabulary (V), grammar (G) and literature (Lt)—are intended to integrate English language with literature, plus a focus on functional skills. Some of these competencies lend itself to incorporating academic language skills (A), which will be discussed below. The integrated approach to the teaching of English involves a symbiotic relationship between using Literature to teach English and using English to teach Literature (Okwara, Shiundu & Indoshi, 2009). This approach differs from the traditional approach of teaching language and literature separately.

In their evaluation of the implementation of the Integrated Approach to Teaching English in Kenya, Okwara, Shiundu & Indoshi, (2009) found that English language teachers graduating from Kenyan universities and colleges of education were not educated to teach using this approach (p 308). This helps to explain the absence of uniform understanding of this approach which has had negative implications for the curriculum. Despite more than 22 years of this approach in existence, 90% of the teachers viewed English and literature as separate subjects (p 306). Some teachers were unprepared to deal with the difference between literary language, which allows a writer to “distort concepts, meanings, word order

and sometimes new word coinage to achieve a desired poetic effect” and (p 306) and the formal standard language.

Kioko & Muthwii (2001) have discussed the discrepancy between the formal British English that has remained the assumed target for instruction since the colonial era, and the sociolinguistic reality in Kenya, where there has emerged over the years a “nativised Kenyan educated variety of English” (p 208) which incorporates aspects of the local languages into the way English is used in the society. Many countries that had been colonized by Britain have developed localized varieties of English, so that there are now a variety of African, Caribbean, and Asian Englishes, among others (Deyuan and David, 2009; Melchers & Shaw, 2003; McArthur, 1998; Kachru, 1992). [See Figure 1] These indigenized forms of English incorporate functions which differ from those which it performs in the native English speaking contexts (Chisanga and Kamwangamalu, 1997; Mutonya, 2008) as they accommodate the communicative needs of societies that are non-native English speakers (Kachru, 1983). Acceptance of the localized variety of English does not impact the competencies outlined in Table 1.

Figure 1



Since government policy has not caught up with the sociolinguistic reality of Kenya, both teachers of English and students in Kenyan educational institutions face linguistic

challenges. A paradox arises with the teaching of literary works that manifest creativity especially in using localized and other varieties of English while students are examined in the formal British English in the national examinations (Kioko & Muthwii, 2001).

While the educated class has developed its form of English, young people at the grassroots level have appropriated lexicon from the dominant languages, English and Kiswahili, mixing them with the local languages and utilizing Kiswahili morphosyntactic structure to develop their own language, Sheng (Mbaabu & Nzuga, 2003). Momanyi (2009) maintains that Sheng is impacting negatively on the teaching of languages in Kenyan schools.

In effectively preparing teachers of English, teacher educators must highlight this sociolinguistic reality of Kenya and contrast this with the formal English they must learn for their exams. An additional part of this picture is the academic language that students encounter in the various subject domains: science, social studies, math, as well as English literature. This addition broadens the integrated approach to teaching English as it considers English more widely across the curriculum. It actualizes the recognition that students are learning English while learning in English.

What It Means To Teach Academic Language Proficiency in English

In teaching English as a subject at the secondary school level, teachers of English should be cognizant of the cognitive academic demands made upon the students. This means having an awareness of the language based skills required for the different subject domains, i.e. the language of science, social studies, math and literature and knowledge of multiple genres. Each discipline has its specific register as well as particular genres that are most prevalent. See Table 2.

Table 2: Categorization of Academic Language

Registers	Genres	Examples of Syntactic Features
Science	Factual: procedures, reports Analytical: explanations, interpretations	Use of passive voice; Long noun phrases serving as subjects or objects; If...then constructions; Logical connectors (because, however, ...)
Social Studies	Factual: recounts Analytical: exposition, analysis of events, accounts, interpretations	Long sentences, embedded clauses; cause and effect statements; frequent use of pronouns as referents
Math	Analytical: explanations	Comparatives: greater/less than...; Prepositions: divided into..., divided by...;

		Passive voice: when x is added to.... Conditionals: if...then
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There is not a direct correspondence between registers and genres, as some genres are used in more than one register. But focus on specific academic functions within registers can provide a reference point for teaching content literacy. One approach to focusing on academic language is to distinguish between language objectives and content objectives. See Table 3. The English teacher is charged with helping students develop the skills to meet the language objectives, e.g. students should be able to state the main idea in one sentence.

Table 3: Language vs Content Objectives

Language Objectives	Content Objectives
Compose	Apply
Scan	Categorize
Discuss	Calculate
Read	Design
List	Identify
Persuade	Select
State	Create
Record	Hypothesize
Listen	Use
Compare/contrast	Produce
Describe	Estimate
Write	
Summarize	

Language objectives cut across content areas, e.g. students are required to list, compare/contrast, describe in science, social studies, and literature. Content objectives denote higher order cognitive skills that are required in different subject domains, e.g. ‘calculate’ is common to math, and ‘hypothesize’ is common to science though they may also be done in other subject areas. Subject teachers are responsible for assisting students in meeting the content objectives. English teachers should be concerned with the language skills, using the content areas to enhance language development. In other words, the English teacher should not be expected to be a social studies or science teacher.

Academic vocabulary should include: meanings of words across disciplines, polysemy; derivations and affixes; grammatical features; modal auxiliaries; and opportunities to see these features in readings and use them in writing (Xu, 2010). Proficiency in academic language includes knowledge of common and less frequent vocabulary as students are

required to interpret and produce increasingly complex language. Comprehension requires students to know between 90% and 95% of the words in a text (Calderon, 2007). Since it is not feasible to expect students, especially those learning English as a second language, to know all the words in academic texts they encounter, categorizing words into three tiers may be a helpful way of organizing word for them to learn.

Beck, McKeown & Kucan (2002) distinguish between 3 different tiers of words. See Table 4. Tier 1 comprises basic words. These are general words, found in ‘sight words’ and ‘most frequent words’ lists. In Kenya students should learn many of these words in primary school as they develop their proficiency in English. Tier 2 includes high frequency words that students will encounter in a variety of readings, some with different uses across disciplines. They are more conceptual words, with specialized uses, and are encountered across the curriculum. Tier 3 is comprised of low frequency words, associated with specific domains. These technical words are usually taught within the content classroom as they tend to be limited to use in specific domains. Tier 2 words are the primary focus of academic language; they encompass various categories of words that cut across domains. These words need to be taught and they have potential for increasing word knowledge exponentially.

Table 4: Examples of Tiered Words

Tier 1 General Words	Tier 2 Specialized Words	Tier 3 Technical Words
answer	define	mitosis
find	establish	photosynthesis
search	every	igneous
water	although	trait
up	reduce	isotope
how	never	peninsula
map	verify	osmosis
question	power	democracy
therefore	right	republic
also	character	quotient
make up your mind	plot	amoeba
once upon a time	combine	quadrilateral
	estimate	inlet

Words can be grouped into different categories. One category that can present confusion for students is polysemous words. These are high frequency words with multiple meanings across disciplines; so students must understand the context in which the words appear to discern the meaning of the words. For example, ‘right’ can refer to a direction (opposite of

left), an angle (in math), an entitlement (in social studies), a quality (correct). Some other selected categories include:

- word families: act active, action, actively; real, realistic, realistically; realize
- affixes: transportation, recorder, return, independent
- homonyms: ate, eight; can (able), can (container);
- homophones: carrot, carat; rose (flower); rose (rise);
- homographs: lead, lead (mineral); present (gift), present (give)
- synonyms: little, small, tiny, miniscule, minute; big, large, huge, gigantic, enormous
- word categories: rectangle - polygons, quadrilaterals, squares...

Metacognition is an important skill in developing academic language, as it enables students to discern meanings of unknown words through an expanded awareness of vocabulary thereby continually building and increasing their vocabularies (Stahl & Nagy, 2006). Teachers can assist students in building word knowledge through placing words they encounter in categories with like words. For example, when they meet a word like 'revive' they can consider the meaning of the prefix 're-' meaning back or again, then list other words that use that prefix: e.g. return, regain, resend, redirect, redo, revisit, redesign. Homonyms can be related to spelling, so students know when to use 'right vs write' or 'way vs weigh, or whey.'

In addition to vocabulary, it is important that students develop an understanding of language functions, which includes syntax and vocabulary. For example, seeking information is an important academic language function. This involves wh-questions (who, what, where, when, why, how?). The language structures (syntax) most closely associated with this function are: forms of the verb 'to be'; action verbs, prepositions. Chamot (2009) has outlined the most common academic functions. See Table 5. These are some of the features of academic language that educators in Kenya, and other countries that use English as the language of instruction at the secondary school level and above, should consider incorporating into a teacher education programs. Focus on these aspects of language would enable educators to introduce them to the teacher trainees who would in turn help their students understand these language functions.

Currently, in Kenya, the Integrated Approach utilizes literary texts to teach English at the secondary school level. The next section briefly analyzes a textbook that utilizes this approach and considers how wider academic language might be incorporated in the English curriculum at this level.

Table 5: Academic Language Functions

Academic language functions	Tasks
Seek Information	ask: who, what, when, where, how
Inform	recount information or retell
Compare	explain graphic organizer showing contrast
Order	describe timeline, continuum or cycle
Classify	describe organizing principles
Analyze	describe features or main idea
Infer	generate hypotheses to suggest cause/outcomes
Justify & Persuade	give evidence why "A" is important
Solve Problems	describe problem-solving procedures
Synthesize	summarize information cohesively
Evaluate	identify criteria, explain priorities, etc.

Overview of a Kenyan English Textbook Incorporating the Integrated Approach

To consider how a Kenyan textbook for secondary schools has approach the integrated syllabus, I briefly reviewed *New Horizons in English: A Course for Secondary Schools*, by Alice Kiai, Benson Oduor and Emily Owuor (2003), Book 1 (for Form 1). Its description, on the back cover, states that "this is a course that adopts an integrated approach to the learning of English through creating merging of the four skills (listening, speaking, reading, and writing) and effectively integrates the learning of English language and literature."

Each chapter contains a reading comprehension passage taken from a literary work or a newspaper article. At the end of the passages are 10 questions, one being the identification of the meaning of several words used in the passage. The questions enable students to practice a variety of reading comprehension skills. In one unit, among the questions was an opportunity for students to extend their vocabulary:

9. "*...she beat a boy, whack! Whack.*" *The word whack describes a sound made by the cane as it lands on the boy's hand. What English word describes the following sounds:*

- a) *someone falling into a pool of water*
- b) *a bee in flight*

10. *List as many names as possible that are used to refer to new-comers in schools. (p 5)*

Both of these exercises help students extend their vocabulary in a systematic way. Question 9 above, which highlights the literary tool of onomatopoeia, calls upon students to consider other words that fall in that category, while question 10 focuses on synonyms.

Each unit introduces a grammatical item: e.g. parts of speech, sentence types, articles, etc. In some units, students are asked to identify the grammatical point in the comprehension passage, while in other cases the grammar exercises are a series of discrete sentences requiring students to insert the correct grammar. Additionally, each unit includes an exercise on idiomatic expressions. In some units they are related to the comprehension passage, in other cases they are discrete items. The comprehension passages in this text are culturally sensitive. Most of the passages are extracted from African novels, or other literary works, or articles taken from the local newspaper, utilizing names and experiences that would be familiar to most Kenyan students.

Oral skills are introduced and practiced, in the text, with a focus on different speech sounds, with each unit focusing on different sounds. There are also opportunities in some chapters for students to do role play or read aloud. Several units include a listening passage or dictation, focusing on the targeted sounds. Each unit requires students to do a piece of writing.

To broaden students' understanding and provide practice with academic English, a diversity of readings passages could be included, taken from textbooks in social studies, science and math. The questions and exercises in the units could engage students in identifying the types of language used in the respective texts, focusing grammar points and idiomatic expressions on the respective passages, then extending them to explore related forms and categories as a way of extending students' vocabulary. When teaching students how to use a dictionary, they can be directed to consider the multiple meanings of polysemous words and consider specialized contexts in which different meanings would occur. They could also be given activities where they utilize different language functions (Table 5) and identify different syntactic forms used in the different texts (Table 2).

Integrating these language functions and ways of understanding English vocabulary into the English course would need to be thoughtful, selecting passages from texts that represent different genres and language functions. They could be extracted directly from textbooks currently used in Kenyan schools for teaching math, science and social studies, similarly to the manner in which passages have been extracted from literary works to utilize in the Horizon textbook described above.

Implications for Teacher Education in Kenya

This paper starts with the recognition that English is currently the language of instruction from Primary 4 onwards in Kenya, and that English medium instruction presents difficulties for some students. It seeks to extend the notion of the integrated approach to teaching English from simply the incorporation of literature into the English syllabus to integrating an understanding of academic language across the curriculum, as a means of providing more effective instruction in English.

In their evaluation of the Integrated English Approach, Okwara, Shiundu & Indoshi (2009) found that teachers were not prepared in their methods courses to implement this approach. As a result, there were differing conceptions of what it meant to integrate language and literature, when teachers have traditionally viewed these as separate subjects. Many teachers were trained to teach them as separate subjects, and while some teachers had studied both language and literature, others had only studied one or the other, with an additional teaching subject. When introducing a new approach to teaching, one cannot expect teachers to implement that approach if they have not been prepared to do so, either as pre-service or in-service. Okwara, Shiundu & Indoshi (2009) maintain that curriculum developers must work as partners with Teacher Education Institutions to initiate and implement innovations in the curriculum. With this in mind, it would be important to forge this partnership in considering how to incorporate a focus on academic language as part of the secondary school English syllabus.

Ideally, all teachers should focus on literacy needs of their subjects. But, even in the United States, where there is a lot of literature on teaching literacy across the curriculum and some school districts require, at the level of rhetoric, teachers to do so, this is not fully implemented and remains a work in progress. Many subject teachers are unsure how to teach literacy in their subject area as they have specialized in math, science or social studies. Some of the teachers in the evaluation of the Integrated Approach cited above noted that they had studied literature, and were therefore not prepared to teach language and literature as an integrated subject. The concern of some teachers was that the language of the literary texts did not conform to the formal language they were expected to teach in helping students develop English language skills (Kioko & Muthwii, 2001). This discrepant form of language must be highlighted as a separate genre. Literary language is a distinct genre in the same way as science, social studies and math language.

Teaching what is considered English (language skills) is considered to be the job of the English teacher. I recall during my teaching in Tanzania, during the 1980s, subject teachers would place the blame for students' difficulty in reading textbooks and writing in their

subject areas on the English teachers. Although I am not as familiar with the Kenyan schools, I would assume there is a similar sentiment in Kenya.

Bunyi (1997) has noted that some teachers encounter difficulty in clearly and simply explaining mathematical and scientific concepts to their students due to insufficient vocabulary to express themselves. This should not be surprising since these teachers are also learners of English as a second language. In Tanzanian schools I witnessed teachers' incorrect language and code switching at times. I recall one teacher using the term 'maleaf' in teaching about leaves (Roy-Campbell, 2001). 'Ma' is the plural marker for leaves in Swahili.

Highlighting academic language in the different subject areas, as outlined earlier, would appear to be a feasible approach to addressing teachers' inadequate proficiency in English while preparing them to teach English. As students in the teacher education program they can learn how to categorize English vocabulary in meaningful ways which they, in turn, could teach their students. Using extracts from science, math and social studies text books as reading comprehension passages would enable students to identify and become familiar with different features of academic texts and this could assist them in their content classes. The starting point of this approach would be teacher education faculty and curriculum developers. They would need to partner with teachers to develop teaching resources to implement this approach. An initial stage in this process would be to identify the academic language demands in the different domains. This would require a research study. Additional studies would be to examine the Kenyan variation of English, to identify the salient features that may differ from British English and to consider how to highlight the differences between Sheng and the formal language they learn in school. One approach used in the USA to draw a distinction between African American language and Standard American English is contrastive analysis (Wheeler & Swords, 2006). This approach enables students to see the two language systems as distinct parallel forms and understand when to use one rather than the other.

Conclusion

This paper has considered one way the teaching of English, both in the preparation of teachers and in secondary school, could be improved to encompass the varying needs that students have for English. It is grounded in the recognition that English is currently the language of instruction, and as such could be taught more effectively. The origin of this paper is the author's involvement with a project charged with improving teacher education in Kenya. As a language educator, this author appreciates the importance of language in the

education process and sensitive to the difficulties in using a former colonial language as the essential language of instruction.

Ultimately the language issue must be considered at a higher level as most Kenyans speak at least 3 languages: their mother tongue, Kiswahili and English. For education to be most effective it should be in a language that the students understand, or there should be a bilingual education policy so that students' education is not compromised by insufficient proficiency in English. Language should not be a barrier to school-based knowledge but should enable the acquisition of that knowledge (Roy-Campbell & Qorro, 1997).

Although this paper focuses on Kenya, its premise that students should be taught academic language is applicable to other countries that use English as the medium of instruction. Research in how to implement such a policy should, therefore, not be limited to Kenya. There could be collaborative projects, across countries, looking into how to incorporate understandings of academic language in the English syllabus. Studies could also examine East African Englishes, considering similarities and difference in the English used in the 3 East African countries.

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MENTORING AS A PROCESS OF TRAINING TEACHERS IN THE 21ST CENTURY

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Abstract

The context of this paper is on a mentoring programme that is designed to improve the training of pre-service teachers. Most pre-service training programmes in developing countries follow the corporate model when it comes to TP or intern sessions. This model allows for students to be posted to schools according to their selection and is mainly assessed by tutors or lecturers from a college or university. There is normally very little structure in the interaction with the teachers in the schools. This model has been criticized as lacking a professional structure to guide pre-service teachers during TP. The main weaknesses have been linked with poor quality professional guidance and school assimilation. The end-product is teachers who lack collective responsibility in the profession. This concern has been reflected in a number of reports including those by novice teachers and school inspectors. One reason schools, colleges and universities have not managed to prepare teachers well has been due to the corporate model which is viewed as defective at modern times. This realization has prompted designs which emphasize mentoring. One such a design in teacher mentoring that uses a collaborative professional model which is also often referred to as the practicum model. The central player in the practicum process is the mentor-teacher who would be an experienced teacher for most mentor programmes. The main role of the mentor is to offer frequent advice and guide to intern teachers based on their professional experience. The theme of this paper is to outline a mentoring programme that was designed to up-grade the earlier mentoring programmes by not only depending on the teacher experience but also offering training to the mentors. The mentors are experienced undergraduate teachers who are trained for two years at masters level in Education. In addition to the common units for the MED course, there are units which emphasize mentoring process techniques and skills which are applied during the course and thereafter. The mentor finish the course not only with experience, confidence and skills in mentoring but also with a masters degree certificate in Education. This design is beginning to show encouraging results, thus giving a lot of hope to the teacher training programme.

Introduction

In order for teachers to be sufficiently prepared for the challenges of the teaching profession, it is vital that student teachers receive comprehensive pre-service training. It has been argued that a proper pre-service training greatly improves classroom practice as it is the stage that determines induction success and in some countries, teacher retention. In fact, some scholars have been emphatic that the preparation and performance in student teaching is the single most important criterion for predicting success in inservice teachers (Vonk, 1993). Student teaching is considered the pivotal component of any programme. Institutions running teacher education programmes will normally have the professional courses which could include psychology, curriculum and pedagogy. These are organized in the campuses. For a teacher, all this knowledge has to be translated in classroom practice. A session is organized for pre-service teachers to “practice how to teach”. Various labels have been used to describe this session and the common terms are ‘**Teaching practice**’ and ‘**practicum**’. The teaching practice is regarded as when “theory meets practice and idealism meet reality”. Students are given an opportunity to learn, practise and reflect upon the roles and responsibilities of being a teacher.

Different institutions in different parts of the world have various modes of organizing for teaching practice or practicum. These variations have been occasioned by a number of factors which include: economy, research knowledge and lastly the preference. These factors have been used by different institutions to come up with what I would refer to in this paper as **models** of teaching practice or practicum. This paper takes you through a progression of models which are used in the pre-service teaching practice. In doing so, it touches on the **three models** which are: **the corporate model** which is regarded as the traditional model; the more improved **collaborative model** which uses the **concept of mentors**, who are experienced teachers. It ends with the **emerging model** which also uses the mentor concept but goes further by not just depending on the classroom experience of mentors but actually trains them in the mentoring skills.

The corporate model

The **corporate model** can be regarded as the basic and **traditional model** that has been used in many parts of the world. This is a model which is still persistent in developing countries for various reasons. It is economical in its operation and can be managed and sometimes abused by generalists. What is the structure of this model? This model allows students to apply for schools of their choice and posted as per their requests by a university or college coordinator. Placement of the pre-service teachers is controlled by the needs of the schools. They select the teachers with the subjects where there is a shortage (Fig 1). There are times, indeed when a pre-service teacher is placed in a school where there is no other teacher in the subject, a situation which makes the teacher “the head of the

department". How is such a teacher going to be guided? When it comes to assessment, the teachers are assessed directly by lecturers or tutors from university or college. They arrive and go straight to the classroom to assess the student. From the classroom they take off, giving very little regard to the school environment. There is almost no interaction with the teachers and administration. Even where there is a co-operating teacher who is supposed to guide the pre-service teacher, "experience has shown that in some schools, the co-operating teacher simply takes leave and abandons the practicing teacher to go it alone".

The corporate model has been associated with many weaknesses (Pungur, 2007):

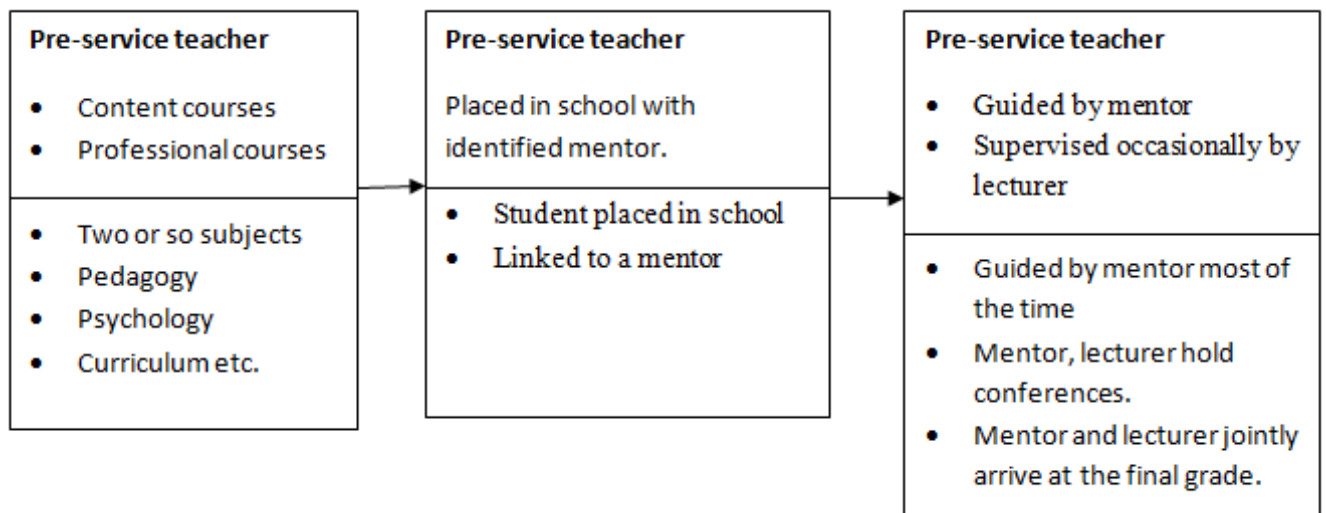
- Little or no interaction between the supervisors, the practicing teachers and the school management.
- Limited feedback to supervisors on professional development of the pre-service teacher.
- Limited guidance to the pre-service teacher by teachers in the school.
- Supervision mostly by generalists thus lack of guidance in content area.

These weaknesses in the end translate to poor quality professional guidance and school assimilation. The end product is teachers who lack collective responsibility in the profession. Such weaknesses are afterwards brought to classrooms resulting in ineffective instruction and poor performance. In order for pre-service teachers to be sufficiently prepared for the challenges of the teaching profession it is important that new models of training devoid of salient weaknesses are designed and practised. This realization has prompted innovations in pre-service training and one such and popular innovation is the design and use of the **collaborative professional model**.

The collaborative professional model

The central player in this model is the **mentor teacher**. A mentor teacher would be an **experienced teacher** in the school who provides front line advice, support and feedback to the student-teacher. Mentors in general use their experience to assist student teachers in developing classroom management skills, gaining familiarity with methodology, use of resources, lesson planning, assessment and reflective practice. It can be summarized that mentors generally provide guidance and model professional behavior through the development of supportive relationships and responsible for holding the key to evaluator role.

Figure 2: The Collaborative Professional Model



The critical stage in this model is the placement time. Prior planning and even agreement is needed before the posting stage. The training institution needs to have some standing agreement with the school and even at times with the mentors. The training institution will be required to play diplomacy or use some policy to work with schools. At times it may come down to working only with those schools which “match with your policy and have willing experienced teachers to act as mentors”.

One assumption which is often made in the mentoring initiative is that all experienced teachers are competent as mentors. This assumption cannot be taken for granted because effective mentors should have certain qualities as identified by Tilley. (2002): Pg 17.

Mentors need to be committed to the educational exercise and to take an interest in the personal and professional development of the mentee. Mentors need to be flexible enough to tolerate and appreciate the uniqueness and individuality of the mentees.

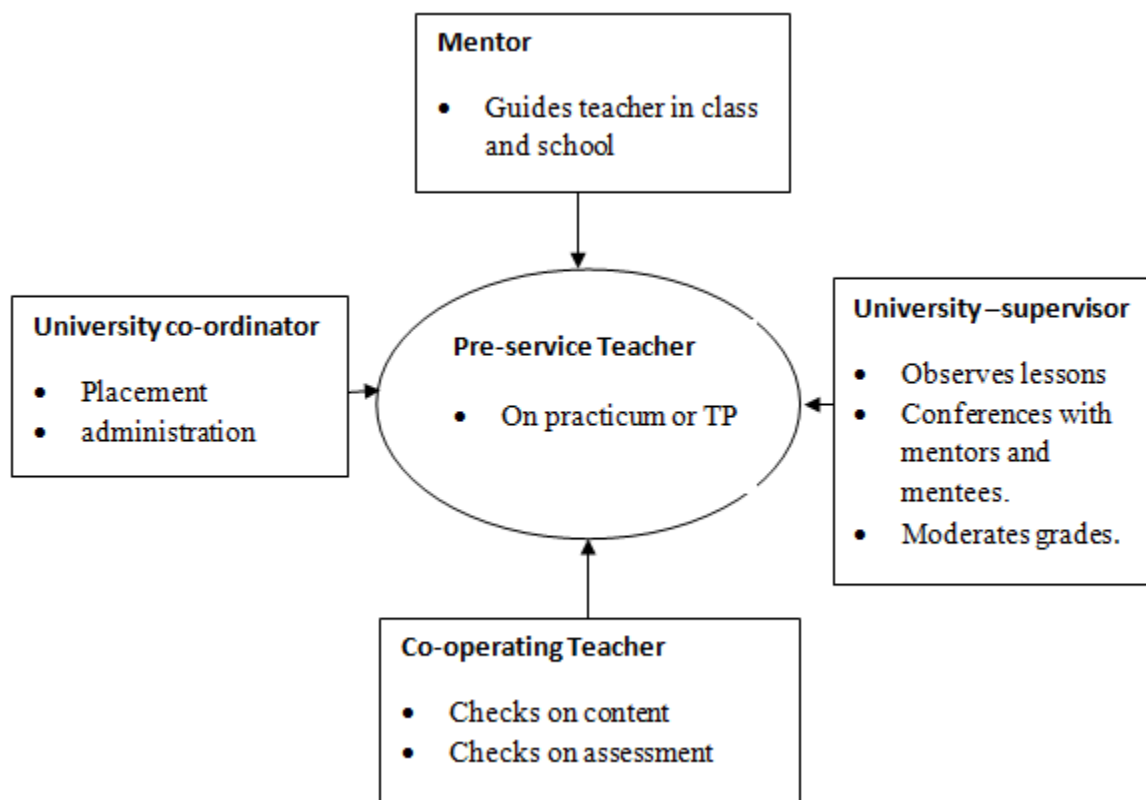
For an effective mentoring relationship to develop it is crucial that the mentor has good interpersonal skills and the ability to:

- Listen very attentively
- Deal with differences of opinion in a non-judgemental manner
- Ask open-ended questions rather than closed ones.
- Focus on the mentee’s agenda
- Show flexibility and be creative.
- Use all the above interpersonal skills for the benefit of the practising teacher.

These characteristics are important for the success of any mentoring programme. As Mallison (1998, pg8) argues “Good mentoring involves bonding, connectedness, rapport, mateship, affinity, things in common and genuine concern”. Trust between the mentor and mentee is vital as it brings confidence that lays ground for free interaction in a natural way and at times spontaneously. A mentor should view the mentoring process as a holistic exercise which is mentee-centred rather than performance centred. This view is consistent with Mallison (1998 Pg 87) who contends that: “The ideal mentor is a functional mentor responding to the needs of mentees in varying situations”. A mentor should adopt the role of ‘encourager’ and one who provides a mentee with the freedom and space to develop confidence and self-esteem.

The **collaborative model** gets this label because its operation forges the collaboration between the two key institutions, which are the schools and the teacher training institutions which can be universities or colleges. Therefore, the success of pre-service training and in particular teaching practice or practicum based on this model depends on the harmony between the two institutions. There are key players in this model and each has a specific role (Fig 3). Let us take one person at a time.

Figure 3: School-University partnership in collaborative model.



The mentor teacher is central to the success of practicum or teaching practice. Mentors assist the practicing teachers in various ways. They assist in guiding practicing teachers to select the right approaches, classroom management skills, and assessment modes. In brief, a mentor models and guides a practicing teacher in all professional development (Weasmer and Woods, 2003). The mentor can also extend the mandate by overseeing the function of the co-operating teacher.

The co-operating teacher is the one who gives out the lessons that the practising of the co-operating teacher to introduce the practising teacher to the class and to the school requirements and regulations. In addition to all these, the co-operating teacher has the role to act as a link person between the practising teacher and the mentor. This is the person who is vast in the content and hence is suited to guide or assist the new teacher. Where possible and particularly at the start of the exercise the co-operating teacher has the option to sit in class to ensure that the teacher is 'doing things right'.

The university or training institution has its representation and role in this model. There is the university coordinator who has the main roles of placement (posting) of pre-service teachers or students in suitable schools. This is often a very delicate task as there has to be a mentor-student teacher link. This can be quite a headache especially if the population requiring placement is large. The university co-ordinator has also another role, that is of overall administration. Has to ensure that the mentor process is working well and the right university assessors (supervisors) are in the field to observe and bring feedback for records. The last person with important role in the model is the university supervisor. This should be established in teacher development. Such a person will observe the student-teacher in class. After observing lessons, would arrange for conferencing with the mentor and the teacher for purposes of giving advice. Usually, this would end in an evaluation process when the supervisor and mentor jointly come up with an agreed grade. In most cases certain characteristics define a strong student-teacher link and that is why a university supervisor would not just engage in subject-specific support but also content. In sum, the university supervisor's main task is to open and maintain communication between the parties (Willems, et al; 1986).

The collaborative model has been used in many parts of the world with some modifications and sometimes using different labels. It has mainly been applied in Canada, Australia and Hong Kong (Pungur, 2007). In some countries it has been referred to as Professional Development School (PDS) model. Whatever the modifications, they are often minor as the main structure is usually kept intact. There is no structure without challenges and so is with the collaborative model. The following have been identified as the main ones:

- Establishment of the working relationship with schools. A university needs a number of stable schools that can absorb student-teachers.
- Some training institutions have a large number of student-teachers that go for practicum or teaching practice at a given time. Placement can be a tall order.
- The training institution should have adequate staff well established in teacher development. This is useful as they are expected to be “at the top of things” when in schools.
- There are cases when the mentors may require some remuneration in one form or another. This can push expenses up-beyond the budget.

Despite these possible short coming of this model, it is still viewed as the best around the world. After studying this model carefully, some designers in teacher Education have identified possible improvements. In particular, **improvement of the quality of mentors**. If you may note, the **mentors in the model depend on their experience and have no formal training in mentoring skills**. This is a weakness that can be improved and innovation has targeted this aspect.

Emerging model in teacher development

This is one of the new models in Teacher Development. One can say that it is in its formative or trail period and it comes with many modifications from region to region or institution to institution. The main modification and emphasis is in the **improvement of the mentoring skills**. Such skills can be imparted in a variety of ways:

- Short courses for the experienced teachers over week-ends.
- Short courses for the experienced teachers over the school holidays
- Structured courses designed for certification over a specified period.
- Structured courses designed to be integrated in the formal study courses for certification.

Most of these structures have been tried out in various parts of the world and institutions. A good example of this type of model is practiced by the KU-Braeburn structure. This structure recognizes that **mentoring programme is valuable but can be enhanced by equipping mentors with definite skills**. Based on this premise a professional development school model was designed and is being practised.

The main difference and something new that this model brings is the integration of courses on mentoring skills in the programme. The programme runs undergraduate and masters courses. The structure is such that the masters students are given skills to mentor the

undergraduates. The courses are run during the school holidays for the simple reason that a number of the students are teachers. In the outline form:

- Two courses are organized –the undergraduate (B.Phil) and masters (M.Phil) levels. The masters students are experienced graduate teachers.
- During school time students are in school as teachers. Those who have not secured a teaching position are usually placed in school to facilitate mentoring.
- In the holidays, student-teachers from various schools hold courses in the institution. The masters students receive courses on mentoring skills in addition to the common professional courses.
- When they go back to school, the master’s students (teachers) mentor the undergraduates. The aim is to cover all the undergraduate in the mentoring process.

Figure 4: Emerging model in mentoring

Degree level	Courses in school holidays	School time
Undergraduate (B.Phil)	Professional courses	Teaching and being mentored
Masters (M.Phil).	Professional courses (plus mentoring courses)	Teaching and mentoring

This model ensures that nearly all the teachers are taken care of in the mentoring and where possible in their schools. The other positive point on this model is that the mentors are rewarded in terms of certification and they can be regarded as professional mentors.

The ideal situation is when both the mentor and mentee are in the same school and can therefore have face-to-face interaction. There are situations, however, when there is a mentee in a distant school. A solution had to be found and one attempt or innovation was in e-mentoring. The on-line mode of mentoring was used to exchange ‘notes’. This mode, however, was not without its challenges and the following were the main ones.

- Low frequency in the rate of interaction.
- Misinterpretation of some situations or information
- Low volume of ‘notes’.

Although e-mentoring comes with its challenges, it is an option worth exploring as it has the potential to be the mode of the future mentoring process. This is likely to be so, considering the emergence of the ICT and the increasing number of potential mentees.

Implications and conclusion

The Teaching Practice (TP) or in some literature referred to as practicum is a key component of teacher education. There are future implications for teacher success, classroom practice and performance in school subject areas. Reports from school administrators who have been exposed to a variety of teachers trained through different modes indicate that newly qualified teachers with field-based programme backgrounds operate like teachers with two or three years of experience compared with the traditional campus-based or corporate modeled graduates (Huling, 1998). The new teacher training models that emphasize mentoring produces a graduate who has experienced all-round classroom practice and therefore brings a lot of professionalism in the school.

The role of a mentor should be viewed as very important in the process of Teacher Development. For mentoring to go beyond what one may consider as a routine task, there should be designed courses to support mentors with relevant skills to empower them to be more effective in the job and consider themselves as professionals. The professionalism should go with the certification as an academic reward. In this way we shall start having a reservoir of not only professionals but confident and dedicated persons in the profession. Such a group is bound to have a positive impact on the profession with the ultimate effect on improved performance on school subjects. Quality education with relevant knowledge and skills is the end product. If the majority of citizens can acquire this in a meaningful way and apply it, there no doubt that they will use it for societal development. After all, this should be the main objective of education.

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PREPAREDNESS OF SPECIAL EDUCATION TEACHERS IN THE USE OF ASSISTIVE TECHNOLOGY IN THE CLASSROOM: A CASE STUDY OF ONE TTC.

ABSTRACT

Technology is perceived as a great equalizer for learners with special education needs who might otherwise not have full participation in schools and societal activities. Nevertheless, the success of students with special educational needs (SEN) relies heavily on the knowledge, skills, and dispositions that special education teachers possess regarding assistive technology (AT). There is therefore, the need to develop AT competencies in special education teachers. This will hopefully lead to tangible outcomes for all students with SEN. Consequently, if AT becomes a reality in the pre service special education teacher training programmes, the vision for equal and accessible educational opportunities for learners with (SEN) will be realized.

This article reports on the findings of a study purposed to determine how special education teacher trainees are prepared to use AT in the classroom. The sample was a special education teacher training college where tutors and teacher trainees participated. The study took a qualitative case study design where various themes emerged. These include the infusion of AT in the curriculum, the available AT facilities in the college, integration of AT in the teaching and learning processes in the college, strategies used in teaching AT to the trainees, exposure to hands on experiences, and the challenges faced by the trainees and tutors in the use of ATs in the college.

INTRODUCTION AND BACKGROUND

Technology is rapidly becoming the most popular teaching tool of the 21st century and it is being used to enhance the delivery of instruction and supporting management in learning institutions (Birnbaum 1999). At the moment, therefore, there is an unprecedented amount of training at all educational levels on the use technology (Monteith, 2006). Moreover, Darling-Hammond, (2006) advocates for adequate training of teachers in order to equip them with the 21st century skills, which will equip them with the 'what' and 'how' to teach knowledge thus enabling them to become adaptive experts who can continue to learn. Apart from this emphasis on quality training of teachers, there is the call for education for

all (EFA) through various conferences at the global level. A good example is the Salamanca conference (1994) which advocates for equal and accessible education for learners with special educational needs (SEN). Similarly, the global monitoring report on EFA shows the need for all to access quality education by 2015. This target has resulted to the issue of inclusion where all students study in the same classroom with the same teacher(s) accommodating both the challenged and non challenged learners. The former requires special attention in order to meet their learning needs while the latter do not.

In response to inclusion, those delivering initial primary teacher education (IPTE) programmes for special educators have been challenged to ensure that these teachers are well prepared to effectively support all learners within inclusive classrooms (Lambe 2007). Furthermore, this inclusive education calls for the need for special education teachers to be well trained and equipped in order to support different special educational needs. Such needs are as a result of diverse disabilities which include; mental retardation, hearing impairment (including deafness), speech or language impairments, visual impairments (including blindness), serious emotional disturbance, orthopedic impairments, autism, traumatic head injury and other health impairments, or specific learning disabilities, (Individuals with Disabilities Education Act, (IDEA) 2004).

For teachers to be able to attend to the different needs of a variety of learners there is need to be trained with hands on experiences. Such experiences will increase their knowledge in use of available resources and equipment. With this knowledge, special education teachers will be able to assist not only the needy students but also, the non special educators for the inclusive classrooms.

Information communication technology (ICT) in special needs education is called assistive technology (AT). It is a consequence of the many innovations in technology that supports children with SEN. ICT could have lasting impact in terms of enhancing teaching and learning capabilities, and helping the physically challenged to carry on their daily life normally as well as enabling them to access the curriculum alongside their peers (Ananthkrishnan, 2006).

AT is defined as any device that supports, increases or improves the chances that a student will learn in school (IDEA, 2004; Cavanaugh; 2003). AT achieves its objectives by providing enhancements to technology or providing alternative means or methods of interacting with technology. Sze, (2008) acknowledges that technology intervention within special education has a long history. She notes that it began with the funding of AT in 1967 by the Education for the handicapped Act in America. The IDEA requires schools to provide AT services and equipment to learners with disabilities to ensure a 'free and appropriate' public education.

The reauthorization of IDEA in (1997) and later (2004) mandate AT to be included into the Individual Education Programme (IEP).

In Kenya, a disability act was passed by the government in December 2003 and the National Council for Persons with Disabilities (NCPD) established in 2004. This body oversees all matters affecting the disabled like right to education, health, civil and political rights. NCPD acts as an umbrella body under which is different societies as per the various disabilities e.g the Kenya society for the blind.

A number of AT devices and software are available and that with careful planning and guidance from teachers' learners with SEN can benefit a lot (Duhaney & Duhaney, 2000). Among the variety of AT devices are; Chording keyboards, Expanded keyboards, Compact/Miniature Keyboards, On-Screen Keyboards, Dvorak Keyboards, Key guards, Keyboard filters, Wands and Sticks, Trackballs, Sip-and-puff systems, Eye controlled systems, Joysticks, Optical Character Recognition, Speech Recognition Programs, Screen Magnifiers, Screen Readers, Speech Synthesizers, Closed Circuit Television (CCTV) systems, Braille Embossers, Refreshable Braille Displays and Light Signalers. These types of AT devices vary from low level to high level technology, but each should meet the specific need of the individual for whom it is intended (King, 1999). The same author further highlights four considerations that SEN teachers should bear in mind; need to assess the student and know his/her capabilities and limitations, know what is available in AT, competence in the use of the AT device, and the ability to match the AT device with age, gender and preferences of the user to promote acceptance and use of the AT device. These considerations necessitate quality training for special educators in order to manage all the concerns comfortably. Consequently, Sze (2008) asserts that teacher education programmes have recognized their obligation to provide solutions for the dilemma their teachers face in the inclusive educational environment. This is a proof that the emphasis must not be on the technology but on the pedagogy of learning hence the need for teachers to be well trained in order to be competent in the classrooms.

PURPOSE OF STUDY

The purpose of this study was to explore whether special education teacher trainees, are provided with adequate hands-on training and experiences in AT for future use to enhance the special child's ability to learn, and have equal educational opportunities and later same job opportunities in a variety of fields within the economic sector with their unchallenged peers. My main interest was the use of AT in special education teacher curriculum and the adequacy of acquired skills for use in the classroom with an intention of exploring the role of the teacher in enabling effective ICT use in SEN classrooms. This is for the reason that a well

trained teacher in the use of AT should offer quality services in the classroom and even enlighten the non trained teacher in SEN whose services are essential in the inclusive classroom. In my view, technology as a tool of instruction achieves nothing on its own but rather needs to be manipulated by the skills of the teacher to achieve its purpose. Bradshaw, cited in Birnbaum (1999) notes that unless schools' personnel understand and be trained properly in use of AT, all the effort made towards EFA as well as acquisition of the facilities will be a waste. The purpose of my study is therefore, based on my conviction that; a superior education system heavily relies on the skills and efficiency of the teacher, hence my focus on the teacher training programme.

REVIEW OF RELATED LITERATURE

A) General teacher training

In response to an increasing commitment towards the principles of inclusion, initial teacher training colleges need to prepare teachers adequately to effectively support all learners within inclusive classrooms. Several studies have been done with an aim of establishing the preparedness of special teacher trainees in use of AT (Smith-Davis, 2003; Puckett, 2004; Wissick & Gardner, 2008). To assist learners with SEN as well as aiding fellow teachers on how to deal with these students in the inclusive classroom competently, special education teachers need to be well trained in the use of AT which is vital in equalizing learning opportunities. Verspoor (2004); and UNESCO (2005), corroborate with this view as they assert that, effective teachers are a key enabling factor in the improvement of the quality of education in both developed and developing countries.

A well prepared teacher graduates from college with enthusiasm for the duties ahead. Studies of teachers admitted with less than full preparation (Lesar, 1998; Derer, Polsgrove, & Rieth, 1996; Mistrett & Gavin, 1998)) find that graduates tend to be less satisfied with their training and have greater difficulties planning curriculum, teaching, managing the classroom, and diagnosing students learning needs (Darling-Hammond, 2000; 2005 & 2006). It is therefore imperative, for teachers to be adequately prepared in order to offer quality services in learning institutions for better students' outcomes. This aspiration for teachers to be well prepared in the pre service programmes, explains why I based my study on teachers' preparedness to work in the classroom. This is based on the fact that, a teacher's knowledge level in the subject matter and pedagogical skills dictate the students' conceptualization levels. Sandra (2006) argues that teachers who possess rich integrated knowledge of the subject can influence instruction in a positive way.

B) Special education teacher training in use of AT

Like all other teacher training programmes, the goal of pre-service special education teacher programme is to train teachers who will be able to teach learners with different learning needs. The main aim of this training is to arm teacher trainees with among other things, technical knowledge on working with assistive technology devices comfortably in the classroom. This will enable learners with SEN to learn and access education like their unchallenged peers. Bryant, Erin, Lock, Allan, & Resta, (1998) assert that, appropriate application of AT can promote fuller participation within a school, and improve the overall quality of life of individuals with disabilities. On the other hand, several studies have concluded that:

While it is recognized that technology can have a positive impact on student's learning problems, the process for integration of assistive technology into the curriculum is not well understood (Edyburn, 2000, 2004; Zabala, 2000). Lack of teacher time, limited training, access to support service, limited leadership and lack of a common vision or rationale for AT use are commonly cited problems (Beigel, 2000; Edyburn 2000). One study noted that as barriers such as these decreased, students' use of AT increased (Schlosser et al., 2000).

In an attempt to address the issue of special education teacher preparedness in Africa, the following studies, Ainscow, 1994; Kasayiri, 1995; Jones, 1996; Enoc, 1997,23; Chris & Engelbrecht, 1998; Abosi, 2007 & Agbenyega, 2007) showed the same pattern of inadequate preparation. These studies propose the need for more studies in special education teacher preparation and more so, on the use of AT which none of the studies investigated on. My study which addressed the issue of preparedness in use of AT in the classroom bridges this gap as the findings would inform the African context as a region experiences more or less the same issues.

Further research shows that teachers' attitudes are a key factor for implementation and use of AT (Dorman, 1998; Johnson, 1999; Webb, 2000; Zabala, 2006) and teachers' acceptance of AT is partly attributable to students' success in using AT (Duhaney & Duhaney, 2000; Elliot, et al., 2003). In these studies teachers perceptions showed that additional training would be required, lest the technology would only be applicable to a few students, affecting their enthusiasm for using AT in the classroom (Roberson, 2001; Scott, 1997). In general, educators often feel inadequately prepared to implement AT due to inadequate pre-service training (Bausch & Hasselbring, 2004; Bowser & Reed, 1995; McGregor & Pachuskie, 1996; Toddis, 1996; Todis & Walker, 1993). These studies though done in different contexts and on practicing teachers, inform my study on how attitudes, on the use of technology may affect training teachers in use of the same and its usage in the teaching and learning process in my

context. The general attitude of AT I suppose, would also affect acquisition of skills during training, thus, poor performance in the application of knowledge and skills in the classroom.

C) NEED FOR HANDS ON EXPERIENCES IN USE OF AT

To address adequate teacher preparedness, pre service trainees should have opportunities to observe, receive support (Wilson, 2003), and participate in appropriate technology practices in their practical experiences and later applying what they have learnt in their own classroom. Teacher educators must continue to encourage teacher trainees to be creative and open minded (Wright & Wilson, 2005), and to understand that technology has constraints, breakdowns, and is context sensitive (Koehler & Mishra, 2005). I am in agreement with these authors because I presume that, adequately trained teachers should be able to adapt AT devices to suit different learning needs in case of scarcity in their schools. Judge (2007) shares the same sentiments with the above authors by supporting that AT should be infused in the course work as well as classroom based experiences for hands on experiences. In relation to this, the Salamanca, conference (1994) declares that; “pre service training programmes should provide to all student teachers...with the knowledge and skills required...utilizing assistive technology...etc...” (p.33). Similarly, Dissinger (2003), also calls for the provision of information, resources and hands on experiences in use of AT to enhance teachers performance in the class. Other research by Walh & Buzolich, (2003), (Maddux, 2002; Cavanaugh, 2002; Vannatta & O’Bannon, 2002; ISTE, 2002; Lesar, 1998; Puckett, 2002, 2004; Poel & Wood, 2006), indicate a continued need for more AT training and exposure both at pre- service and in-service levels.

Most of the above studies addresses AT preparedness for use in the classroom just like my study though contexts differ. All the same, on reflection, I conclude that hands on experiences need to be offered at pre-service training fully and later due to daily advancements in technology, a professional development programme (in-service) is vital.

METHODOLOGY AND DESIGN

The study employed qualitative case study design. Punch (1998) notes that “the basic idea in a case study is that one case will be studied in detail with the general objective being to develop as full an understanding of that case as possible” (p.150). Gay, Mills and Airasian (2006) add that, ‘the central focus of qualitative research is to provide an understanding of a social setting or activity as viewed from the perspective of the research participant’ (p.402). A case study design was suitable to my study in that it allows in depth analysis of a situation within a specific setting, something that I did at my research site concerning preparation of teacher trainees in use of AT in the classroom.

DATA COLLECTION PROCEDURES

I used multiple methods of data collection namely; observation, interviews (semi-structured questions for both individuals and focus groups), and document analysis. These methods complimented each other hence giving me varied data.

DISCUSSION

Findings from the sampled tutors varied in their attitudes towards AT and its usage in the teaching and learning process. Some tutor was teaching the AT component in the ICT unit but with feelings of inadequacy. This was evidenced by utterances like:

Though we teach the AT component in our specialization, we were never trained to teach it but, with the help of the manuals of some AT devices and technicians, we are able to handle the component.

Another tutor interviewed confessed that AT is not used by all tutors as some prefer to use other resources in the teaching and learning process. The interviewee however advocates for its use. The third tutor was quite positive about AT and confessed that he uses AT devices in the teaching and learning process and felt that most other tutors from other departments used it regularly. Moreover, the curriculum stipulates use of AT in all units of the pre-service programme either in theory or practical.

My deduction is that all the tutors observed seemed to recognize the need for the trainees to learn with ATs to ensure hands on experiences and knowledge of usability and functionality of all ATs exposed to them. I also gathered that the trainees are given tapes recorded in sign language for the deaf to practice at their own time. The third tutor further said that there are different technicians who are trained in different specialized ATs such as Brailles, audio equipment, hearing aids computers and many other ATs available. These specialists act as 'tutor aids' and accompany tutors in the class for technical assistance if the tutor is less competent in using any device. "These technicians sometimes explain to trainees about the maintenance of these machines. You know they handle them daily" he retorted (Individual interview). However, during the classroom observations, I never witnessed a tutor accompanied by the technician, probably, may be the tutors were confident in the ATs relevant to the content that was being covered then.

More data from the individual interviews informed that, some tutors do not use ATs because of being incompetent but prefer the developed resources and charts that have

been approved. Similarly, another respondent said that she is not well conversant with some software on the adapted computers. "I was trained to teach basic computer skills, there is no where they train the use adapted computers, but I follow the syllabus recommendations, use the manual and liase with the technicians in order to teach proficiently"(individual interview). This I suppose is quite critical because, it is well known that a teacher who lacks content knowledge lacks confidence and even teaching skills. The results are that the lessons become none interactive as expected, with the learners acquiring shallow knowledge, an approach called rote learning (Petty, 2004). Berry (2008) advocates for practical based lessons where learners put content to use.

Nevertheless, some authors depict that the integration of technology is viewed as a process that actively engages students and teachers with problems in instructional delivery and learning. It involves a complex process that integrates AT with learning objectives and proven learning theories (Okojie & Olinzock, 2006). AT use is not a separate entity but is an integral part of the learning process itself. Yet there are few references to appropriate application of AT in classrooms (Forgrave, 2002; Maushak et al., 2001). With these views then the ICT tutor may have been a victim of technology.

Sampled trainees on the other hand, showed confidence of being well trained and exposed to the use of AT in the classroom. This was from interviews and from observations of the AT devices already in the resources and materials laboratory made by them and others before them. Their enthusiasm to interact with the devices during the lessons proved it all. The trainees also felt that the exposure availed to them on the use of AT was essential, though more time to interact with the ATs was still requisite to advance their knowledge and skills further. The trainees were also quite optimistic in the use of AT bearing in mind that they are special education teachers and the AT devices are an essential part of their professional life. From the focus group interviews, I found out that the trainees felt that they are ready to use AT in the classroom though not in some areas like the ICT at its subject level. The trainees reported the following:

We are ready but not in ICT where the computer aided skills are not fully exposed to us. There is also so much knowledge from the college which may not be found in schools. Though ready we are too few to make an impact in the whole country...more trainees should be enrolled to cater for the inclusive education.

About the adequacy of skills, the tutors felt that to a great extent the trainees are adequately prepared to use AT in the classroom, at least with the knowledge acquired from what has been exposed to them in the college. However, the same data showed some uncertainty from the tutors as they wished they would have more and adequate facilities to enlighten the trainees more in the field of AT. One tutor had this to say:

We have tried to adequately prepare them with the resources we have but we lack some equipment such as adapted computers which are only two, other computers which are there are old fashioned...if we had enough computers connected to the internet we are likely to do a good job. There is need for more facilities such as brail embossers, more software as we got only Jawes soft ware.

On the other hand, one of the tutors felt that the trainees on the open distance education learning (ODEL) programme are inadequately prepared to use AT in the classroom owing to the fact that they are not exposed to hands on experiences as their colleagues in the full time programme.

Basing my reasoning on the data collected, I would concur with the above findings that the trainees have been adequately prepared to use AT in the classroom to some significant levels. This was evidenced by the courage they portrayed and also the displayed resources that they have already made for microteaching. Nevertheless, this assumption can only be well supported by evidence from the classroom. Byrne (1983) suggests that:

In so far as a teacher's knowledge provides the basis for his effectiveness, the most relevant knowledge will be that which concerns the particular topic being taught and the relevant pedagogical strategies for teaching it to the particular types of pupils to whom it will be taught. (p.14).

I concur with the author because from my teaching experiences and interactions with peers during the Masters of Education course, I have realized that a teacher's comfort level while delivering content is significantly determined by competencies in content mastery/knowledge and pedagogical knowledge.

CONCLUSION

The conclusion reached is that the trainees are to some extent adequately prepared. This is in consideration of the available ATs in the college, teaching strategies employed by the tutors, amount of exposure given on the ATs and the quality of hands on experiences availed to them. However, there is a certain extent that the trainees are lacking in their training due to unavailability of some AT facilities, in adequate personnel and incompetent tutors in use of some ATs. To enhance quality, the college is doing its best in ensuring that trainees are comfortable with AT skills before they go to the classrooms. This is by offering

all necessary information and skills through the technicians available in the college who are more knowledgeable especially on the functionality and maintenance of AT devices.

Trainees are also clarified for mystifying issues during the teaching practice from both the internal and external examiners. The same is also addressed during the micro teaching and projects where consultations with the tutors are taken step by step in all phases of the project till the end.

In relation to inadequate facilities and ensuring hands on experiences on AT devices, this college is greatly exposing teacher trainees to adaptations of all types of AT devices. This is by ensuring that they make their replica and explain functionality as well as making a manual on their use. This greatly prepares them to suit in the AT starved special schools and district units that they will encounter when they leave college. Finally, there is the effort of the continuing professional development that the tutors engage in, both internally and externally with an aim to improve their content knowledge and pedagogy.

RECOMMENDATIONS

The recommendations are discussed in the light of addressing the limiting factors to adequate acquisition of skills and knowledge of the trainees use of AT in the classroom. They would probably therefore, help to maximize the acquisition of appropriate knowledge and skills in use of AT to potential special education teachers graduating from this college. This is in an attempt to ensure that all learners access equal education opportunities in the special education schools and the inclusive classrooms in Kenya.

i) Adequate and up to date at facilities

For teacher trainees to be adequately trained, they should be exposed to a variety of AT devices both physically and practically. They need to 'see' as well as 'operate' the devices other than being told about them theoretically or reading about them in books. The college, through the Ministry of Education Science and Technology, should urge the government to avail more facilities since this is the only college offering special education teacher training for primary school teachers. Moreover, the college management could liaise with the local community around and partner with well wishers, individuals, private companies and non governmental organizations for support in addressing this need. The available AT facilities should be updated regularly since technology keeps improving and changing daily. The college should also strive to match the hardware and software ratio to that of the number of the trainees for easier and equal interaction and use during the learning process.

ii) On- going professional development (PD) for tutors

Although there is an ongoing professional development programme in the college which is quite commendable, I would recommend the organizers to advance it to a community of practice. This is a practice where groups of people who share a common interest for something they do, for example educators, get an opportunity to network with other educators related to the same field, and even come together to learn how to do it better. This is through interacting regularly either through face-to-face meetings, or web based interactions where they share experiences about the same topic, in this case AT use in the training of special education teachers. They could be from within the same context and (or) outside for example Institutions offering the same services abroad. Similarly, the best practices and new innovations are discussed. The community could later be expanded by including the trainees from the universities, in-service programme and the teachers in the field.

The in house PD could also be improved by involving all departments (team work), in creating a shared vision, identifying the various AT needs, creating time within the college timetable and calendar, taking care of the needs of adult learners, varying teaching strategies and evaluating the programme regularly. The feedback from evaluation should point the way forward and success should be celebrated together.

Finally, I would suggest that the organizers plan for follow-up activities. This is because for any PD to be effective, the results have to be seen. In relation to this, tutors are likely to slip back to the old practices if not followed up as they get caught up in the daily activities and forget what they have learned.

iii) Adequate time for practicing learnt skills

If the trainees' adequate AT skills are to become a reality, the college needs to acknowledge that a gap exists between theory and practice and then make a commitment to address that gap. The existing practice may need to be re-evaluated and require change in the way the daily programme is structured to create enough time for the trainees to put into practice what they learn daily with the available ATs. More time with the facilities could also be available to the trainees for example the computers, with a support person present to attend to any issues that might hinder progress.

iv) Adequate and knowledgeable personnel in AT

Tutors are one of the most critical factors of trainees' AT competencies. They are the key individuals who will motivate the trainees to use AT later in the classrooms thus it is important that they be adequately knowledgeable in usability, functionality and even maintenance of all ATs and more so in their specializations. It may also be useful for tutors to approach AT implementation from researched approaches that have been developed and implemented elsewhere as they support on going assessment. The college should thus empower its teaching capacity by recruiting qualified personnel, upgrading the skills of the existing ones, and matching the tutor's ratio to that of trainees to ensure quality services.

V) Policy makers

The policy makers in the college and ministry of education can address the capacity of special education teacher training institutions to manage AT services by promoting a vision through the establishment of clear AT policies and procedures. AT plans can be developed outlining long term goals for the training of special education teacher educators and teacher trainees in the use of AT in the classrooms. Plans could include a shared rationale for AT use, qualifications of personnel, assessment criteria and support for both tutors and trainees. A rationale would also be developed to support the development of AT policies and/or to analyze existing policies.

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ASUMBI, A CRADLE OF EDUCATORS AND SOCIAL PARADIGM OF ENLIGHTENMENT

Sister Dorothy Akoth, Henry H. O. Ayot, Mueni Kiio & Mary w. Nasibi

The Franciscan Sisters of St Joseph (FSJ) are recognized as educators as they are seen to be involved with the work of education in many institutions of learning throughout Kenya and beyond. However, few people, if any, stop to think of their identity and place of origin. This is so much so that the sisters belonging to the FSJ appear as individuals rather than corporate part of the group that form the Franciscan Sisters of St Joseph of Asumbi. Although, sometimes referred to as “Asumbi sisters”, their connection with the place is still vague and needs to be clearly stated and recorded. This paper thus aims at identifying the process of setting up Asumbi, as a mission station, to become the education centre that it is today, and its relations to the educators, the FSJ.

The foundation of Asumbi and its early development by the Mill Hill Missionaries as a mission station and centre of education.

Asumbi as it is today was a project of the missionaries that came from Europe to East Africa and to Asumbi in particular, at the turn of the 20th century, the Mill Hill Fathers. The Mill Hill Missionaries were founded in England on March 1st, 1866 by Cardinal Herbert Vaughn (McCormack, 1966: 81). O’Neil has this to say about Vaughn “among his many accomplishments, the most romantic and one of the greatest achievements of Herbert Vaughn’s life was the founding of a missionary college in the suburbs of Mill Hill, London” (O’Neil, 1995: 106). O’Neil goes on to expound the reasons for Vaughn establishing a collage for foreign missions: “the exclusive object of the College is to educate secular priests for foreign missions beyond the seas” (O’Neil, 1995: 157). O’Neil goes on to give more detail of what Vaughn expected of his missionaries concerning their disposition and work:

Vaughn expected his missionaries to be men of solid virtue, great generosity of heart and a disposition to embrace the apostolic life. Youths of every nation would be admitted, but it should be kept in mind that the college was only provisional and introductory and the end was to provide everywhere a good native clergy. A foreign missionary college was to work towards its own extinction (O’Neil, 1995: 157).

In other words the Mill Hill Missionary’s concern was to establish well prepared local missionaries. In retrospect, it can be said that this plan was for local women religious as well, including the Franciscan Sisters of St Joseph (FSJ). That was Vaughn’s conviction. His

missionaries were to be virtuous and well-read. Where ever they went, they had to bring up and train well their native successors in the mission land. Vaughn made sure that his missionaries acquired knowledge also in areas such as Agriculture, Carpentry, Masonry, teaching, medicine, among others. These were the missionaries that came to East Africa and to Asumbi in particular, spearheaded by Father Philip Scheffer. Hans Burgman gives the details of the steps taken to set up Asumbi.

- February 1912, Father Bauman and Father Wall selected Asumbi as a future Mission plot.
- Father Scheffer was appointed first Superior, but he was still in Kisumu where he was working under Father Wall. Then in November 1913 he took up residence at Asumbi.
- A place called Nyawawa was ear marked by Bishop Biermans, the Mill Hill Bishop residing in Uganda, as the second Mission after Asumbi, but the Provincial Commissioner refused to give permission.
- When the world war came and Father Scheffer and Father Ferris had to escape to Kisumu, the former went to Uganda and the latter to Aluor.
- The missionaries returned to Asumbi in 1915 and retrieved their belongings which they had stored with the local people. The local head man was called Ager. He helped the Missionaries to reconstruct and repair their houses which had been damaged in their absence.
- There were only two Christians then, Andrea Otwande and Daniel Waga. These two were sent out to teach Catechism, two to three days in each of the eight Catecumenates. They were to return once a month to Asumbi.
- Meanwhile the priests remained on the alert all through the war years. In the event of an imminent attack on the missions, by the Germans, the Nyabururu priests were to flee to Kendu via Asumbi.
- Between 1917 and 1919 there was a great famine because crops had failed. By this time there were about sixty newly baptized adults who were now teaching Catechism all over the area; but with the famine onslaught, they returned to their homes, because there was no food at Asumbi. It is noteworthy that the young catechists also taught reading and writing along side Catechism.
- On 17/8/1917, Father Ferris died of the cancer of the neck. Now Father Scheffer was alone in Asumbi; and he had also to take care of Nyabururu whose priests had been removed in 1916.
- On 20/2/1920 Father Hartmann was sent to Asumbi to assist Father Scheffer.
- In May 1923, Father Scheffer went home on leave. Father Proctor who had been in Asumbi for a short time before going to Nyabururu, now returned to asumbi to assist Father Hartmann.

- In 1924 Father MacVey replaced Father Proctor who went to Uganda. Soon Father MacVey was also called to Uganda. Then Father Hartmann broke down and had to go away. Father Thomas Turnbull took charge of Asumbi until Father Scheffer returned in September 1924. Father Thomas Turnbull remained in Asumbi until Father Leo Bartels came on 17/12/1924.
- Father Scheffer had brought back a beautiful plan to build the Church, which began in 1925 and was completed in 1929.
- In 1929 Father Bartels left for Mumias and Father T. J. Leahy was appointed to assist Father Scheffer. Father Henry Turnbull (brother Thomas Turnbull) was sent to Asumbi in October, 1931.
- In April 1933, Father P. Shorten was sent to Asumbi to assist Father Scheffer. He only stayed until December 1934, when he was sent to Eldoret. Father Marinus van de Bosch who had arrived in the country in 1931 and had worked in Aluor and Rangala, was appointed to Asumbi in 1933.
- Father Scheffer went on home leave in February, 1934, and Father Leahy was left in charge. Father Rawlands fell ill in Kisumu, so he was sent to replace Father Leahy in Asumbi, until Father Scheffer returned in January 1935.
- In 1935 Father Leahy started Nyabondo Mission.

Father Scheffer's Mission in Asumbi

The Mill Hill Missionaries in the person of Father Scheffer and his companions, started Asumbi in November 1913, built a church and other infrastructures, taught religion and started formal education. The Missionaries introduced reading and writing in the local language, *dholuo*, in addition to the teaching of catechism. The students were fascinated as they had never seen anything like this before. They drew enough incentive from their fascination to learn rapidly. Father Scheffer and his fellow priests realized that they could not combine effectively pastoral work with formal education; so soon after their arrival, they sought the help of European sisters because there were no native sisters at this time in this part of Kenya. The thought that they could train local girls to do the needful did not occur to the missionaries, at the time. The story goes that no European sisters would agree to go to Asumbi as they considered the area too wild, too remote and too devoid of any comfort for permanent residence by a person coming from Europe.

The Mill Missionaries established other missions besides Asumbi. However, Asumbi took a central stage and grew in a rather unique way regarding education. The following were the Missions founded in the early days of the Mill Hill Fathers' arrival in Kenya:

- ❖ Kisumu – Milimani (Central Nyanza) 1904

- ❖ Munias (North Nyanza)..... 1904 – November
- ❖ Ojola (Central Nyanza)..... 1906 – May
- ❖ Kakamega (Northen Nyanza)..... 1906 – September
- ❖ Nyabururu (South Nyanza)..... 1911 – December
- ❖ Aluor (Central Nyanza)..... 1913 – June
- ❖ Asumbi (South Nyanza)..... 1913 – November
- ❖ Eregi (Northen Nyanza).....1914 – February
- ❖ Rangala (Central Nyanza)..... 1920 – August
- ❖ Kibuye (Central Nyanza) 1926
- ❖ Nangina North Nyanza) 1927 – June
- ❖ Nakuru (Rift Valley)..... 1928 – December
- ❖ Yala (Central Nyanza).....1929 – February
- ❖ Eldoret (Rift Valley)..... 1929 – February
- ❖ Kibabi (North Nyanza)..... 1931 – September
- ❖ Isibania (south Nyanza)..... 1935 – May

Schools south Kavirondo mentioned by 1930, apart from asumbi, were:

- Mirogi.....Kanyamwa
- WigaKanyada
- Kokoth.....Huma Hills in Karachuonyo
- Kobuya.....Karachuonyo
- AwendoSakwa

All these schools were extensions of the main complex as in each one was a replica of the design of Asumbi. The missionaries made sure that all that was done in Asumbi was carried out in these outreaches as far as it was possible. That is to say, in most of these mission centres the same type of set up was repeated - church, catechism and educational buildings. A close look at these centres, though, reveals Asumbi as being far ahead of them all in matters concerning education, especially in being the cradle of educators, the Franciscan Sisters of St Joseph of Asumbi.

Arrival of the Mill Hill Sisters

To return to the Mill Hill Missionaries foundation: the same Cardinal Vaughn had assisted in the foundation of the Franciscan Missionary Sisters of St Joseph, also known as Mill Hill Sisters, in 1878 (O’Neil, 1995: 240). Some of them were destined to come to Kenya and to Asumbi in particular in 1936, to provide formal Western education to local girls and give religious training to some of them – to become Franciscan Sisters of St Joseph of Asumbi (Nkoitoi, 1985). When these Sisters had arrived in Kenya in 1929, Bishop Brandsma had

given them assignments to offer education and provide health services to the local people; they took up teaching in Kisumu and Rangala; they also opened up a health facility and an orphanage in Rang'ala (Burgman 1990).

The following is the report given by one of the Mill Hill Missionaries, Sister Francis Therese, on their hopes for the African girls they were training as teachers. Some of those Teachers became the earliest members of the Franciscan Sisters of St Joseph. Writing from Rangala, Sister Francis Therese says

You will be pleased to know that all the candidates have passed. Eight girls and one boy entered for examination which took place on November 27, 1940. The examination was difficult, but when it was over the teachers all felt that it had been worth while. The nine teachers took up their posts in the various schools and commenced teaching on December 2nd. Now we are hoping and praying that these girls will keep good and prove to their tribe that a Luo girl is worthy of education as a Luo boy and thus break down the native prejudice which prevents the poor native girls from raising their social status. So far the eight girls have given great satisfaction and it is our prayer that they will continue to do so. We are going to try to arrange a refresher course for them, thus helping them to keep in touch with the school and with the sisters. During the Christmas vacation several are coming back to make apparatus for their various classes. It gives us much happiness to see the influence they have on other native girls and on the school children who respect them very much. 19 girls have applied for admission to our Teachers Training Centre this year. The Inspector has applied for a maintenance grant for ten girls; so nine of these candidates will have to wait for admission until 1942. The successful students in the teacher training are:

- 1. Catherina Nyambok from Rangala, is teaching std one in Sega Mission school;*
- 2. Theresa Mugenya from Rangala Mission is teaching std 2 in Rangala Girls*
- 3. School;*
- 4. Helina Achieng from Rangala Mission is teaching infant classes in Sigomre, an outstation of Rangala;*
- 5. Helina Aoko from Rangala is teaching std 1 in Rangala boarding school;*
- 6. Lucia Abongo from Kibuye Mission is teaching std one in Ojola, an outstation of Kibuye Mission;*
- 7. Teresa Auro from Rangala Mission is teaching sub-standard A in Rangala Girls school;*
- 8. Maria Ogola in Mbaga Mission is teaching sub-standard A in Mbaga Mission*

9. *Anastasia Apiyo from Rangala Mission is teaching sub-standard A Girls in Kibuye school;*
10. *Clement Radido from Rangala Mission is in charge of out school 1 Umina, Rangala school*

Here it is noteworthy that the teacher training school in Rangala had started in Asumbi and was transferred to Rangala. Later the same school returned to Asumbi. There it stayed until it was upgraded to become the present P1 Asumbi Teachers' College training both women and men from all over Kenya today in large numbers

Father Scheffer had been focused. As Burgman puts it "Father Scheffer worked out a plan combining evangelization and schooling more closely. He wanted to give more time, energy and money to simple schooling at Asumbi" (Burgman, 1990:111). This was the situation the Mill Hill Sisters found. The young women who were waiting to be Sisters took education seriously, both for themselves and for others.

Mother Pacifica, the Regional Superior of the Mill Hill Sisters had appointed two sisters to commence the work of training these aspirants as future Sisters. Consequently two Mill Hill Sisters, Sister Francis Therese and Sister Constance, arrived at Asumbi on January 6th, 1936, to start the indigenous Sisters' Novitiate. The regional superior had written to Sister Francis giving her a firm appointment and clearly spelling out her duties:

My dear Sister Francis Therese, our Sisters have been invited to Kisii, so we have accepted the invitation. The Council have (sic) decided to appoint you Sister in charge of the new house in Asumbi. Your responsibility will be now much greater and we hope you will make every effort in your power to see that a religious spirit reigns among the Sisters, that the rule is well observed and that the customs and practices of the novitiate are lived up to in daily life. The main work there will be the native novitiate, and I trust you will do your utmost to help these girls to become good religious. (Mother Pacifica, the Regional Superior of the Mill Hill Sisters, to Sister Francis Therese on 28th December 1935)

The following paragraph is what the writer considers the most challenging situation presented to the sisters, both Europeans and Africans.

Thus to remold the native character to the ideal and conventual's life is reconstruction work which involves endless labour and requires a knowledge of native psychology. The task is not an easy one. To give the young aspirants the opportunity of securing the best possible development of its personality in an atmosphere suited to its needs cannot be

effected without much anxious thought and effort sustained by earnest prayer (anonymous).

Evidence Found in Letters from the Mill Hill Sisters Archive In Manchester, England

Letters written by the Mill Hill Sisters from 1929 to 1974. The Sisters, especially those who had been sent to Asumbi, recount their experiences with the natives around them. They speak of the girls they found there who were waiting to be taught how to become religious Sisters; of their hopes and fears for these girls; of the schools they had founded in Asumbi, Rangala and Kibuye in Kisumu and the assistance they were receiving from the native girls, some of whom they were already training to be teachers and religious sisters. Some of these girls, later became Franciscan Sisters of St Joseph. From these letters one learns how the Franciscan Missionary Sisters of St Joseph eventually accepted the challenge of starting the founding of what they called the native sisterhood in Asumbi in 1936.

For the girls this was a second beginning. They had been waiting since 1927, the year Father Scheffer clothed them in the religious garb; and they had believed that they were already Sisters, as they wore their distinctive garbs that set them apart from other girls and as they taught and took care of the younger ones. The letters describe the long road of re-shaping the already formed and mature girls. In a letter addressed to their Mother General in January 1936, soon after their arrival in Asumbi, Sister Francis Therese expresses her satisfaction with the situation they found. "Father Scheffer has been kindness itself to Sister Constance and me. He has handed the aspirants entirely over to us and seems pleased with everything". Already some of the aspirants were government teachers, earning salaries. Sister Francis' letter continues:

He (Father Scheffer) has agreed to send some money to us until the aspirant teachers' salaries arrive. The aspirants are very good and have had good training. One girl, a teacher, has been here for eleven years, she is about 23 years old and is very promising (letter written by Sister Francis Therese in 1936).

The aspirants that Sister Francis Therese is speaking about were the future Franciscan Sisters of St Joseph. Sister Constance had her side of the story, mainly describing the girls' willingness to give up all they had "we had heard that they were possessors of many superfluous clothes, therefore, asked individuals, to bring along everything they owned; they did willingly". She then goes on to describe the daily schedule that they would follow. Sister Francis Therese writing in February 1936 about the budding congregation of the Franciscan Sisters of St Joseph has this to say:

One girl, a teacher has been here for 11 years. She started in 1925. She is about 23 years old and Sister says that she is very promising. Others have been here, 8, 7, 6 years. Many of the 14 girls without veils have been here for 5 and 4 years. Many are very young so they can come to school on Monday and start learning to be teachers (Letter of Sister Francis Therese to the Superior General in England)

Repeatedly Sister Francis Therese insisted that Father Scheffer was kind to the two of them and was ready to do anything for them. Father Scheffer had started the work of building the novitiate helped by the aspirants who baked the bricks, carried them to the site and dug the foundation of their new convent. The novitiate building was completed in 1937. That building still stands in Asumbi today. In another letter written 16th February 1936, Sister Francis Therese tells her Superior General “the ten aspirants surprised both sister and me. They are most edifying and you can see they have already had a good spiritual training. They appear to us like sisters already.”

These kinds of letters did not persist for long; by the time the girls were novices, the climate was gradually changing and by 1939, still novices, mutual hostility had erupted. Naturally, the letters describe the difficulties that ensued and the near despair that was felt on both sides. At one point 13 girls left at once. Some went to join the Kakamega group, others went to Uganda while some returned to their natural homes.

Some letters talked about the project as a failure, citing lack of religiosity on the part of the local girls, as the cause. In Sister Constance letter of September 23rd to her Superior General in England, she says: “my opinion is that the life pointed out to them is too hard. They have had too much of their own way, and now it is too much for them to obey. It was a blow after all we have **done for them.**”

And Mother Philip wrote to Superior General at the same time, forgetting the positive things that had been written about the same girls a couple of years back, “I then told the Bishop that they did not know what they wanted and we did not think that they really had a vocation to the religious life”. The truth, however, is that the girls **did know** what they wanted and they had a vocation to the religious life with a definite purpose. Life was too difficult for anybody who was not sure of what she wanted to persevere. Some did actually leave, but the foundation made in Asumbi persists to this day in the persons of the Franciscan Sisters of St Joseph who have become recognized scholars and educators.

The crisis passed and the Mill Hill Sisters resumed their enthusiasm in their missionary work as they enjoyed their success in educating local girls and the Asumbi sisterhood. The following passage is a good example of that mood:

Did you hear about our sisters' success at the Agricultural show? Our schools took the majority of the prizes. Rangala won two prizes, one for hand writing and the other for sisal rope. Kibuye won three, for a dress, a set of table mats and a set of sisal mats. Mother Philip won a first prize for a dress. She had only been in Nyabururu three weeks; while we (at Asumbi) got two first prizes for mats and two second prizes for a sisal door mat and piece of rope ten yards long made from sisal. Our Asumbi children had never done handwork before, so winning the prizes has made them keen. They are very claver with their fingers and now they are making us a big clothes' basket. Mr Morris (Colonial inspector of schools) was very interested and told Father (Scheffer) that he was highly satisfied with the plans for the education for the Nilotic girls, and promised to do his utmost to help us.

On March 7, 1941, Sister Michael writes to her Superior General in England:

You will be pleased to know that we have been out among the natives on our first safari. Last Monday we went to a place (Ligisa) 15 miles from here (Asumbi Station) with Father Scheffer and Father Kiggen. I took Sister Gertrude Mary and Sister Teresa (African Sister) with me. When we reached the out mission, we got a wonderful reception from the chief and his retinue. Sister Gertrude Mary spent her time in the school re-organising and Father Scheffer had a dispensary fixed up where Sister Teresa and I attended to between 60 to 70 patients (Sr. Michael to Superior General in England).

Father Molenaar comments on Asumbi situation which brings to light on how Father Scheffer was responding to the needs of the local people he was sent to serve. He did it himself and when he could no longer manage he sought the help others. That is how he came to train the local girls in first aid to help him respond to the health needs of the people, how he came to provide basic training to the same girls so that they could help in providing education to the younger ones. He even taught the same girls basic masonry so that they could help build their own houses. This latter engagement went contrary to the Luo tradition that women do not built. These girls participated in building their own convent and nothing happened. Father Mollenar observed in one of his letters in 1942:

When I first arrived here in January last year, I found my Superior, Father Scheffer, very ill with cold. In his room I saw so many small and large bottles, and tins and boxes there. Every day I saw natives coming to Father Scheffer's door asking for medicine – for sore eyes, for hands and for feet, ear ache, stomach ache, back ache, bad cuts, festering wounds, snake bites, skin diseases. These people have been coming to Father Scheffer's door every day, until August last year when Mother Michael arrived here with two

nurses, Sister St Mark and Sister Celine, from Kakamega. Over a thousand patients are now registered every month. Last week, for the first time, the sisters went out to meet patients in the village of Ligisa. Great welcome was given them by Chief Obonyo who came along with the head Christians, all the Christians from the neighbourhood and the numerous children of Ligisa school (from the Mill Hill Fathers Archives).

Sister Teresa, number one in the Franciscan Sisters of St Joseph of Asumbi, has been mentioned several times as going out with Mother Michael to nurse people. This is interesting because Sister Teresa has been known as a cateress and a nursery teacher. So Sister Teresa was nurse at the beginning then. Father Molenaar's story continues,

Sister Teresa helped Mother Michael in examining the patients, giving out medicines and putting on bandages. A continuous stream of patients was pouring in. Then came the mothers with their babies. At the end of the stay of the Fathers and the Sisters, the people brought them fish as a gift. It was presented by the chief. And then there were eggs. Afterwards three men came to bring three shillings for Sister Teresa, **their sister**. That was a present for her alone other black sisters convent at Asumbi. They were so pleased that Sister Teresa had also come to see them.

An anonymous writer observes that with the eye of faith the Catholic Missionary apostolate sees the needs of mankind and does its utmost to bring consolation to the suffering, hospitals to the sick, to lepers asylums, homes for the aged. He goes to say that the above report is true and can be supported by evidence. The writer concludes: "it is indisputable that the Mill Hill Missionaries were exceptionally diligent in their work of education in Africa and elsewhere" (anonymous, undated note found in Mill Hill archives in London).

Franciscan Sisters of St Joseph (FSJ)

As one follows the development of Asumbi and notes the succession of missionaries who went there and left in fairly short periods of time, some of them breaking down, one conclusion is that this place was not easily manageable, due to sickness and isolation, among other challenges. However, the Mill Hill Missionaries were set to participate in bringing about the realization of their founder's vision, to carry out their mission by producing well prepared and well read local missionaries that would succeed them. While they produced just such men in the form of local priests, the women counterpart, the Franciscan Sisters of St Joseph, are outstanding in scholarship and achievement in education in their turn, not only in Asumbi but also in many parts of Kenya and beyond.

Today, instead of one centre of learning in Asumbi, there are at least 15 such institutions. The primary level which had been started to provide basic formal education to the young people who had come to learn religion, became a well organized primary boarding school for girls, the St Teresa's Primary Boarding school. This School was eventually re-located in the 1970's to give room to St Teresa's Asumbi Girls High School. This is a large centre of education hosting about 1,000 girls. Asumbi Girls High School is now a five streamed school and there are talks of it becoming a national school.

Besides St Teresa Primary Boarding School, there have come into being four more Primary schools – an all boarding boys' primary school – The Scheffer Boys Boarding Primary School. Then there is the Asumbi mixed primary school with a large population of over 1,000 pupils. Just outside Asumbi is WIKoteng which is another mixed Primary school, started in 2003, to help ease the over pupil population that was beginning to happen in Asumbi complex primary schools. Another primary school, also named after St Theresa has been started next to the St Francis Technical Institute.

Then there is the St Teresa's Nursery School. Which has influenced the creation of another five nursery schools in the little village of Sinema just outside Asumbi. Children of education, medical and social officials in the complex have greatly increased the number of nursery and primary school going population. Hence the creation of all these basic centres of learning. The Asumbi women's teachers college which was originally set up next to the girls' boarding school has given way to a large P1 teachers' college next door. This college trains teachers from for the whole country.

Next came the creation of the St Francis Technical Training Institute in 1987. This institution had stated as "Home Craft" in early 1950s. Young women used to learn sewing, knitting and cookery. In 1987 the Franciscan Sisters of St Joseph upgraded it in answer to the educational needs of young people around Asumbi and beyond. Today it is a technical institute that offers the following levels of training:

1. Artisan Certificate in Food and Beverage Course
2. Craft Certificate in food and Beverage Course
3. Diploma in Food and Beverage Course
4. Business 1
5. Business 2
6. Business 3
7. Trade Test in Hair and Beauty Therapy
8. Trade Test Garment Making
9. Artisan Certificate in Garment Making

10. Artisan Certificate in Carpentry

11. Craft Certificate in Carpentry

In this way many levels of educational needs are responded to: those holding only KCPE would go for Trade Test Certificate; those D+ would take Artisan Certificate Course; and those with C and above are qualified to for Craft Certificate. Some of the C+ and above would then go for Diploma. There is also a chance for those who wish to upgrade to any level of their desire, up to graduate level, at Kenya Polytechnic University College. Some go on to Kenya Technical Training College (KTTC).

The Asumbi Hospital is another centre of education. Here they emphasize awareness on preventive and curative measures all round, home hygiene, HIV/AIDS status, care for the elderly, widows and widowers. There are two special group of widows known as the St Monica Widows and the Padre Pio Widows. These two groups have been enlightened to brake away from the tradition of widow-inheritance. The St Monica widows are attached to many Catholic Churches throughout the country, where they engage in different self-help activities to be able to support themselves. The Padre Pio Widows are a recent creation which is uniquely found in Asumbi only so far. Apart from self help activities, they hold classes in adult education which provide studies up to KCPE level for those who had not completed their primary education. They also learn baking of cakes and bread, and weaving of baskets which they sell. In this way they are able to both earn a living and be company for each other as they work close to one another.

Finally, Asumbi hosts the well known **Asumbi Alcoholic Anonymous (AA)** which has a branch here in Nairobi answering to people's needs of enlightenment on drug and substance abuse.

Effect education in Asumbi

A great change in the position of women in the Luo society of this area began to take place in Asumbi as the missionaries gave young women formal education. They taught them Mathematics, Agriculture and Home Science and then trained them as teachers after which they were given the job of teaching the younger children. The missionaries also provided medical facilities in Asumbi and trained local young women on how to medically treat people and apply modern hygiene as one of the preventive measures against common illnesses. The fact that some of the local African girls were now teachers and others could enlighten people on how to be cured of their illnesses and even how to keep sickness at bay, gave rise to a new form of enlightenment to that society. This empowered their own local women to claim their dignity and take up their position along side missionaries in drawing

out and nurturing the potentiality of the youth, especially girls, through education. These young women teachers decided to become missionaries themselves. They requested for this position and they were eventually admitted to be formed into a religious order in the Church, to be known as Franciscan Sisters of St Joseph.

There is no doubt that the FSJ education history is impressive. Light shone in Asumbi as vulnerable people got to know their rights – women could be teachers, widows could exercise their right to freedom without fearing the consequences of taboos. Health could be maintained and sickness kept at bay by improvement of diet and hygiene. The local people were enlightened to appreciate the value of education so much so that they began to scramble for it in earnest.

Thus the FSJ came into being and have been true to their original desire to bring enlightenment to their people through holistic education, as Asumbi hosts fifteen institutions of enlightenment. Asumbi is truly a centre of education and cradle of educators and social paradigm of enlightenment..

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THE EFFECT OF EDUCATION LEVELS IN DISSEMINATION OF SOIL FERTILITY MANAGEMENT PRACTICES IN THE CENTRAL HIGHLANDS OF KENYA

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Abstract

Inadequate links between researchers and farmers has resulted in a pitiful lack of take-up of research advances recommended to improve food security in the central highlands of Kenya. Access to timely and accurate information by extension agents and farmers is paramount in dissemination of soil fertility management (SFM) practices. Hence, the study sought to investigate the effect of education levels on communication channels used to disseminate soil fertility technologies in the Central highlands of Kenya. Structured questionnaires were used to elicit information from 105 extension agents and 240 farmers. About 50.5% of the extension officers were certificate holders while 29.5% were diploma holders from agricultural institutes. Majority of the farmers had attained primary education (59.6%) while 25.8% and 9.2% had attained secondary and tertiary education, respectively. Research institutions were the most accessible sources of information on soil fertility management practices by extension agents while internet and scientific conferences were the least scored as accessible sources of SFM information by extension agents. Education

levels significantly ($r=0.154$, $P\leq 0.01$) influenced preference of individual approach methods by farmers. There was positive significant relationship ($r=0.368$, $P\leq 0.001$) between education and accessibility of internet as a source of information on green manure. The implication of the study was that education levels influenced the mode of communication used in transfer of SFM research outputs to the target end users. Consequently, it is extremely important to consider education levels in selection of dissemination pathways used in agriculture.

Keywords: Communication Channels, Source of information, individual approaches, internet

Introduction

Soil fertility replenishment in sub Saharan Africa (SSA) is critical to the process of poverty alleviation (Place et al., 2003). In order to address this challenge, studies in the central highlands of Kenya and other areas in sub-Saharan Africa have identified soil fertility management interventions that would help the low resource farmers mitigate problems of food insecurity and improve resilience of the soils productive capacity (Bationo et al., 2003). However, past research in Kenya shows that adoption of new agricultural technologies, including soil management practices among the smallholder farmers has generally lagged behind scientific and technological advances, and hence their impact on agricultural production has been low (Okuro et al., 2002). Farmer awareness of new crops and techniques is an essential first step toward their adoption (World bank, 1999)

Education is widely considered to be the most important form of human capital (Schultz, 1999). Low level of formal education is a barrier in disseminating useful information and the rate of adoption vary from farmer to farmer depending upon the situation and availability of information sources (Taley, 2006). In particular, many economists have hypothesized that highly educated farmers tend to adopt productive innovations earlier than those who are relatively poorly educated (Basu et al., 2002). Knight et al. (2003) have found that the schooling of the head of the household reduces risk aversion and encourages the adoption of agricultural innovations in rural Ethiopia. However, effective communication and dissemination of research results as a mean of transferring technology to enable the end-users to adopt the new technology is also crucial (Sulaiman, 2002). Review of the literature (Huffman, 2000) shows that formal education or general intellectual achievement has been shown to affect choice of information channels about new technologies (Huffman, 2000). In general, farmers with higher education have better access to information and knowledge that are beneficial to farming operation. They also tend to possess higher analytic capability of the information and knowledge necessary to successfully implement new technology and

realize expected results (Uematsu and Mishra, 2010). In view of this, there is therefore the need to assess the effect of education in dissemination of soil fertility management technologies.

MATERIALS AND METHOD

Study area

The study area included four districts in the central highlands of Kenya. These are Maara, Meru South, Embu and Mbeere South districts. Ganga location in Maara district and Mbita location in Mbeere South district were purposively selected for the household interviews. The researcher obtained all the household names from the sub chiefs of the respective villages. Systematic random sampling technique was used to select 120 farmers from each location. In all, two hundred and forty (240) respondents were selected for the research. The selected farmers were interviewed using structured and unstructured questionnaires in May 2010. Pre- testing of the questionnaires was carried out to ensure accurate and precise collection of data. All the extension agents in the study area were administered with questionnaires. A total of 105 extension agents filled the questionnaires.

Data analysis

Data was analysed using the statistical Programme for the social sciences (SPSS version 16). Descriptive statistics including frequencies, percentages and cross tabulation were used to summarise the data. Spearman correlation was used to evaluate the effect of education on accessibility of information sources and preference of extension approaches by farmers.

Results

Majority (61.5%) of the farmer with no education were from Maara district while 59.1% of the farmers who had attained tertiary education were from Mbeere district (Table 1). However, 59.6% of the farmers in both districts were primary school drop outs. A higher percentage (72.1%) of the farmers was male farmers while 27.9% were female farmers. Only 9.2% and 9.0% of the male and the female farmers respectively, have attained secondary education. There was a significant relationship ($\chi^2=12.432$, $P=0.006$) between education and possession of title deed where a higher percentage (81.8%) of the farmers who had attained tertiary education possessed title deeds. However, about half of the farmers (51.7%) did not possess title deeds (Table 1).

Table 1: Socio-demographic characteristics of farmers in Maara and Mbeere South districts

Level of Education	District		Total
	Maara	Mbeere South	
No education	8 (61.5)	5 (38.5)	13 (5.4)
Primary education	70 (49)	73 (51)	143 (59.6)
Secondary education	33 (53.2)	29 (46.8)	62 (25.8)
Tertiary education	9 (40.9)	13 (59.1)	22 (9.2)
Total	120 (50)	120 (50)	240 (100)
Gender			
	Male	Female	
No education	9 (5.2)	4 (6)	13 (5.4)
Primary education	102 (59)	41 (61.2)	143 (59.6)
Secondary education	46 (26.6)	16 (23.9)	62 (25.8)
Tertiary education	16 (9.2)	6 (9.0)	22 (9.2)
Total	173 (100)	67 (100)	240 (100)
Possess title deed			
	Yes	No	
No education	7 (53.8)	6 (46.2)	13 (100)
Primary education	60 (42)	83 (58)	143 (100)
Secondary education	31 (50)	31 (50)	62 (100)
Tertiary education	18 (81.8)	4 (18.2)	22 (100)
Total	116 (48.3)	124 (51.7)	240 (100)

N.B: Numbers in parentheses give the percentage of respondents

Language preference

There was a significant relationship ($\chi^2=37.483$, $P=0.001$) between preference of English in training on soil fertility technologies and education where majority of the farmers with no education (100%) and primary education (65%) did not prefer English language. On the other hand, Kiswahili was only preferred by 30.8% of the farmers who had no education and 18.9% of farmers with primary education. There was no significant relationship ($\chi^2=4.821$, $P=0.185$) between preference of vernacular language and education. Nearly all, (99.6%) of the farmers preferred vernacular in communication of soil fertility technologies (Table 2).

Table 2: Relationship between language preference and level of education of farmers in central Kenya

Level of Education	English		Kiswahili		Vernacular	
	yes	No	yes	No	yes	No
No Education	0 (0)	13 (100)	4 (30.8)	9 (69.2)	13 (100)	0 (0)

Primary	50 (35)	93 (65)	116 (81.1)	27 (18.9)	143 (100)	0 (0)
Secondary	51 (82.3)	11 (17.7)	60 (96.8)	2 (3.2)	62 (100)	0 (0)
Tertiary	20 (90.9)	2 (9.1)	21 (95.5)	1 (4.5)	21 (95.5)	1 (4.5)
Total	121 (50.4)	119 (49.6)	201 (83.8)	39 (16.3)	239 (99.6)	1 (0.4)
Chi square	$\chi^2=37.483, P=0.001$		$\chi^2=62.722, P=0.001$		$\chi^2=4.821, P=0.185$	

N.B: Numbers in parentheses give the percentage of respondents

Possession of radio and television sets

About 86% of farmers own radios while 28.3% of the farmers own television sets (Fig 1). Only 7.7% of the farmers with no education possesses television sets. Conversely, 63.6% of the farmers with tertiary education standards possess television set. There was no significant relationship between ownership of radio and education but chi-square results reveal significant relationship ($\chi^2=36.009, P=0.001$) between education and possession of television sets implying that more educated farmers are likely to own television sets than the less educated farmers.

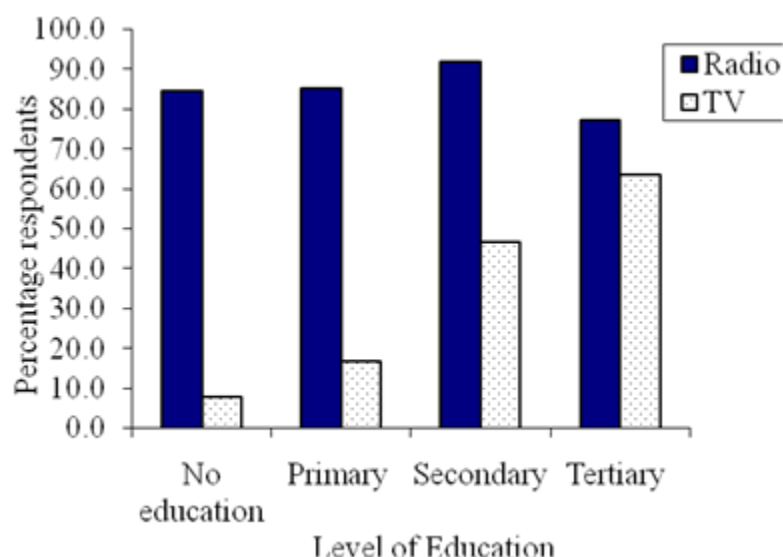


Figure 2: Possession of radio and television sets by farmers in central Kenya

Print media read by farmers on green manure

There was significant relationship ($\chi^2=13.915, P=0.003$) between education and farmers who had read manuals on green manure. More farmers (32.9%) with primary education had read posters compared to 10.5% of the farmers who had read manuals. In addition, a higher percentage (29.6%) of farmers had read posters on green manure than manuals (15.8%) (Table 3).

Table 3: Farmers who had read posters and manuals to acquire information on green manure

Level of education	Posters		Manuals	
	yes	No	yes	No
No education	1 (7.7)	12 (92.3)	0 (0)	13 (100)
Primary education	47 (32.9)	96 (67.1)	15 (10.5)	128 (89.5)
Secondary education	17 (27.4)	45 (72.6)	17 (27.4)	45 (72.6)
Tertiary education	6 (27.3)	16 (72.7)	6 (27.3)	16 (72.7)
Total	71 (29.6)	169 (70.4)	38 (15.8)	202 (84.2)
Chi Square	$\chi^2=3.927, P= 0.270$		$\chi^2=13.915, P=0.003$	

Preference of extension approaches by farmers

A higher percentage (67.1%) of the farmers strongly preferred individual farmer interaction compared to group approach (44.2%) and mass media (13.3%). However, 46.2% of the farmers with no education did not prefer mass media while majority, (61.5%) strongly preferred individual farmer interaction. There was a positive significant correlation ($r=0.154, P\leq 0.01$) between education and preference for individual farmer interaction implying that the more educated the farmer the higher the preference (Table 4).

Table 4: Relationship between extension approach preference and level of education of farmers in central Kenya

Approach	Preference	No education	Primary	Secondary	Tertiary	Total	r
Individual farmer interaction	Do not prefer	23.1	9.8	6.5		8.8	0.154*
	Mildly prefer	15.4	28.0	22.6	9.1	24.2	
	Strongly prefer	61.5	62.2	71.0	90.9	67.1	
Group approach	Do not prefer		9.1	3.2	13.6	7.5	0.909
	Mildly prefer	53.8	46.9	51.6	45.5	48.3	
	Strongly prefer	46.2	44.1	45.2	40.9	44.2	
Mass media	Do not prefer	46.2	56.6	59.7	36.4	55.0	0.92
	Mildly prefer	23.1	30.8	29.0	50.0	31.7	
	Strongly prefer	30.8	12.6	11.3	13.6	13.3	

Extension agents

Majority (79.4%) of the extension agents who were between 51-60 years are certificate holders while 50% of those between 25-40 years are degree holders. Only 1.9% of the

farmers were holders of masters' degree (Fig 2). There was significant relationship (50.648, $P=0.001$) between education and age of the extension agent.

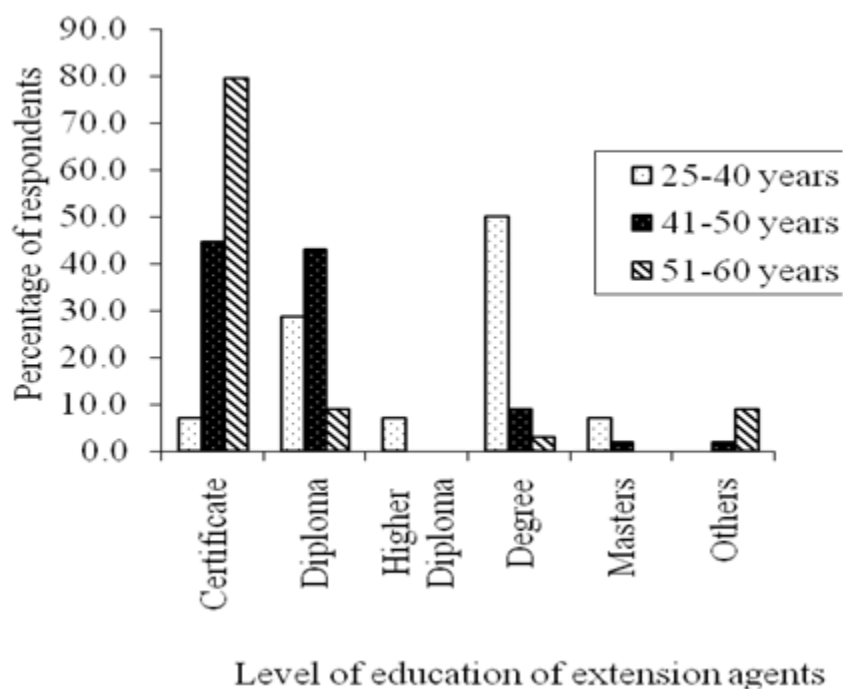


Figure 3: Level of education of extension education

Competency of extension agents on SFM practices

Majority (57.1%) of the extension agents were competent in soil erosion control measures. While 54.1% and 54.3% were competent in crop rotation and animal manure respectively. About 5.5% of the sample was not competent in mineral fertilizers and combined organic and inorganic fertilizers. A higher percentage (46.2%) of the extension agents was moderately competent in compost knowledge. Extension agents are most competent in soil erosion control measures with a mean score of 3.5 but are least competent in knowledge on green manure with a mean score of 2.9.

Table 5: Level of competency on SFM practices by extension agents in the Central Kenya

Level of Competency on SFM	Not competent	Least competent	Moderately competent	Competent	Mean	Std. Deviation
Erosion control measures	0(0)	7(7.1)	35(35.7)	56(57.1)	3.5	0.62
Crop rotation	0(0)	12(12.2)	33(33.7)	53(54.1)	3.4	0.71
Animal manure	1(1.1)	10(10.6)	32(34.0)	51(54.3)	3.4	0.7
Mineral fertilizers	5(5.5)	10(11.0)	30(33.0)	46(50.5)	3.3	0.93

Cover crops	3(3.1)	12(12.5)	44(45.8)	37(38.5)	3.2	0.86
Legumes	2(2.2)	16(18.0)	38(42.7)	33(37.1)	3.1	0.83
Compost	3(3.2)	14(15.1)	43(46.2)	33(35.5)	3.1	0.81
Combined organic and inorganic fertilizers	5(5.5)	13(14.3)	41(45.1)	32(35.2)	3.1	0.8
Green manure	9(11.4)	13(16.5)	33(41.8)	24(30.4)	2.9	1.02

N.B: Numbers in parentheses give the percentage of respondents

Relationship between Characteristics of Extension agents and competency in SFM practices

Demography factors influence the competency of extension agents on SFM practices. Education was significantly and positively correlated with competency on mineral fertilizers. This implies that the more educated the extension agent the more competent they are on mineral fertilizers. There was significant positive relationship between years of experience and competency on green manure, compost and combined organic and inorganic fertilizers. This suggests that the more experienced the extension agents the more competent they are on green manure, compost and combined organic and inorganic fertilizers. Gender was significantly and negatively correlated with competency on animal manure and combined organic and inorganic fertilizers. This implies that female extension agents are not as competent as men extension agents on animal manure and combined organic and inorganic fertilizers (Table 6).

Table 6: Relationship between social–demographic characteristics of extension agents and competency on SFM practices in Central Kenya

SFM practice	Spearman Correlation (r)			
	Age	Gender	Education	Years of Experience
Mineral fertilizer	-0.07	-0.14	0.24*	0.05
Animal manure	-0.10	-0.22*	0.17	-0.01
Green manure	0.05	-0.14	0.07	0.27*
Compost	-0.03	-0.18	0.18	0.22*
Combined organic and inorganic fertilizers	0.05	-0.27**	0.26**	0.27**
Cover crops	-0.13	0.03	0.08	0.08
Legumes	-0.10	-0.02	0.04	0.08
Crop rotation	0.001	-0.02	0.08	0.04
SEM	0.001	-0.17	0.18	0.10

N=105 * significant P=0.05, ** significant P=0.01

Factors that determine accessibility of information sources

There was positive significant relationship between gender and accessibility of research institution as a source of information on green manure at 0.05 probability level. This implied that female extension agents perceived research institution more accessible than men. Accessibility of internet had significant relationship with age ($r=-0.345$, $P\leq 0.001$), education level ($r=0.368$, $P\leq 0.001$) and years of experience ($r=-0.344$, $P\leq 0.01$) (Table 7). This implied that the older the extension agents the lesser the accessibility of internet as a source of information on green manure while the more the educated the extension agent the higher the accessibility of internet as a source of information.

Table 7: Relationship between sources of information on green manure and social – demographic factors of extension agent in Central Kenya

Source of information	Social- demographic factors			
	Age	Gender	Education	Years of experience
Books	-0.054	0.091	0.130	-0.134
Research institution	-0.168	0.193*	0.213*	-0.178*
Internet	-0.345***	0.071	0.368***	-0.344**
Scientific conferences	-0.187*	-0.132	0.231*	0.049
Newsletters / Brochures	-0.185*	0.006	0.173	-0.088

N=105 * significant P=0.05, ** significant P=0.01 *** significant P=0.001

Discussion

Majority of the household heads had accessed education up to primary level in both Mbeere South (60.8%) and Maara (58.5%) districts. This implies that since majority of the farmers have accessed education, then farmers' ability to obtain, process and analyse information disseminated by different sources is enhanced. This helps the farmer to make appropriate decision through reading and analyzing in a better way. In his study Katungi (2006), revealed that, educated farmers have more access to information than uneducated farmers. There was significant relationship between possession of title deeds and education where farmers who were more educated possessed title deeds than the less educated farmers. Insecurity of tenure can be barriers to increased productivity, diminishing farmers' incentives to sustain resource use over time, thus reduce motivation to seek information on soil fertility management practices.

Nearly all the farmers from Maara and Mbeere South possessed radios, while results revealed that less educated farmers did not possess television set. Gloy et al. (2000) found that mass media sources were useful in dissemination of agricultural technology to farmers. Thus the information on ownership of these communication appliances is an important consideration in the use of the communication channels to reach the prospective clientele. Majority of the farmers preferred vernacular, Kiswahili then English in a decreasing order. This implied that vernacular would be the best language to use in communication of soil fertility technologies as it will be understood by farmers across all the education levels. This agrees with previous studies by Oladoja et al, (2008) who recommended the use of local language by the change agent in order to communicate to the farmers more effectively.

Majority of the farmers strongly preferred individual farmer interaction method; however there was significant correlation between education and preference of individual farmer interaction method. This implies educated farmers would like to be visited in their own individual farms or be given individual attention by the extension agents. The results disagrees with the findings of Ogunwale (1991) who found that education had a negative relationship with their extent of preference of individual teaching method of extension to adopt technology.

The key to effective teaching and successful extension delivery of SFM practices lies with the competency of extension agents on SFM practices. Extension agents were more competent on soil erosion control measures while they were least competent on green manure. The results also indicated that there was positive but significant correlation between education and competency in usage of mineral fertilizers and combination of organic and inorganic fertilizers. This implies that the more educated the extension agents the more competent they are in usage of mineral fertilizers and combination of organic and inorganic fertilizers. It is thus imperative that more information on mineral fertilizers and combination of organic and inorganic fertilizers be made available to the extension agents for ultimate transfer of the technology to the farmers especially the certificate holders. Anderson (2008) explained that extension has a dual function in bridging blocked channels between scientists and farmers. It also has an important role to play in helping the research establishment tailor technology to the agro ecological and resource circumstances of farmers.

Based on the research findings, age, education and years of experience influenced the accessibility of information sources on green manure. Educational qualification showed significant but positive relationship with accessibility of internet. This agrees with Adesope et al. (2007) who reported that educational qualification showed significant positive relationship with information technology. This implies that more educated extension agents

are more competent with computer technology and thus can easily access internet for information

Conclusions

For effective dissemination of soil fertility technologies, farmers' educational level should be considered. Use of Kiswahili or vernacular languages in communication of soil fertility technologies will have a large impact on access and use of the information. Further, in order to create awareness of the technologies to a wide range of farmers, radio may be more useful than other electronic appliances in up scaling soil fertility technologies. In addition, extension agents should increase their contact with the farmers especially with the most educated farmers. There is a need to improve access of internet by the extension agents as this will provide more recent and updated information on soil fertility technologies. Improved access to information is envisaged to increase adoption of soil fertility management practices which will consequently lead to increased crop production and contribute to reduction of extreme poverty.

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EFFECTIVE DELEGATION AND CONTROL IN ORGANISATIONS.

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EFFECTIVE DELEGATION AND CONTROL IN ORGANISATIONS

1. INTRODUCTION

For effective management in an organization the top management must delegate some authority to the lower level of management. Through delegation every manager becomes responsible and accountable for all the operations under his Department, Division, Section, Unit etc. Delegation facilitates co – operative efforts of the individuals working in an organization.

2. DEFINITION

Delegation is the assignment of authority and responsibility to others in order to carry out these assignments. The top management cannot perform all the tasks of the organization and duties should be shared with immediate subordinates until all activities are assigned to persons who are made responsible to perform them. Delegation of authority may be either formal or informal i.e. it may be put down in writing detailing exactly what authority is delegated or it may be merely mutually understood by both the superior and the subordinates.

Authority delegated must be spelt out clearly to avoid ambiguity which may result in misinterpretation by the subordinate who may exceed the authority given to him or not fully utilize the authority and may end up taking every problem to the superior for decision making.

3. PRINCIPLES OF DELEGATION

Delegation of authority should be result – oriented. Characteristics of delegation which serve as guidelines include:-

(i) Functional clarity.

This refers to the function to be done, methods of carrying out these functions and results expected must be clearly defined.

(ii) Matching authority with responsibility

Authority should match duties to be performed as well as personal capabilities of the subordinate.

(iii) Unity of command.

In order to reduce conflict a subordinate should be answerable to one superior.

(iv) Principle of Communication – Lines of communication should be kept open for issuing directives and receiving feedback.

(V) Principle of management by exception – delegation can be applied to subordinates for routine and decisions making. However, the management must retain tasks for themselves which they alone are uniquely qualified.

4. FACTORS THAT LEAD TO EFFECTIVE DELEGATION

These are:

- i) **Define assignment.** Delegation can be effective only when duties and functions to be performed are properly analyzed and classified according to various levels of delegation.
- ii) **Select the person in the light of the job to be done.**
The person should be carefully selected bearing in mind the requirement of the job to be performed. This should be based on experience, skills and general capabilities.
- iii) **Maintain open line of communication.** There should be clear understanding between superior and subordinate about the nature and extent of authority delegated. Other members related with the activities should be informed about the extent to which the delegatee is allowed to take decisions. Free communication is necessary for effective delegation.
- iv) **Training of subordinate.** The subordinate should be trained to use the authority delegated to him/her. The delegatee should be familiar with the plans and policies of the organization, so that they can take correct decisions.
- v) **Delegate authority commensurate to results expected.**
The subordinate should be told about results expected from them. How they achieve these results is left to them. The top management will determine goals to be

achieved but it is left to the middle and lower level management to decide what action should be taken to achieve the goal.

(vi) Establish proper control.

Authority can be delegated but responsibilities cannot be shifted to subordinates. The superior should ensure that delegated authority is properly used by the subordinates.

(vii) Attitude of management.

Effectiveness of delegation depends on attitude of management towards, delegation. Management should be willing to delegate authority to lower levels. However if the delegated authority is being misused or the subordinate is not able to give expected results then the authority can be withdrawn.

5. THE PROCESS OF DELEGATION.

The process consists of three (3) steps:-

I. Allocation of work duties to subordinates.

- Determine what subordinates are supposed to do.
- Consider capabilities of each subordinate and match them with assigned duties.

II. Delegation of authority and extent of delegation.

- Give authority to subordinates to make decisions and implement the decisions on relevant matters.
- The authority must be stated clearly and possibly put in writing to avoid ambiguity and indecision.
- The authority should be related to tasks so that if tasks change then authority also changes.

III. Creation of obligation. This is obligation on part of the subordinate to perform their duties satisfactorily.

6. ADVANTAGES OF DELEGATION.

When used properly delegation has several advantages.

These are:

- (i) It results in quick decisions.
- (ii) Delegation gives executives more time for strategic planning and policy making. Strategic planning is done at top management and the day to day decisions are made at lower management levels.

- (iii) Delegation is a motivating factor. Subordinate respond to delegated authority with favourable attitude and this creates a sense of responsibility and dedication resulting in pride and morale boosting.
- (iv) Delegation can be a training ground for executive ability. By being allowed to analyze and make decisions accordingly this prepares the subordinates for problem solving process when they reach the executive level.

7. BARRIERS TO EFFECTIVE DELEGATION

(i) Reluctance to delegate (Superiors).

Superiors may prefer not to delegate tasks as they can do the tasks better or their subordinate are not capable. This feelings may come up due to:

- (a) Insecurity where the departmental head is reluctant to take 'chances' and delegate tasks as they are accountable for the actions of their subordinates.
- (b) The departmental head may feel the loss of power if subordinates do too good a job probably better than they would have done.
- (c) Some Departmental Heads are unable to plan ahead and to decide which task are to be delegated and to whom.

(ii) Reluctance to accept delegation (Subordinates)

- (a) Insecurity – many subordinates may wish that their heads make decisions instead of being held responsible for any failure. This often arises due to the fact that there is lack of confidence on the part of the head who may not accept the 'failure' by his subordinates as a normal thing.
- (b) The subordinates may not be given enough incentives for assuming the responsibilities. Taking more responsibilities means working harder and if there is no adequate compensation then the subordinate may be unwilling to accept the delegated tasks.

(iv) Wrong grouping of departmental activities

If the activities to be performed by the department are not properly grouped then delegation becomes difficult.

(v) Unwillingness to trust the subordinates or lack of confidence in the abilities of the subordinates.

Many times superiors do not have faith in the abilities of their subordinates and therefore keep on postponing delegation until the subordinates gain more experience.

(vi) Desire for personal credit

Some superiors would like to claim personal credit for the successful operation of the organization through his own efforts not the efforts of the delegatee.

(vii) Fear that subordinates will make mistakes

Some superiors fear that the subordinates will make mistakes if authority and responsibilities are delegated to them.

(viii) Belief that it is easier to do the job than to train the subordinate to do so

Some superiors prefer doing the job and then delegating the authority to them. The superior thinks that the subordinate will not do the job effectively as himself. He also feels secure while supervising the job himself even for minor details.

(ix) Fear that subordinates will surpass their superiors

Some superiors are afraid to delegate authority to capable subordinates because they know that these subordinates are better talented than them. Such superiors therefore suppress their subordinates talents by not giving the subordinates any chance.

(x) Unwillingness of subordinates to assume the authority.

If the subordinates are not capable of taking decisions and assuming authority then they are likely to consult their superiors even for minor details. They do not want to assume authority because they are afraid of the failure and do not want to take responsibility for the failure.

8. RESPONSIBILITY

This is the state of being answerable for discharge of duty. It should be equal to the authority delegated for the discharge of duty. That is if a person is responsible for the results of a given operation he/she should be given enough authority to do what is necessary to ensure success.

9. ACCOUNTABILITY

This is the state of being required to stand for your actions. Each departmental Head is accountable for all the operations under his/her department.

10. CREED OF DELEGATION

1. Mutual trust sharing of responsibilities with juniors.
2. Analysis of the job to be done – job description
3. Choosing the right person for the job – job analysis.
4. Transfer of authority decision – making and responsibility
5. Creation of a sense of obligation and accountability.

6. Willingness and ability to tolerate initial failings of juniors.
7. Willingness and ability to train.
8. **Delegate** but do not **abdicate**.

11. SUMMARY ON DELEGATION.

1. How to delegate? When delegating, it is necessary to remember that:-

- a) Responsibilities/duties should be delegated to those that have the necessary/relevant ability, knowledge, experience, interest and enthusiasm. It is dangerous to delegate to someone who is not interested, indifferent or unwilling to perform the tasks given.
- b) The duties/responsibilities delegated must be precise and where necessary clearly spelt out in writing. Clear directions must be given.
- c) The person to whom duty/responsibility is delegated must not be over-burdened – fair distribution is necessary. Heavy tasks should be delegated to committees and not to individuals.
- d) Delegation should not be half-hearted. It should be complete – gaps, overlaps and splits should be avoided.
- e) Delegation needs to be strengthened and supported by mutual **trust** so that the delegatee develops confidence which should lead to better performance.
- f) It should be made clear to the delegatee that delegation goes with accountability. This makes the delegatee considerate and cautious.
- g) The delegatee should feel supported if he/she is to perform effectively.
- h) It is necessary that delegation is strengthened by clear channels of feedback to the delegator so that checks are made in time. Therefore, scheduled consultations/meetings/briefs are necessary.
- i) The delegatee must be motivated so that they can perform better.

12. CONCLUSION.

It is important to remember that, whether your Department/Division is big or small, you cannot manage it alone successfully. You will be inviting chaos and inefficiency. You must learn to delegate responsibilities and authority to your subordinates in your own interest and in the interest of the institution you are trying to serve. Your health may suffer by trying to do too much; in any case you cannot possibly deal efficiently with all tasks, which other people may have time and energy to do.

Furthermore, some members of your Department/Division may become unhappy if you do not entrust them with some responsibilities which they are eager and ready to carry out.

You will strain your relationship with them. Obviously, one effect of not delegating responsibilities will be poor organization inefficiency and failure to achieve the goals of the institution. Therefore you should see the Department not as your `own` but as one which every member is playing some vital role and in which one of your main duties is to co-ordinate and supervise the various functions. You must establish a chain of command to make things work harmoniously and efficiently. **You must delegate.**

In delegating, you should bear in mind that you are still the boss of the Department and the **Accounting officer** of both funds and all others activities in the Department. Once again I remind you – **Delegate but do not abdicate.**

13. ACTIVITIES AND GROUP DISCUSSION ON DELEGATION.

To evaluate the effectiveness of delegation a checklist to be used could address itself to the following:

- i) Is the delegated role proper and is it characterized by (a) coherence (b) Creativity
- ii) Credibility.
- iii) Has the area of responsibility delegated been clearly defined?
- iv) Is the task delegated understood by the delegatee and all other interested parties?
- v) Have you refrained from frequent and unnecessary interferences?
 - a. Example: Do you trust the delegatee and those other people concerned?
- vi) Have you ensured that all the resources required by the tasks delegated are available?
- vii) Does the delegatee have the skills and the experience required by the task?

E.g. expert power

NB: If all the answers to the above questions are truthfully `Yes` then the delegatee will be to blame for his personal failure but the delegator will also be partially to blame for selecting the wrong person for the tasks. Therefore, if the answers to the questions above are positively acted on, then, the delegatee will definitely succeed but the delegator will also be credited for effective delegation.

14. GROUP DISCUSSION – Let the participants present their practical application of these questions in their own departments. Open discussion to be co-ordinated by the Presenter or Group leader.

CASE STUDY OF UNIVERSITY OF NAIROBI AND KENYATTA UNIVERSITY.

Prof. C. T. Kithinji, Prof. K.G Mburugu, Dr. J. N. Kimemia

ABSTRACT

This study had sought to identify the nature and types of mentoring programs in our universities; to identify the challenges/problems encountered by staff and students in the process of mentoring; to find out the coping mechanisms and resolutions of conflicts arising from students, unrest, drug use and abuse as well as deviant misbehaviours in higher learning institutions and to suggest ways of improving mentoring programs in institutions of higher learning. The analysis and description of mentoring and development strategies as an integral component in youth empowerment and social emancipation was based on the theory of Mentoring Mosaic by Darling (1990). The study population was drawn from two Kenyan public universities namely; Kenyatta University, and University of Nairobi. Using the purposive sampling technique, the researchers selected twenty five students per institution. The data from respondents was classified according to the variables and the variable was then related to the research objectives. This research exposes the problem of mismatch between the expectations of a mentoring programme and the situation in practice. This includes: lack of a clear method of matching of mentor and the mentoree, low level of motivation of both mentors and mentorees among others. The administrators do not have a clear guideline on how to match mentors and mentorees and focus more on coordination. The study recommends that a mechanism of matching mentors and mentorees be put up.; management to motivate mentors and mentorees ; set a day when each mentor is not occupied with any official duty so as to meet the mentorees ; create awareness of the existence of mentoring programme to both students and staff and increase both administrators and mentors.

1.1 Introduction

It is estimated that 75% of Kenya's population comprises youths below 30 years of age. Out of these 22% are youths aged between 15 years to 22 years. During this transaction period there are many challenges facing the youth depending on the support and guidance from family, community, schools, and society. However, in many Kenyan families, institutions and communities the support and guidance seem to be dwindling because of the many challenges in the country. These challenges include global economic recession, lack of employment opportunities, inadequate education in aspects such as reproductive health,

HIV/Aids as well as sexual exploitation and abuse etc. Other challenges include corruption, political instability, immorality and insecurity. While counseling has been identified as one approach to tackling these challenges at secondary school level this is not adequate to liberate and empower the youths to be productive and useful members of the society. A process of mentoring and youth development strategies may be a more effective way of tackling these challenges.

1.2 The Problem

Education is one of the key tools that people require for advancement and holistic development in life. However, in the course of acquiring knowledge, students both in secondary schools and institutions of higher learning quite often tend to engage in some anti-social behaviors. Such behaviors have sometimes led to drop out from schools, student unrest as well as drug and substance abuse. As a result of these anti-social behaviors, various institutions have attempted to come up with mentoring and counseling programs.

A few studies have proven that mentoring can improve the quality of a student life through building self-confidence and positive self-esteem. In respect to this, universities' mentoring structures and organs are meant to benefit all the students and staff. However, the current situation in our institutions of higher learning has been an antithesis of the vision, objectives and mission of the mentoring programs. Despite having counseling services and other mentoring programs in our universities, the programs have not achieved much and have not lived to their expectations. This has led to various problems such as drug use and abuse, illicit sex and students' unrest in universities among other drawbacks. This study has investigated mentoring programs in the institutions of higher learning and their effects on students by trying to answer questions of why these programs have not been able to mitigate against problems of drug abuse, student unrest and illicit sex among students in our institutions of higher learning.

1.3 Peer Mentoring in Higher Education

Peer mentoring in higher education usually focuses on social, academic, and cultural skills that can help students to graduate from higher education institutions (e.g. colleges and universities), and how the higher educational system work (e.g. how to apply for financial aid, how to register for classes, how to write papers, how to choose a major, etc). But the knowledge students receive usually come from seniors students who serve as peer mentors and this presents a limitation.

Little research is available to know what the experience of peer mentorees is and what happens between peer mentors and peer mentorees who have different characteristics.

(i) Faculty to Student

The classic model used by numerous institutions is the faculty advisor system. Here, some ten to fifteen students from a department are assigned to a faculty member for both academic advising as well as some conversation around other life issues.

(ii) Student to Student

Peer mentoring is also used to foster students' success. In this case, students mentor fellow students.

1.4 Theoretical framework

The analysis and description of mentoring and development strategies as an integral component in youth empowerment and social emancipation is based on the theory of Mentoring Mosaic by Darling (1990).

The mentoring mosaic builds on the concept of mentor bonding. The reasons for non-bonding are explored. The "mosaic" includes mentors, mentoring events and self-mentoring strategies. All mentoring strategies are important in rounding out one's mentoring mosaic. The theory is based on 150 interviews and the application of grounded theory methodology.

1.5 Methodology

To achieve the objectives of this study the variables of gender, the student' level at the university, the students' background (poor, average, or affluent), and place of bringing up (rural or urban) were used.

The study population was drawn from two Kenyan public universities namely; Kenyatta University and University of Nairobi. The study focused on 2nd and 3rd year students. This group comprises students who have already gone through mentoring programmes. The 1st year group may be at the beginning of a mentoring programme or about to join one. The 4th year group may not be suitable for study because the period between when they underwent mentoring and the time they are in their fourth year is long. The researcher selected ten mentors per institution, two administrators per institution, twenty five male mentorees and twenty five female mentorees both groups in their second and third years of study.

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The study used data generated from students and staff through questionnaires and interviews. The study used the purposive sampling technique. The study focused on mentoring programmes in the universities, challenges encountered by staff and students in the process of mentoring and resolutions of conflicts arising from antisocial behaviours from students. The staff comprised mentors and program administrators. The students were the mentorees.

1.6 Conclusions

This paper exposes the problem of mismatch between the expectations of a mentoring programme and the situation in practice.

One of the problems affecting the mentoring programme is lack of a clear method of matching of mentors and the mentorees. The level of motivation of both mentors and mentorees is low. There is no clear mechanism of creating awareness of the existence of the mentoring programme in the institution. This is the reason as to why some would- be mentors and mentorees are not aware of its existence. Mentors' duties leave little time for meeting the mentorees.

The administrators do not have a clear guideline on how to match mentors and mentorees. This leads to some mentorees complaining that they are not well matched with the mentors. The administrators focus more on coordinating mentors and mentorees at the expense of monitoring the progress of the programme. The issue of time conflict for both mentors and mentorees also has a heavy toll on the mentoring programme.

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TOWARDS EFFECTIVE MANAGEMENT IN EDUCATION: THE CASE OF SCHOOL QUALITY ASSURANCE AND STANDARDS OFFICER (QASO) IN KENYA

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Abstract

The management of Education like the other sectors of national development is crucial particularly in this era of inadequate resources and competing dynamics in politics, social and economic arena. There are specifically designed levels and institutions charged with the responsibilities and duties of managing education. Among these institutions is the Inspectorate and the officers (QASO) working in it as professionals and educational managers. At national level, the school QASO are viewed as watchdogs, semi-administrators and professionals to advise and manage schools comprising the teachers, parents, students and the wider community (nation) served by these institutions.

This paper attempts to define effective management in education and focuses on the role of school QASO in the management scene. The conceptualization of the pre-requisites in terms of skills and competencies expected from the QASO are highlighted. Consequently, the prevailing mismatches between their advisory and assessment roles are explained. As one scholar rightly questions: Are school QASO Friends or Foes? (Godia: 1984). This question is not resolved because school QASO are involved in managing education within multi-faceted professional conflicts identified in the paper. The recommendation from this study is that these professional conflicts should not be ignored but should be effectively managed.

1.1 Introduction

The main emphasis in the management of education is towards improving quality as opposed to increasing education. The prevailing trends in education indicate that we have been moving from a period inadequacies (in terms of manpower requirements) to the current educational surpluses manifested by unemployment, underemployment and the brain drain (cf: Coombs:1968). In order to improve the quality of education there must be concerted effort towards 'effective management' of the scarce and inadequate educational resources. Quality education can be realized if the main components that would improve quality are well co-ordinated, harmonized and utilized through 'effective management'. The

strategies towards effective management of the education enterprise are the main focus of this study (CF: Koech: 1999:70).

1.2 The Problem

Lack of 'effective management' of the scarce and inadequate educational resources is the problem of this study. The quality and relevance of education cannot be attained without ensuring a more efficient use of the existing human, physical and fiscal resources. Effective management entails the co-ordination, harmonization and utilization of resources required in running the educational enterprise. It is appropriate to make optimum use of available facilities and personnel in education at all levels. The Inspectorate and the school QASO are the target groups involved in the management of these resources at national level. Therefore, the study focuses on this institution as a case study while not ignoring the other institutions and levels of management that are also involved in running education.

1.3 Theoretical Framework

The study utilizes the individual and organization model formulated by Getzels and Guba in 1957. The model assumes that performance in an organization is a product of convergence and satisfaction of the individual in an organization in his/her needs and expectations as well as the needs and expectations of the organization. The 'organization and individual' model isolates a social organization, such as the Inspectorate into two conceptual dimensions comprising the 'institutional' and 'individual' dimensions. The institutional dimension consists of the defined aims and goals of the organization, processes and the procedures of carrying out the professional activities and their achievements. For the Inspectorate the institutional dimension comprises its roles and functions and the performance and effectiveness of school QASO in these activities. On the other hand, the individual dimension comprises the personal needs and expectations which are conceptually independent of institutional requirements but which in practice, affect and influence their performance and effectiveness. Owens (1981) presents a conceptual explanation of the Getzels – Guba model by stating that: **'First are institutions with certain roles and expectations that will fulfill the goals of the system. Second, inhabiting the system are the individuals with certain personalities and need-dispositions, whose interactions comprise what we generally call the social behaviour'** (Owens: 1981:75) An illustration of the 'Individual and Organization' Model is shown below:

Fig.1:1

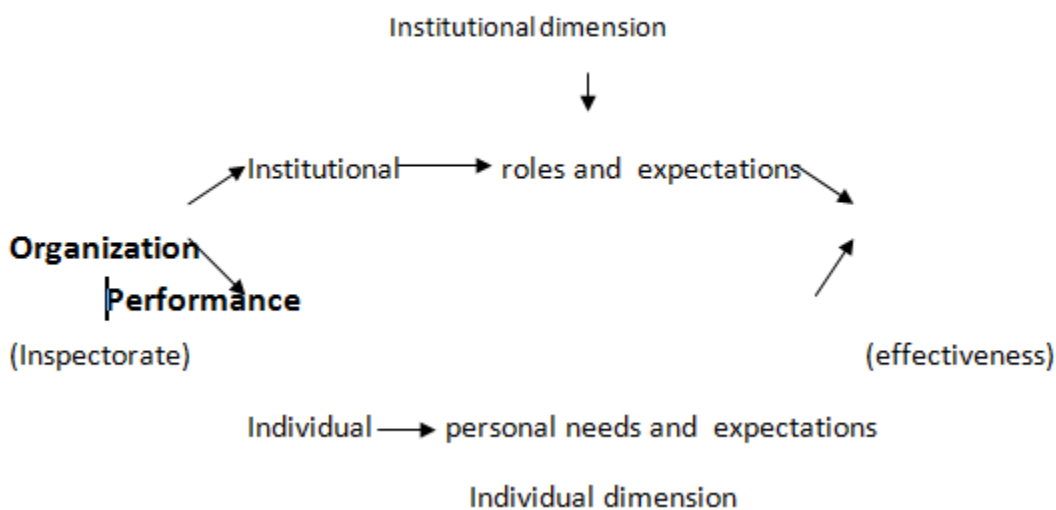


Figure 4: Organisational and institutional model

Organization and Individual model modified from (Guba-Getzels:1957; Owens:1981, Hoyle:1986 and Kimemia:1989)

The institution has its characteristics, which are distinct from the individual in it.

These include:

- (i) The purpose of the institution
- (ii) The roles and duties to be performed by the role-players
- (iii) The structure comprising the hierarchy of the institution and the relationships with other relevant institutions such as curriculum developers, education administrators, examination officers etc.

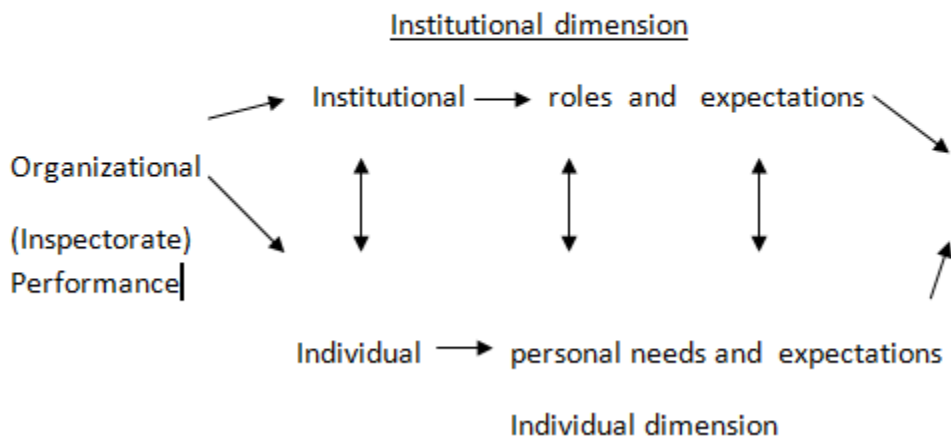
The individual dimension has its unique elements. For instance, the individuals have 'personal factors' such as needs and expectations about what the institution should accomplish for them. These personal factors include:

- (i) Salaries and other allowances (remuneration)
- (ii) Professional growth and development
- (iii) Interpersonal relationship and
- (iv) Terms and working conditions including promotional prospects.

These personal factors influence and determine how the role-players perform in their institutional requirements. The achievements of the role-players in terms of their efforts and initiatives to perform the defined duties and activities are influenced by these personal

factors. The interaction between the individual and the institutional requirements are illustrated below:

Fig. 1:2



Conceptual interrelationships between Institutional and individual dimensions

The study reaffirms that effective performance of the organizational functions will depend on the interaction between institutional and individual dimensions. As Getzels-Guba (1957) observe; **‘Effectiveness, efficiency and satisfaction are directly related to the interaction between institutional and personal dimensions’** (Guba-Getzels: 1957:429).

The concept of ‘effectiveness’ as discussed in this study implies the product of expertise, experience and enthusiasm excluding frustrations in the working situation. This can be summarised as $E = e^3 - f$. where ‘E’ denotes ‘Effectiveness’ and e^3 denotes expertise, experience and enthusiasm, ‘f’ denotes frustration. These perspectives are not quantified in the study but are assumed to be observable either individually or collectively. The focus of the study remains the indicator of ‘effective management’ in the institutional demands and the professional conflicts, which frustrate and interfere with the performance of the defined duties and responsibilities.

1.4 Methodology

The methods used in this study were influenced by two considerations. First, the status and experience of the researcher as a QASO, investigating roles, functions relationships and conflicts within inspectorate and among colleagues provided advantages and disadvantages. Among the advantages as one scholar, reaffirms, that status afforded the researcher ‘a rare penetration into Inspectorate barriers’ (cf:Lillis:1981:1.6). On the other hand, the

disadvantages of an insider-researcher were to decide whether to capitalize on personal contacts or to ignore such contacts and seek to be informed in an impersonal way. Using the personal face-to-face 'interviews' and the impersonal 'questionnaires' in this study reconciled these dilemmas. Secondly, the methods used were also determined by the problem to be investigated. Professional relationships and conflicts in managing education in an institution such as the 'Inspectorate' would be most difficult if investigated by an outsider researcher. Hence, the insider-researcher advantage was most appropriate and utilized to investigate this management relationships which as one scholar observes the inspectorate is the '**engine room of the educational system**' (cf:Winkley:1985).

In addition to the two methods, participant observation was used. The sampling procedures were based on 'purposeful' sampling. According to this principle the target-groups were selected on the basis of their special position in the context of the research problem. The interviews were administered by the researcher and consisted of questioning, discussing, exchanging, probing and responding. A well-structured interview schedule was utilized. The target-group interviewed comprised sixty eight respondents (N = 68).

The questionnaires were pre-tested and modified before they were administered to the target-groups. The number of the questionnaires was intended to correspond to the interview sample size for the purpose of statistical comparison. However, due to concern for reliability of data the number of questionnaires was tripled. Thus, the total number of questionnaires that were distributed was two hundred and fifty (N1=250). The number of questionnaires returned for analysis was two hundred and ten (N2=210) or about eighty four per cent (84%). The data analysis was carried out using descriptive statistics i.e. means, percentages and percentiles.

The interpretation of the data collected was done through the 'triangulation' method in which the indicators in the three methods were systematically considered and evaluated. The study did not utilize any inferential statistics for data analysis.

1.5 Discussion, comments and conclusion.

There are many definitions of management in the available literature. For instance, Paisey (1981) defines educational management as; '**A particular process of relating resources to objectives required in organizations which explicitly exist to provide education**' (Paisey:1981:3). This definition identifies 'resources' and 'objectives' as requirements in the management process, where the available 'resources' are related to the set 'objectives' to achieve the intended goals. The definition is appropriate to 'school management' where the Board of Governors and the Head Teachers manage the available resources to achieve the identified objectives. This is management at school level. Hoyle (1981) presents a more

comprehensive definition by stating that; '**management is a continuous process through which the members of the organization seek to co-ordinate their activities and utilize their resources in order to fulfill the various tasks of the organization as efficiently as possible**' (Hoyle:1981 & Young:1986). The crucial role of 'management' in organizations is presented by Paisey (1981) by remarking that; '**Wherever there is an organization there is management (and that) management is to organization as the skin is to the body**' (Paisey:1981:94).

The management of the Inspectorate as an institution and the effective management by the school QASO will involve processes such as planning, organizing, directing, co-ordinating and controlling the resources and personnel in education so as to achieve optimum results (cf:Bowey:1976:21). But, it is necessary to note that there are constraints and professional conflicts faced by the school QASO in discharging their duties and responsibilities (cf:Kimemia:1989:306). As one scholar has observed; '**In all organizations there are differences between the individuals, groups, competition for resources, priorities and goals**' (cf:Handy:1986:222). Thus School QASO are involved in managing these differences in the management processes. These include:

- (i) **Planning**, that is, setting out objectives to be achieved by the organization – the Ministry of Education and the Inspectorate as a sub-system. School QASO are involved in mapping out how the educational objectives are achieved given the inadequacy of personnel, other resources and the time available to accomplish these objectives.
- (ii) **Organizing**, involves the integration of personnel and educational resources into specific programmes of action. For instance, school QASO are involved in organising 'in-service courses' for teachers. School QASO are required to organize the materials needed for the in-service courses including identifying the venue, deciding the number of participants, the number of resource persons (tutors or trainers), the mode of presentation that is whether lecture, simulation, discussion, exposition etc. They have also to identify the facilities and equipment required as well as the transport arrangements for both the trainers and the trainees.
- (iii) **In directing** and co-ordinating the in-service courses the School QASO need to have the 'authority' and to be an authority in those activities. For instance, the school QASO require to have 'authority' in terms of availability and allocation of the resources. This is what we may call having the 'resource power' and having 'accountability' in educational resources. The school QASO should also be an authority that is, they must have the 'expert power' or the 'professional competence' in identifying the requirements of the teachers to undertake the in-service training courses. These types of authority bases imply the control of what is

to be done and how. In their advisory and assessment roles the school QASO are involved in keeping the Ministry of Education informed about what is happening in schools as well as advising schools about what is expected from them. The controlling aspect involves a two-way mechanism, that is giving information on policy-issues and receiving feedback from schools to be used in decision-making process in terms of supply of the required facilities (allocation of resources) and the advisory work to improve the learning and teaching as control and feedback mechanisms (CF: Koech:1999:221-224).

Pre-requisite skills for effective management

In order to perform the institutional roles, the school QASO should have some basic skills. These skills may be categorised into the following:

- (i) Conceptual skills
- (ii) Human skills
- (iii) Technical skills

The three types of skills are necessary in managing education at the various levels of management. For example:

- (i) The top-management comprising the politicians and policy-makers
- (ii) The middle management comprising the educational administrators, school QASO, planners and other professionals.
- (iii) The supervisory-management comprising the administrators, committees, Board of Governors, Head-teachers, parents and Teachers Associations.

The management skills are necessary for all the three levels of management but at different proportions. For example, the top-management requires to have the conceptual skills i.e. to have the ability to understand the complexities of the organization and the role of the organization in comparison to other organizations,. Secondly, the middle management should have more of the human skills, that is, the ability and judgement in working, with people including their motivation, interpersonal relationships and effective leadership qualities. Thirdly, whereas the three levels of management require the technical skills, it is the supervisory management that requires more of the technical skills. These technical skills comprise the ability to use knowledge, methods and equipments in program implementation. These technical skills are generally acquired through education, training and experience. For comparison, the following illustrations are appropriate. First, we expect the Chief QASO of Schools to be more conversant with the educational standards in

professional competence (expert power) and to some reasonable extent from their technical competence (resource power) in which they should be involved in decision-making as well as resource allocation. These observations are reinforced by other scholars such as Chetcuti (1971) by remarking that **'Top-managers and first line supervisors (schools inspectors) need basic skills and aptitudes such as analytical ability, energy, leadership, decision-making capability and these have to be there if the management process (that is to plan, organize, direct, co-ordinate and control) is to take place successfully'** (Chetcuti:1971:17).

Unfortunately, the above situation does not apply in our Kenyan Inspectorate. The school QASOs are experiencing varied professional conflicts because they have responsibilities which are not commensurate with their authority in the system (cf:Kimemia:1989). The school inspectors neither control the resources they use in their work nor the resources required by the schools. This is what other scholars refer to as 'authority and responsibility' dilemmas; (cf:Kogan:1974, Beyene: 1982, Sergiovanni:1983, Godia:1984, Kimemia:1989). As Beyene (1982) explains; 'School inspectors are caught in the middle between the teachers and the administrators, (Beyene:1982:38, Koech:1999:90)

The top management cannot be effective without the help of the middle management who in turn require the contribution of the supervisory management. There should be mutual contribution in terms of policy – decisions, professional and the technical competence for the educational system to be effective. This is what Pugh (1971) reaffirms by stating that; **'Management will make full use of the potential capacities of its human resources only when each person in an organization is a member of one or more efficiently functioning work groups that have a high degree of group loyalty, effective skills of interaction and high performance goals.** (Pugh 1971:288).

Effective management in education at all levels and in particular of the middle (Inspectorial) management will require the following conditions to be streamlined:

- (i) The administrative efficiency in terms of policy-decision making processes and effective deployment of the required resources (human and physical) to achieve the set goals.
- (ii) The Inspectorate needs to have clearly defined goals i.e. there should be unity of purpose.
- (iii) There should be well-established procedures of co-ordinating the major activities. This is a form of standardisation.

- (iv) The school QASO must be stable at work. Stability at work requires clear policies and procedures of inspection service to be maintained and the results (achievement) evaluated regularly.
- (v) The individual school QASO should have clearly defined roles, functions and responsibilities. There should also be a well defined chain of command which is not personalized or discriminative because it must serve the interests of all the role-players equitably.
- (vi) Although versatility of school QASO is desirable there should be task division and where possible specialization to enhance greater productivity.
- (vii) The dilemmas and conflicts of the inspection service as evidenced from the study is attributed to imbalances between the responsibilities bestowed on school QASO and the incommensurate lack of authority both in terms of structure (position) authority and resource authority.
- (viii) For school QASO to be effective in their work there should be a substantial delegation of responsibility and authority in carrying out the defined tasks.
- (ix) The inspection service requires not only delegation but also some decentralisation, so that the current bureaucratic control may allow decisions to be made when relevant and appropriate. For instance, reliance on direct authority from Inspectorate Headquarters does not only delay action but in most cases it often addresses itself to outdated issues. It is appropriate that the span of control is such that at every level i.e. zonal, divisional, district, provincial or national the pertinent decisions can be made and taken in time (CF:Koech:1999:227).
- (x) The security of the role-players must be guaranteed. Evidence from this study indicates that individual needs and expectations are complementary in determining the performance and effectiveness of these individuals. For example, the salaries of school QASO, their promotional prospects, their personal and professional development, their terms and conditions of service are crucial factors that determine their perceptions about the institution, their participation and their effectiveness.

The security of school QASO in terms of their personal needs and expectations must be satisfied so that a competent cadre of inspectors (**corps d'elites**) may be attracted and retained at Inspectorate. As Handy (1986) rightly remarks; **'There is no perfect organization, no mathematically pure way of deciding what an organization should do or how it should be run. These things are eventually decided by those who hold the power inside or outside the organization. Organizations are inevitably involved in finding compromises, reconciling differences and living with what is possible rather than what might be ideal'** (Handy:1986:222).

Therefore the kind of management strategies proposed in policy documents such as the education commission reports (1965 to 1999) are not a recipe to be used in solving the educational crises but they are points of reference and are dependent on other factors such as social-political and economic for their success or failure. There are differences among individuals and groups, resources and priorities in implementing the identified management strategies. However, with effective management these differences may be reduced or eliminated from the institution such as the Inspectorate.

1.6 Conclusion

The framework used in this analysis indicate there are prevalent professional conflicts between the institutional (Inspectorate) requirements and the individual needs and expectations. For example, in reference to personal (individual) conflicts the study confirms that school QASO are constrained by personal factors such as inadequate salaries, lack of promotional prospect and lack of opportunities for professional growth. Similarly in reference to institutional demands, the school QASO are constrained by the multiplicity of functions, insufficiency of facilities, materials and other requirements (cf:Koech:1999:90). As an education commission (Mwendwa report 1982) reaffirms, **'such factors cause the difference between what could be achieved given particular resources and educational progress (potential output) and what is actually achieved (actual output),** (Mwendwa Report 1982:38ff). These professional conflicts should be addressed in an effort to ensure 'effective management' of the educational enterprise, the Inspectorate and school QASO as professionals and educational managers.

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THE INTERFACE OF HUMAN DEVELOPMENT THEORIES, CURRICULUM, AND INSTRUCTIONAL METHODOLOGIES: LETTING WHAT WE KNOW INFORM WHAT WE DO.

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This presentation will focus on a critical review of child and adolescent developmental theory and its implications for instructional and other pedagogical endeavors in elementary education. We argue that instructional methods and related educational practices must be grounded in and informed by theories about human development. Education and pedagogical efforts must link practices with an understanding of the nature of the learner, in particular the developing child. We illustrate this argument using traditional human development theorists such as Erik Erikson, Albert Bandura, Jean Piaget, and Lev Vygotsky. In addition, we draw on recent findings in developmental cognitive neuroscience and ecological systems theory. We will compare and contrast the various streams of thought, considering their various merits and demerits as these relate to education and instruction. In the end, we seek to examine some of the implications of developmental theory for the practical applications of pedagogical efforts and practices. We will seek to discuss some implications of developmental theory and research findings for current educational practices and any resultant unintended potential negative consequences of this, as well as offer possible interventions/practices for consideration.

Background

At the turn of the century, there was a general sense of optimism about Africa's prospects in the new century. A number of proposals were put forth as to 'how' Africa can claim the 21st century. From the World Conference on Education for All in Jomtien, Thailand (1990) to the Dakar World Education Forum in 2000, there has been particular attention to the theme of educational quality as a central focus of both national and international policy efforts.

The Education for All-2000 Conference, for instance, characterized education as "the strategic instrument for African Renaissance in the 21st Century". The All sub-Saharan Conference on Education for All held in Johannesburg concluded that for education to be a central piece of African Renaissance, education curricula and practices must, among other things, be based on what we know that works (Johannesburg Declaration and Framework of Action, 1999). Some of the presenters advanced the concept of the 'child-friendly school,'

which takes account of the best interests of the child. Some participants called for a future model of education that fits all children and where “children can learn, grow, and thrive.” From Jomtien to Dakar, the overriding theme has been one of ensuring education quality as a necessary complement to enrolment: quality and quantity have to go hand in hand!

Our goal in this paper is to explore some conditions, practices, and other pedagogical endeavors that may foster or hinder a child’s learning and growth. More specifically, we are interested in those instructional methods and related educational practices that link or delink learning and the nature of the learner. We hold to the assumption that effective teaching requires of the teacher some foundational knowledge of child development and learning. More specifically, we believe that knowledge of how children develop and learn is essential to designing developmentally effective practices. Child development here names those age/stage-related characteristics that may permit generalized predictions about those experiences that are most likely to promote children’s learning and enhance their development (National Association for the Education of Young Children (NAEYC), 2009).

Over the past few decades, there have been numerous attempts at improving educational outcomes. These attempts have often been characterized within the broad area of school effectiveness and the quality of education. School effectiveness here calls attention to both institutional and instructional factors/conditions that enhance student outcomes such as academic achievement in numeracy, oral expression, and reading (Scheerens, 2004). UNICEF (2000) described quality of education as consisting of five characteristics: learners who are healthy and ready to learn; environments that are safe and adequately resourced; content reflected in relevant curricula for acquiring basic skills; processes that use child-centered learning; and outcomes that encompass knowledge, skills and attitudes and link to national educational goals and civic participation.

Although we’re less interested in providing a length history of the school effectiveness and quality research, it suffices to note the landmark contribution of the Coleman Report (Coleman, *et al.*, 1966) in the United States and the Plowden Report (Central Advisory Council, 1967) in the United Kingdom to empirical research and practice on quality (Townsend, 2007). For the most part, these two reports suggested that variation in student learning was to a large extent the function of socio-economic factors and, as such, raised questions about the role of schools. Researchers and practitioners have spent the past few decades attempting to demonstrate that schools do matter!

Approaches to examining factors that contribute to school effectiveness have tended to fall within three broad categories:

- a) The Input-output approach, drawn predominantly from economic models, focuses mainly on those individual variables considered to influence academic achievement. As (Scheerens, 2004) surmised, such models focus on the relationship between manipulative school characteristics and attainment, while controlling for the influence of background conditions such as the learner's individual dispositions and broader social situatedness. For the most part, input-output research posits factors such as teacher/pupil relationship, teacher training, teacher experience, teachers' salaries and expenditure per pupil as the key determinants of desirable education outcomes (Boissere, 2004; Hanushek, 1997; Versteegen & King, 1998). Although the input-output or production function approach to understanding education outcomes has received increasing attention (Bennel, 2005), there are lingering questions regarding its utility in real world situations. For instance, some have argued that treating schools as profit-maximizing firms somehow neglects the complex web of factors influencing educational outcomes such as student background, resource inputs, educational processes and the contexts surrounding these. (Tikly, 2010).
- b) The second approach to understanding student outcomes can be broadly termed Process variables approach. This approach grew in part out of frustration with the 'input-output approaches, particularly as these yielded few consistent causal relationships between those factors assumed to influence student achievement. The approach therefore aimed at identifying both teaching and classroom characteristics that are positively associated with educational achievement (Riddell, 2008). Such factors may include class size, teacher educational level, teaching style, etc. Indeed, research shows a strong positive relationship between teacher's self efficacy, beliefs, and practices and overall educational outcomes, particularly education quality (UNESCO, 2006). A major criticism against process models is that they may lead to a "one size fits all" approach, which neglects the learning needs of different groups of learners and or the diversity of the learning environments (Tikly, 2010).
- c) The third approach, termed Multifactorial, grew out of the recognition that educational achievement is such a multidimensional and complex factor that it is important to identify interrelationships among factors, rather than attempting to identify unifactors/clusters of factors. This approach provides an appreciation of the nested nature of both education systems and students themselves. As Riddell (2008) put it, the approach focuses on the "interrelationship of variables across the typically clustered phenomena of schools, in which students, themselves of varying backgrounds, are taught in different classes, in different schools, by different teachers and with different resources in different parts of the countries in which they live" (p. 11). Research findings using the multifactor approach have since challenged many established findings regarding the factors that influence student achievement. For instance, Lee et al. (2005) found that, in developing countries,

student background variables had a more significant influence than school level factors.

We make three key observations from the generalized sketch of main approaches to the study of education effectiveness and/ or quality. First, that education effectiveness is a multifaceted construct and, as such, calls for multipronged approaches and methodologies in attempts to understand factors associated with it. No one single approach can yield all the answers. Second, the teacher appears to be a central variable in all the above approaches. Third, the learner appears to be peripheral to both conceptual and empirical methods and processes of investigating those factors that contribute to positive outcomes. Specifically, even in the multifactor approaches, for the most part the child appears to be an object rather than the subject of inquiry. This is important mainly because, in our view, it reflects different philosophical viewpoints about how children learn and, consequently, those practices that may be essential to such learning. Indeed, a common critique of most school effectiveness models is the tendency to assume a “one size fits all” model that would be effective for all children regardless of age, gender, ability, and other sociocultural factors. We argue that effective approaches to learning must have at their center the learner, that is, his/her unique attributes (physical, biological, cultural) as well as stage of development. Put differently, an understanding of child development is essential, allowing us to appreciate the multidimensional aspects of the cognitive, emotional, physical, social and educational growth that children go through from birth and into early adulthood.

The child in human development

Our intention here is not to provide a detailed discussion of each of the major theories of development, which include psychoanalytic (e.g., Freud, Erikson), cognitive (e.g., Piaget), behavioral (Watson, Pavlov, Skinner), and social (e.g., Bowlby, Bandura, and Vygotsky) theories. Those connected to the field of education have at one point or another come across these theories and theorists. We’re more interested in how these theories influence educational practices and/or approaches to learning. From the various theoretical strands one consistent theme is that childhood and early adolescence (period between birth and age 17) are periods of rapid physiological, emotional, and cognitive development (Berk, 2010). The second theme suffused through the different theoretical approaches is that there are critical (and predictable) periods when specific issues of development become of particular importance. Thus various theories posit life phases the successful negotiation of which leads to more complex phases in the developmental trajectory (refer, for instance, to Freud’s psychosexual stages, Erikson’s psychosocial stages of development, and Piaget’s four stages of cognitive development).

Although there are disagreements about the nature and processes that constitute successful negotiation of the various stages (for Freud the process of growth is completed by age 5, while psychosocial growth is viewed as a lifelong process by Erikson), there is consensus that childhood encompasses the most critical periods during which key issues to the human experience are faced (Johnson, 1994). According to Johnson, these issues go beyond the Freudian triad (oral, anal, and phallic) to include issues of attachment/bonding, individuation/self-determination, and attuned self-other relationships (p. 8) as well as those posited by Erikson, Bowlby, Piaget, Vygotsky, and other theorists. It is also important to note that in spite the implicit assumption inherent in many stagewise theories of human development that people follow similar sequences of development; the uniqueness of each individual child has not been lost in many contemporary theories of human development (Kagan & Fox, 2006). There is consensus not only about the existence of multiple courses of development, but also about the normative nature of variable development among children (NAEYC, 2009).

Indeed, contemporary theorists regard human development as influenced by and nested within multiple and complex contexts. For instance, developmental ecological frameworks, particularly that advanced by Bronfenbrenner (1979), have drawn attention to the power of ecological forces in child development. According to Bronfenbrenner's ecological model (also referred to as Process–Person–Context–Time Model), human development is a processes nested within a set of interrelated structures/environments, which include Microsystems (settings where the person routinely participates); mesosystems (relationships among those settings); exosystems (settings in which primary caregivers of the child routinely participate); macrosystems (broader societal level beliefs, values, practices, etc.); and chronosystems (effects of time over the life course). How these environments both proximal and distal affect the developing person is to a large degree a joint function of the characteristics of the person, environment, and changes over time.

It is however the influence of microsystems such as home environment, peer group, and school that have received the greatest attention in empirical research. With regard to the school environment, for instance, research has documented those children who perceive their school environments as less supportive are more likely to exhibit psychological distress (e.g., Battistich, 2003; Battistich, Solomon, Kim, Watson, & Schaps, 1995).

In addition to proximal environments, the characteristics of the person hold a central role in Bronfenbrenner's ecological model (Bronfenbrenner, 2001, 2005; Bronfenbrenner & Morris, 1998). Bronfenbrenner divided these characteristics into three types: demand (those that act as an immediate stimulus to another person, e.g., age, gender, skin color, and physical appearance); resource (relate partly to mental and emotional resources e.g., past experiences, skills, and intelligence, and to social and material resources); and force

characteristics (those that relate to differences of temperament, motivation, persistence, etc.). There is, for instance, a plethora of research on the relationship between a child's temperament and their ability to adapt (Dodge Coie, & Lynam, 2006). High levels of negative emotionality and low levels of adaptability have been consistently associated with what researchers have termed 'externalizing behaviors' such as hyperactivity, impulsivity, physical aggression, defiant behaviors, and conduct problems (Bates, 2001; Dodge et al., 2006; Rubin, Burgess, Dwyer, & Hastings, 2003; Sanson, Hemphill, & Smart 2004; Shaw et al., Gilliom, Ingoldsby, & Nagin, 2003; Shiner & Caspi, 2003). As an important antecedent of behavior, temperament plays an important role not only in how children respond to their environments, but also in how others respond to them (Bates, 2001; Bates, Petit, Dodge, & Ridge, 1998; Shiner & Caspi, 2003; Sanson et al., 2004).

The point here is that the child should be viewed not simply as a passive recipient of environmental effects, but as an active agent whose own biological, psychological, and cognitive resources may compromise or facilitative the child's development. Thus, responding to each child as an individual is fundamental to developmentally appropriate educational practice (NAEYC, 2009).

Ecological models of development have also brought to the fore the centrality of context in development. Such central aspects of development as attachment, cognition, emotional expression, language, and moral and motor development all occur within context within which an individual is nested. However, one cannot talk about context without recognizing the critical role that cultural systems play in human development. A large body of research exists on the importance of culture in individuals' overall psychological structure (Halberstadt & Lozada, 2011; Hofsted, 2001), the development of self (Nisbett, Peng, Choi, & Norenzayan, 2001), and emotional socialization (Cole & Tan, 2007). What this body of research indicates is that the cultural contexts (beliefs, customs, values, etc.) are integral to child emotional, social, and cognitive development. Converging evidence from cross-cultural research suggests that child-rearing beliefs and practices have important implications for child development (New, 2010). It has been suggested that culture shapes and informs the type of environment in which children develop (Halberstadt & Losada, 2011), and has direct influences on parents and other caregivers' socialization beliefs, behaviors, and goals (Dusmore & Halberstadt, 2009). Scholars have, for instance, asserted that children from traditionally collectivist and individualistic cultural backgrounds will vary in their understanding and expression of individual identity, independence, interpersonal harmony, personal assertion, and achievement of personal goals (Hofstede, 2001).

More recently, researchers have attempted to establish links between biological systems and cultural systems and how these influence human development (Lee, 2008, 2010). Some

have contended that human development can hardly be understood in its wholeness without an understanding of how biology and culture work together (Lee, 2010). Drawing on studies of social neuroscience (e.g., Cacioppo, 2002; Cacioppo & Berntson, 2004), Lee (2010) suggested that because biological predispositions vary in expression as a function of an individual's cultural milieu, efforts to understand and influence both the content and process of learning must take into account these dispositions and the diversity of their expression.

Consider, for instance, the psychological experience of stress. Research by Xie, Poling, Stein, Anton, Brady, et al. (2009) suggests that the human response (adaptation) to stress is aided by the interaction between risk and protective factors, themselves the outgrowth of biological, environmental, and cultural practices. The experience of persistent stress has been associated with negative health outcomes such as suppression of anabolic processes (Francis, 2009). Those working in schools appreciate the challenge posed by working with a student who comes from environments (homes and communities) with high levels of insecurity (not only in terms of physical safety, but also uncertainty about other basic needs such as food). It is not unusual for such a student to develop patterned responses to perceptions of threats (real or psychological) and to experience heightened states of arousal. These will undoubtedly impact the quality of educational outcomes for such a student. Thus, as Lee (2010) has suggested, designing and implementing robust learning environments requires that educators pay explicit attention to what is known about human dispositions, physiological systems, cultural practices, and environmental stimuli.

Teachers and developmentally appropriate practice

There is an abundance of research in the education field, which demonstrates that teachers play a critical role in whether children learn and what they learn (Horowitz, Darling-Hammond, Brandsford, et al., 2005). The ways in which teachers interact with children, how they design learning experiences, their sensitivity and responsiveness, the feedback they give to students, and the everyday decisions that they make all play an important role not only in the children's learning, but toward their overall development. It has been suggested that such interactions and decisions are more likely to be productive and intentional when teachers are knowledgeable about child development and learning in general (NAEYC, 2009). Indeed, the very approach to teaching must itself be informed by knowledge about the developing child, notwithstanding the unique contexts in which such teaching may occur.

Following Mangione and Maniates (1993), Buchanan, Burts, Bidner, White, and Charlesworth (1998) described a continuum of educational practices that entails child-

initiated exploration and discovery at the one end and teacher-directed, teacher initiated experiences on the other. Child-initiated learning has often been associated with cognitive-developmental theories, which view children as active learners who construct their own understanding from physical and social environments in which they are situated. Such a view is congruent with the humanistic approaches, which focus on children's construction of knowledge, active learning, and social action (UNESCO 2004). Teacher-initiated/directed learning, on the other hand, is rooted within behaviorist accounts of learning, with the dominant focus on the teacher as the center of both teaching and learning. As such, the teacher maintains control of the pace, sequence, and content of what is taught.

Our goal here is not to evaluate the utility of these approaches, or their philosophical foundations. We would, however, like to emphasize that any approach must be grounded within and informed by a knowledge base about human development. Drawing from an extensive review of the literature on human development, NAEYC (2009) proposed ten principles that must guide decisions about how best to meet the learning and growing needs of children (pp. 11-14). We are particularly drawn to these principles because they capture the depth and breadth of what we have discussed above.

Principle 1: All domains of development and learning—physical, social and emotional, and cognitive—are important, and they are closely interrelated. Children's development and learning in one domain influence and are influenced by what takes place in other domains.

Principle 2: Many aspects of children's learning and development follow well documented sequences, with later abilities, skills, and knowledge building on those already acquired.

Principle 3: Development and learning proceed at varying rates from child to child, as well as at uneven rates across different areas of a child's individual functioning.

Principle 4: Development and learning result from a dynamic and continuous interaction of biological maturation and experience.

Principle 5: Early experiences have profound effects, both cumulative and delayed, on a child's development and learning; and optimal periods exist for certain types of development and learning to occur.

Principle 6: Development proceeds toward greater complexity, self-regulation, and symbolic or representational capacities.

Principle 7: Children develop best when they have secure, consistent relationships with responsive adults and opportunities for positive relationships with peers.

Principle 8: Development and learning occur in and are influenced by multiple social and cultural contexts.

Principle 9: Always mentally active in seeking to understand the world around them, children learn in a variety of ways; a wide range of teaching strategies and interactions are effective in supporting all these kinds of learning.

Principle 10: Play is an important vehicle for developing self-regulation as well as for promoting language, cognition, and social competence.

Principle 11: Development and learning advance when children are challenged to achieve at a level just beyond their current mastery, and also when they have many opportunities to practice newly acquired skills.

Principle 12: Children's experiences shape their motivation and approaches to learning, such as persistence, initiative, and flexibility; in turn, these dispositions and behaviors affect their learning and development.

These principles are particularly appealing in the current education policy climate in many countries, with its emphasis on the implementation of educational reforms particularly in the areas of improving educational quality and outcomes (Lee & Ross, 2005; UNESCO, 2006). Additionally, these principles speak to the contemporary constructivist and active-learning paradigms, which emphasize children's construction of reality, flexible and dynamic ways of knowing the world, continuous construction of new meanings, and learning through social interaction (Case 1996; Dewey 1916; Vygotsky 1962). These emphases can hardly be realized without teachers' working knowledge of the fundamentals of human development. Where the rubber meets the road!

Throughout this paper we have argued that, if educators are going to enable children to develop and learn to their full potential, their practice must be informed by some foundational knowledge about human development. We have presented a body of knowledge which, tied together, invites us to see the developing child as a system that influences and is influenced by physiological, psychological, and ecological systems and processes. As a psychological system, the developing child is constantly engaged in the intertwined processes of thinking, feeling, and perceiving—themselves informed and shaped by the child's individual personality; ecological context; relationships within those contexts; sense of identity and self efficacy; and participation within and across multiple settings such as school, home, church, etc. We have to understand that these systems and processes are symbiotically linked, evolving, and dynamic (Lee, 2010).

We are, however, not Pollyannaish or naïve about the challenges of integrating such knowledge into our daily practices at school, particularly in the face of some grim reports of a generally demoralized teaching profession across the continent (Michaelowa, 2002). It has been suggested that the teaching profession across Africa faces a crisis of teacher morale (Tikly, 2010). We recognize the myriad challenges that teachers face on a daily basis,

particularly related to factors such as the material elements of schooling (e.g., textbooks and other instructional materials) and their own personal contexts. How can teachers, for instance, focus their full attention on understanding and dealing with the psychological, physiological, intellectual, and social needs of the student when they themselves have gone two months without pay? We are mindful, therefore, of the multiple contexts in which educators themselves are embedded, which may provide constraints as well as opportunities in terms of what they can do. Yet, converging evidence from cross-cultural research suggests that not only are teachers the most powerful influences on what and whether children learn; their own beliefs, attitudes, and approaches are integral to children's overall development (Daley et al., 2005; Horowitz, et al., 2005). This is important because, as has been presented, teachers are essential to efforts toward educational quality, which itself has been found to positively impact cognitive, academic, and behavioral outcomes of children particularly in developing countries (Daley et al., 2005).

What does all this mean in terms of some current practices in our schools? We'd like to invite some discussion on practices around assessment of children's learning, grading, and disciplinary practices. In terms of assessment practices, we have in mind the dominant ways of testing as a measure of children's learning, which almost exclusively involve either local or national written exams. There is a considerable body of literature regarding the benefits and limits of such a practice (see, for instance, Fuller & Clark, 1994; Riddell, 1997). One consistent theme among these studies is that a disproportionate reliance on standardized school exams as indicator of a child's intellectual ability does not do justice to the complexity of intelligence as a construct as well as those factors that may influence performance. We have no intention of delving deeper into this topic. It appears essential that there is a need to expand our understanding of what constitutes intelligence. The definition of intelligence cannot be divorced from its object—the developing child. Just as intelligence cannot be fully and meaningfully understood outside its cultural context (Sternberg & Grigorenko, 2006), so is it from the individual person. And as attempts toward global/objective definition of intelligence (i.e., decontextualized efforts) have been criticized for the inherent risk to impose 'foreign' views of the world on the rest, a uniform definition of intelligence within a single culture, social context, or system may fail to do justice on the complexity and range of skills and knowledge that may constitute intelligence. Our point is that simply basing on test scores to determine who is qualified to go to secondary school—leave alone a certain type of school—or college may run counter to national education goals of expanding educational opportunities for students from different social backgrounds through universal primary education and similar programs (UNESCO, 2008). More importantly, it may have a negative influence on the perceptions of some children regarding who they are and what they are capable of becoming. In the end, we're calling for ways in

which (quantitative) testing and achievement is viewed not as the defining characteristic of quality, but as one of its privileged indicators (Alexander 2008).

The second area of practice that we would like to invite discussion on is the age-old practice of making public the identities (names) of the best and worst performing students at the end of every school term. Across Uganda, for instance, at the end of every school term students and teachers gather for, among other things, the announcement of the best and worst performing students (usually 5 best performers and 2 or 3 of the worst performers) in each class. In many ways, this appears to be an innocuous practice intended, at least to motivate students. Although the 'best' achieving students might be encouraged to continue with their progress, those at the other end of the continuum may experience peer ridicule and a sense of humiliation. In fact, this end of term practice turns out to be a favorite for bullies as they prepare to crown the worst performing students with "tails" to signify their level of academic ability. We ask ourselves what such an experience mean and do to the developing child? Although there are yet to be any empirical evidence regarding the utility or lack thereof of this specific practice, we know that a pervasive shame experience is often related to feelings of inferiority, helplessness, and loss of self-esteem/worthiness (Cook 1996). In other words, public shame tends to negatively impact a child's self concept, self-esteem. Could this shame experience, therefore, leave the student in question with an enduring sense of themselves as inherently 'bad' and incapable of any sound academic achievement?

We would also want to invite discussion around the issue of punitive disciplinary practices to control and correct child misbehavior. This is an issue that continues to generate excited debates regarding its effectiveness and moral value. While much of the focus has been on physical discipline, recently there has been a growing interest in other types of disciplining such as verbally mediated punitive discipline. Physical discipline, commonly referred to as corporal punishment, denotes use of tactics such as spanking, slapping, or hitting with an object in response to student transgression. Often, the goal is to cause the child to experience pain but not injury for the purposes of correction or control of child's behavior (Gershoff, 2002). Our intention again is not to discuss the morality of such a practice. Rather, we're interested in discussing the potential effects, both deleterious and beneficial, of such a practice on the psychological structure of the developing child. In a meta-analysis of studies on the effects of corporal punishment on children, Gershoff (2002) found "strong associations" between corporal punishment and all eleven child behaviors and experiences. Ten of these behaviors were negative and included such behaviors as increased aggression, delinquency, child anti-social behavior, adult aggression, and decreased moral internalization.

On the other hand, the study found a positive association between corporal punishment and increased immediate compliance on the part of the child. Gershoff, however, cautioned that her findings should not be construed to imply that children who experience corporal punishment turn out to be aggressive or delinquent. This is because the effect of any corporal punishment is influenced by factors such as the relationship between the individual child and the person administering the punishment, the frequency and severity of the punishment, the administrator's state of emotional arousal, and whether it is used in combination with other techniques. Gershoff concluded that the context of corporal punishment (i.e., each associated quality) can determine which child-mediated processes are activated, and, in turn, which outcomes may be realized. Our focus here is on the psychological processes that such a practice sets in motion within the child.

Conclusion

Throughout this paper we have made a case for incorporating empirically based knowledge of human development into pedagogical efforts and practices. Such efforts must be shaped by our knowledge and experiences of the contextual linkages between the specifics of our own localities. In this sense, our paper is therefore best viewed as a plea for the application of evidence based practice, as much as for the inclusion of common sense in our approach to teaching and learning. It is time to apply Revans' Law to education: for an organization to prosper, its rate of learning must be at least equal to the rate of change in the external environment. As the rate of change accelerates across the continent, school must design practices that are embedded in empirical evidence.

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MECHANISMS FOR MONITORING AND EVALUATION OF HIGHER EDUCATION IN KENYA

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ABSTRACT

Education is an instrument for human development and societal transformation. It gives access to knowledge, develops critical thinking, and above all it is the best mechanism to give solutions to problems - personal, social and global. Moreover, education bridges the gap between the universe of knowledge and the universe of professions because of its power to transfer the accumulated knowledge to cope with the changing world, both national and global. Higher education institutions play a salient role in bridging this gap by offering quality education to its learners. It is therefore important to provide mechanisms for monitoring and evaluation of higher education institutions so as to provide quality education for societal transformation. In this paper, a multi faceted mechanism for monitoring and evaluation of higher education system in Kenya is discussed. This includes self assessment of higher education providers, accreditation of training programmes and external monitoring inspection. It is observed that if proper mechanisms for monitoring and evaluation of higher education are used, the quality of education offered in higher institutions in Kenya can be enhanced. The conclusion is, therefore, in ensuring quality education in higher education institutions, proper mechanisms for monitoring and evaluation should be used.

Key Words: Monitoring, Evaluation, Higher Education, Quality education.

1.0 INTRODUCTION

Higher education in Kenya is offered at universities and post-secondary institutions offering training at diploma and certificate levels. In the field of teacher training, these include diploma colleges for the training of non-graduate secondary school teachers, and teacher training colleges for primary school teachers. For technical education they include national polytechnics, institutes of technology and technical training institutes. The growth of the higher education sector in Kenya has resulted into tremendous increase in student enrolment in the past two decades. The rapid expansion of higher education in Kenya, particularly in the last ten years, has raised serious concern over the issue of quality in

higher learning. These concerns have led to the creation of national regulatory bodies to protect the quality of higher education. Council for Higher Education (CHE) is quality assurance agency in Kenya which was established in 1985 to take charge of ensuring quality of higher education. The Commission for Higher Education (CHE) was established, among other things, to ensure quality in higher education, with particular reference to university education. The establishment of the Commission was a response to many national needs, but the critical ones were (CHE-IIEP, 2006):

1. The increasing demand for higher education, which led to, increased number of public universities and corresponding student enrollment, and
2. The emergence of private universities that added a new dimension to quality of university education.

It is globally acknowledged that quality higher education is crucial to national development. The development and utilization of proper and effective mechanisms for monitoring and evaluation of are critical to successful higher education everywhere. Every nation and its university graduates are competing in an environment shaped by its own local and national needs, as well as international expectations and standards. The impact of the latter is increasing. As a result, the success and competitiveness of graduates in tertiary institutions will be affected by those standards and expectations. Educators, policy makers, and faculty members would be well advised to assess their own tertiary systems in that context and strive to set appropriate standards of their own, which also draw on and reflect the unique history, needs, and expectations of the nation. Quality improvement and quality assurance are among the most complicated problems facing higher education, because they touch on almost every aspect of the system. This was also reflected by Hayward (2005) when he stressed that, "in a number of countries, as in Kenya, the decline in university quality was such that graduates increasingly had trouble obtaining employment even when jobs were available." Hayward (2005) also noted that:

"Changes brought about by the transition to a knowledge economy have created a demand for higher skill levels in most occupations. A new range of competences such as adaptability, team work, communication skills and the motivation for continuous learning have become critical. Thus, countries wishing to move towards the knowledge economy are challenged to undertake reforms to raise the quality of education and training through changes in content and pedagogy. Without high quality tertiary education nations lack the trained professionals to meet the needs of highly competitive markets and the challenges of knowledge societies."

To contend with the rapid expansion in the number of higher education institutions, and in enrolment in Kenya, it has become necessary to have in place mechanisms to assure that adequate monitoring and evaluation of higher education institutions is available and that the quality of higher education provision is at least satisfactory and consistent with international norms. Against this background, this paper attempts to review some mechanisms that can be employed for monitoring and evaluation of higher education in Kenya.

3.0 THE NEED FOR MONITORING AND EVALUATION OF HIGHER EDUCATION IN KENYA

The need for proper monitoring and evaluation of higher education in Kenya has been triggered by the following factors:

3.1 Demand for quality higher education

Students are increasingly becoming a driver for quality education in Kenya and the world at large. In countries where students have a recognized status, they play an active role and are a powerful respected body. A current international trend likely to increase awareness of quality teaching is that students are invited to serve on governing bodies or hired as evaluation experts on par with academic peer reviewers. Students serve on the board of audits and raise concerns about teaching, learning environments, quality of content and teacher attitude. Institutions or departments dealing with competence-based education are often advanced in the institutional support for, and evaluation of, quality teaching. Frequently, they have committed to carefully selecting new teachers and to upgrading their recruitment process to encompass pedagogical skills. In career-oriented or vocational training programmes, students may complain of lack of programme consistency or poor practice-based learning, even when they are mature or working students. Student and alumni associations can easily benchmark learning conditions, teacher attitudes, pedagogy and support, and hence may promote or undermine the reputation of the institutions. Programmes requiring 30 technical skills, like information technology or healthcare studies, must pay close attention to the quality of the equipment and the type of teaching delivered. Lastly, more demand for quality teaching comes from the international students. Some programmes can be delivered irrespective of the location (online programmes) or can draw students from all over the world and thus prospective international students often want guarantees before enrolling.

3.2 Increasing quality assurance and recognition of qualifications

Cross-national recognition of qualifications and joint accreditation of degrees and diplomas is not new to the African continent, and various sub-regional bilateral and multilateral mechanisms have been in place for some time to facilitate these processes, e.g., in East Africa by the Inter-University Council. There is however a broad understanding that the existing international and regional initiatives on quality assurance, and accreditation and recognition of qualifications have to be further strengthened and implemented more effectively. There is a need for new regional and international initiatives to enhance student protection at a global level, while respecting individual countries' authority to regulate the quality assurance and accreditation of their own higher education systems. This move calls for more collaboration between domestic higher education service providers and international organizations and networks on quality assurance to enable African providers and their country systems to have a clear picture of the accreditation and recognition regimes of countries outside the continent and of the latest trends and developments in this regard.

3.3 Market Demand for Quality and Relevance of Education

We are moving very fast into an era where the end-users of the products of higher education are demanding relevance and the need for special skills from the products of these institutions. Today, it is not enough to hold a certificate, it is important to be able to exhibit skills to carry out some services. Higher education institutions therefore need to ensure that the inputs, process and outputs of these institutions through appropriate quality assurance programmes to meet the market demand.

3.4 The Challenge of Brain-Drain:

It is estimated that about 3 million Africans live in Europe and North America. Over one hundred thousand are professionals. The World Bank reports that approximately 23,000 university graduates and 50,000 executives leave Africa annually. Estimates show that 40,000 PhD holders live outside Africa. The Great Lakes region has produced, according to IOM estimates, an outflow of highly qualified and skilled human capital reaching the figure of 7,000. There are arguments that the phenomenon of "brain-drain" can be made to be beneficial as the skilled and highly qualified professionals can put their capacities to the service of their home nations, which may benefit from emigrants' remittances, export opportunities for technology, transfer of knowledge, increased ties to foreign institutions and access to international networks. One important way of retaining African human resources is by improving the quality of education so as to avoid "brain-drain".

4.0 MECHANISM FOR MONITORING AND EVALUATION OF HIGHER EDUCATION SYSTEM IN KENYA

Some mechanisms that can be used in monitoring and evaluation of higher education system in Kenya include self assessment of higher education providers, accreditation of training programmes, external monitoring inspection and developing quality assurance standards to regulate e-learning and distance education.

4.1 Self assessment of higher education providers

Self-evaluation is increasingly being done by higher education institutions in Kenya. In many cases, institutions tend to offer programme evaluation or training sessions for faculty though the *notion of quality* which remains vague and unshared internally. A better approach is to first explore the kind of education students should possess upon graduation and the types of learning outcomes the programmes should provide to ensure economic and social inclusion of students. Institutions working in this way have defined what quality means and what the role of the faculty in the learning process could be. This reflection requires time, conviction, motivation and openness. Lastly, the support that the faculty would need to accomplish their educational mission and the conditions that would allow the students to fulfill the learning objectives can be more clearly defined. The success of quality initiatives supported by the institution depends mainly on the commitment of the heads of departments who promote the quality teaching spirit and allow operational implementation. In large multidisciplinary institutions that have shifted to highly decentralized systems, departments have ownership of their activities and therefore a high level of accountability. Impetus and co-ordination of the heads of departments by institutional leaders through appropriate facilities and platforms for discussion are crucial.

4.2 Accreditation of training programmes

In Kenya, accreditation refers to a process of quality control and assurance whereby an institution or its programs are recognized as meeting the minimum accepted standards for offering university level education under the Universities Act. Accreditation is not mandatory for the public universities because they have been established under their respective Acts of parliament, giving them autonomy in governance and quality assurance. Private universities on the other hand are required to go under accreditation process. Accreditation is *mandatory* for private universities and their programs must be approved by the CHE. The Commission for Higher Education is the sole accrediting and quality assurance body and is concerned with accrediting private universities that wish to achieve university status. The CHE is only concerned at present with private higher education institutions

(Middlehurst and Woodfield, 2006). There is no external body that accredits or monitors the quality of the public universities in Kenya. Nevertheless, all the public universities inherited the external examiner system from UK universities and this provides some quality assurance (Odhiambo, 2006).

4.3 Internal and external monitoring inspection

Institutions need support to establish their internal quality assurance and quality management systems. The international experience suggests the need for a dedicated quality assurance unit within each institution that is responsible for coordinating the implementation of quality improvement activities and ensuring continuous monitoring and evaluation. The internal assessment or self-study is an important part of the quality assurance process. A higher education institution needs to collect and analyze the data about the institution and its educational program to identify the institutional strengths and weaknesses, and to develop strategies for ensuring that the strengths are maintained and problems are addressed for further quality enhancement. There is a capacity building need to develop and strengthening the internal quality assurance systems within East African higher education institutions.

It would be purposeful to use pilot internal institutional quality audits in selected higher education institutions to practice quality assessment based on process and outcome standards. These would be very helpful in pointing out cumbersome processes, reviewing procedures that need clarification, and identifying standards that are too complicated for implementation. It is particularly beneficial to East African higher education institutions in familiarizing them with the internal quality audit process. Such pilot audits will support the development of quality assurance at institutional and national levels.

External monitoring inspection is also important because it will provide un-biased evaluation. It is a big challenge however to sustain external examining as standard practice in the expanding higher education system, since very high cost is involved with growing numbers of external examiners.

4.4 Developing quality assurance standards to regulate E-learning and Distance Education

Distance learning and new modes of delivery are also another challenge in the sub-region. In most cases, national standards do not exist or are under development. Very little quality assurance work has been done on distance and e-learning in the sub-region. The rise of many new national private providers including trans-national providers in distance and e-learning requires a serious attention in accreditation procedure to ensure the quality of education provision. Therefore there is a need for capacity building in developing quality

assurance standards to regulate e-learning and distance education. Standards and quality assurance mechanisms for distance education and e-learning need to be further developed.

5.0 APPROACHES TO MONITORING AND EVALUATING HIGHER EDUCATION IN KENYA: LESSONS FROM DEVELOPED NATIONS

5.1 American approaches

In the United States, the development and complexity of the higher education system with its combination of public and private universities, and major research universities alongside small specialist universities and Liberal Arts Colleges, etc. has naturally resulted in evaluation and accreditation arrangements that are themselves very complex. Essentially, they take the form of bodies for the accreditation of programmes and qualifications, which may be private or public and which may themselves be recognized.

Among them are the following:

- *regional bodies* for accreditation which are concerned with all private or public universities in a particular region;
- *national bodies* for accreditation which generally specialize in the evaluation of certain types of institutions (private denominational establishments) or programmes (distance education);
- *professional bodies* for the accreditation of professional training programmes (in medicine, dentistry, veterinary medicine, engineering and administration).

Most of these bodies are themselves recognised by the Council for Higher Education Accreditation (CHEA), which was set up in 1996 by the university sector and lays down standards of good practice that accrediting organisations have to comply with. In parallel, the Department of Education conducts its own meta-accreditation which is a necessary condition to receive federal funds.

5.2 The Approach in England

The Higher Education Funding Council for England (HEFCE), which is in charge of financing universities, introduced a mechanism for the quality evaluation of subject-based programmes that led to the classification of each programme in one of three categories, namely “excellent”, “satisfactory” or “unsatisfactory”. Programmes identified as “excellent” by the universities underwent an evaluation visit; programmes that were not evaluated were automatically classified as “satisfactory”.

With experience, HEFCE evaluations attracted growing criticism, essentially because they appeared to be favourably biased towards the historically established universities. After several attempts to change procedures, a new approach was introduced in 1997, with the establishment of the Quality Assurance Agency (QAA).

The initial mission of the QAA was to evaluate universities and their programmes periodically. The evaluation procedures initiated by the QAA were relatively cumbersome to manage, as will become clear from this document. In fact, the evaluation procedures have been widely criticized by academics in England, mainly for the amount of documentary material that has to be produced and the cumbersome nature of the process. Therefore in 2002, the QAA shifted its attention to “institutional audits” which seek to evaluate the internal quality evaluation procedures and management practice of universities, only evaluating academic programmes if any problems have been detected. Once every five years, the HEFCE also carries out Research Assessment Exercises (RAEs), the aim of which is to evaluate the research performance of universities in each discipline, with the findings directly influencing the financing of research at each institution. The procedures of these RAEs entail evaluation by peer committees of university reports in 70 academic fields. Each field for which a university submits a report for evaluation receives a score between 1 and 5, on which funding directly depends. There is no funding for disciplines that score 1 or 2, and four times as much funding for a discipline with a score of 5 than one with a score of 3 for research on the same scale. It may be said that, to some extent, the English university system suffers from an overdose of evaluation. While the RAEs appear to have had a positive impact on the care universities take with the strategic management of their research activities, it is not really clear whether, as a whole, this overdeveloped approach to evaluation has had an impact commensurate with the management costs of the processes entailed. However, it is clear that many teams of experts have been mobilized in the course of these operations and that extensive organizational arrangements have been developed to implement them.

6.0 CONCLUSIONS AND FURTHER RESEARCH

Monitoring and evaluation of higher education in Kenya has become a somewhat fashionable item on national policy agenda for high education. We can draw a number of conclusions from the experience described in this paper. First, proper mechanisms of monitoring and evaluation of higher education in Kenya is an instrument which the country directly or through delegation may both enact its role to protect students and families from low quality or fraudulent providers and serve the purpose of quality improvement in academic departments and institutions. Monitoring and evaluation should thus be conceived as a support mechanism for enhancement of higher education. Second, internal

and external monitoring and evaluation is essential but has cost, both financial and human. It will only survive in the end if it proves to be an effective tool to improve functioning of the higher education. Our third conclusion is that the existence of monitoring and evaluation mechanisms does not automatically mean that national higher education provision is of good quality. Other quality control measures like benchmarking activities in the public and private universities must be incorporated.

7.0 RECOMMENDATIONS

The following are suggestions for good practice in monitoring and evaluating performance in higher education in Kenya:

1. Evaluations on the basis of such indicators as institutional efficiency, consumer satisfaction, job placement and value for resources (Alexander 2000).
2. Provide information on programme quality and on programme outcomes. (Wholey and Hatry 1992)
3. Systematic monitoring and evaluation of the performance of a state by other states.
4. Monitoring and evaluation are inseparable dimensions of higher education. Over-emphasis on one at the cost of the other would be counterproductive.
5. Along with the necessary and inevitable quantitative expansion of higher education, it is equally important to improve the quality of higher education. Institutions of higher education would find it difficult to meet the challenges of globalization of higher education if one fails on this front. Emphasis on quality parameters becomes all the more necessary in the light of mushrooming of private institutions in Kenya.
6. Setting up of CHE in Kenya has sent the right and positive signals for generating and promoting awareness of the urgent need of quality upgradation of Colleges and Universities. The need is to identify effective ways and strategies to expedite the completion of assessment and accreditation by CHE within a stipulated time frame.
7. Quality upgradation is not a one time phenomenon. Quest for excellence is a continuous and perennial pursuit. In view of this, post-accreditation complacency must be arrested by evolving quality assurance mechanism for self-regulation.
8. Effectiveness of Quality upgradation initiatives in higher education largely depend on the quality of primary and secondary education. Institutional mechanisms may be set up for upgrading the quality of education at these levels to further enhance the outcome of CHE efforts.
9. Periodic evaluation exercises in the future should be undertaken by CHE as part of post assessment and accreditation exercises. These could be conducted in collaboration with external evaluation.

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MISSING ORGANIZATIONAL LINKS IN TEACHER PROFESSIONAL DEVELOPMENT: THE CASE FOR A STANDARDS- BASED APPROACH

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ABSTRACT

An ever-evolving curriculum, a changing breed of pupil and student populations and new pedagogical approaches are among reasons why teachers have to constantly update their knowledge, skills and attitude. Research shows that a well-implemented professional development programme yields maximum returns to better classroom practice by teachers and more effective learning outcomes for students. However, many teachers in Kenyan schools still experience the traditional professional development with short, after-school initiatives in which the teachers' participation is often mandated and organized by the school administration. Externally organized workshops and seminars usually take the most time and resources as schools and teachers have to pay exorbitant participation fees. The topics are often too broad for any given teacher and disconnected from application in their own classrooms. The individual teacher has little or no participation in the decision making process of what should be explored, leaving the teacher disconnected from the learning experience

This paper discusses the findings of a recent study exploring the organizational features inherent in teacher professional development initiatives in a Kenyan public secondary school. The primary source of data collection was the use of individual face-to-face in-depth interviews with eleven participants sampled across the school's administration, heads of departments and subject teachers. Other sources of data were observation of professional development activities within the school and analysis of relevant documents.

Despite some laudable attempts by the sampled school for its teachers to engage in various forms of professional development, the implementation of most activities was found to be fraught with glaring organizational shortcomings. Following recent models proposed by researchers, the following aspects of organization were found wanting: focus on content and context of learning, time available for teachers' involvement, regard for adult learning principles, support structures and mechanisms for evaluation.

This study has drawn upon the implications of the findings and made some recommendations which if implemented could turn around the current ineffective conceptualization and implementation of professional development in secondary schools in Kenya. A lot of the recommendations revolve around policy and practice within the Ministry of Education and also in schools. Since the goal of all professional development is to improve student learning, this paper proposes the introduction of a standards-based approach to organizing initiatives meant for teachers' professional development. With a better conceptualized and structured professional development enterprise, it is hoped that teachers can be empowered to offer quality education for societal transformation.

Introduction and context of the study

Effective teachers are a key enabling factor in the improvement of the quality of education in any country (Veerspoor, 2004; UNESCO, 2005). Since there are limits to the effectiveness of any pre-service course of preparation, however well conceived (Goble and Porter, 1977), practicing teachers find themselves requiring an in-service programme that can increase their competence and confidence through actual experience. This is especially true of the Kenyan context and elsewhere in the developing world where governments and local communities are compelled by circumstances to put teachers into service with inadequate professional preparation.

Again, there is the reality of an ever 'evolving' curriculum and there are emerging issues in a rapidly changing society, which demand the continued 'updating' of teachers' knowledge, skills and even attitudes. Kenya has revised its curriculum severally in recent years to accommodate changing local and global trends such as environmental, health, security, social and economic concerns. An increasing population, high rural-urban migration, and the effects of Education for All (EFA) are among factors that contribute to the influx of new schools or the expansion of existing ones, to accommodate the rise in pupil enrolment.

Since the introduction of Free Primary Education (FPE) in Kenya in January 2003, over 1.3 million additional children enrolled in primary schools across the country (Republic of Kenya, 2005). While the FPE programme was celebrated as a success by the government, citizens, and international community alike, making Kenya join other countries that had fulfilled the Jomtien and Dakar Declarations on EFA¹, the sudden impact of this exponential growth in enrolment put a strain on the already precarious resources, including teaching and learning

¹ The World Education Forum that was held in Dakar, Senegal in April 2000, reaffirmed the expanded vision of education for life that was agreed upon at the World Conference on Education for All that was held in Jomtien, Thailand, in 1990.

materials such as text books, classrooms and furniture. A crucial component to the schooling experience, the teacher, was almost being taken for granted and was forced not only to 'take on board' dozens of new pupils in their classrooms, but also to devise ways of handling the extremely large classes.

A rapidly changing society necessitating curriculum modification also obliges professionally trained teachers to find ways of updating their knowledge, skills and attitudes. There is much evidence that teacher professional development enhances teacher effectiveness, and has been associated with higher student achievement and overall school improvement (Smylie et al., 2000; Darling-Hammond and Ball, 1998, Darling-Hammond and Rustique-Forrester, 1997, NSCD, 2000). Although research does not yet provide extensive evidence of the links between professional development and improved student learning, there is growing consensus that "professional development lies at the center of educational reform and instructional improvement" (Elmore & Burney, 1997 in Haslam & Seremet, 2001). Sarason (1990) succinctly described the link between professional development and improved student learning: 'It is virtually impossible to create and sustain over time conditions for productive learning for students when they do not exist for teachers' (cited *ibid*, p. 3)

Despite major curriculum changes to accommodate the various emerging issues in a rapidly changing society, Day and Sachs (2004) note that developing and implementing a coherent strategic plan for continuous professional development of teachers in Kenya has never been a national priority. Although there have been efforts by education authorities and schools through a series of short in-service training of teachers at various times, TPD remains "...a relatively *ad hoc* response to 'events'... instrumentally tied to a mode of teacher as technician²", (*Ibid*. p. 177). Onyango (2009) has reported that most of the in-service programmes Kenyan schools engage in are one-off seminars intended to instruct teachers in the changes in the curriculum. During the Sub-Saharan Africa (SSA) Regional Workshop for African Teachers held in Nairobi in 2007, the Minister for Education in Kenya lamented the fact that most SSA countries had poorly trained teachers saying that "...qualified teachers were needed in the classrooms at all levels" (Kiminza, 2007, p.18). It was observed during this workshop that lack of structured teacher development programmes was a major challenge militating against realization of EFA.

This paper reports the findings of a study on teacher professional development benchmarks in a public secondary school in Kenya and describes the inherent shortcomings in the conceptualization and implementation of initiatives meant for teachers' professional

² Teaching is regarded as a process of problem-solving and decision-making similar to the processes followed by physicians

development. The paper also makes recommendations to school communities and policy makers based on recent teacher professional development models proposed in the literature.

ORGANIZATIONAL GAPS IN TEACHER PROFESSIONAL DEVELOPMENT INITIATIVES IN KENYAN SECONDARY SCHOOLS

Data collected during the study seemed to suggest that attempts were made to focus TPD initiatives on relevant content especially on syllabus coverage. This was especially evident in the internally organized forums such departmental meetings and consultations among colleagues at the school. However I perceived gaps in the way several of the organized TPD sessions failed to address specific content relevant to the school's curriculum implementation and teachers' professional needs, leading to some teachers to reach "...a saturation point with nothing new to learn" according to one participant. Other participants reported that some issues addressed at TPD forums they attended were irrelevant or not of immediate value. Brookfield (2001) has advised that adults like their learning activities to be problem-centered and to be meaningful to their life situation, and they want the learning outcomes to have some immediacy of application.

In most of these initiatives, the issue of how teachers taught specific content in their classroom contexts rarely featured. Kennedy's (1998) review of the effect of Mathematics teacher in-service programmes on student learning found that programmes that focus on subject matter content and how students learn it had the largest positive effect on student learning. Garet et al (2001) also note that content-focused activities have a substantial positive effect on teachers' enhance knowledge and skills. Lee (2004) calls for programmes that focus on both knowledge of the subject matter as well as understanding of how children learn specific content. Quan-Baffour (2007) has identified gaps in externally organized TPD programmes such as those experienced by teachers at the school under study:

...continuous professional learning activities organized by district or regional educational offices are usually generic and do not address the specific needs of individual educators and schools. Since each school and educators have their own learning needs, staff development programmes should be contextualized. Thus for staff development programmes to be effective (i.e. address specific school or educator needs) it is imperative for such activities to be organized at the school level while those of general nature could be addressed at the district and regional level (p. 189).

Teachers, researchers and policy-makers consistently indicate the greatest challenge to implementing effective professional is lack of time (Abdal-Haqq, 1996). The wide variety of subjects offered at the school under study and the many extra duties assigned to teachers were cited as obstacles to getting more time to engage in professional development activities. Most participants in the study were agreed that not enough time was available for activities involving their professional growth. One participant quantified the total time available for him at only about four hours spent on professional growth initiatives in a term. This is way below what literature advises.

Teachers need time both to make professional development an ongoing part of their work on a daily basis (Bush, 1999) and to see the results of their efforts (Dorph & Holtz, 2000). Recognizing this, some professional development research bodies such as the National Staff Development Council (NSDC) have "...determined that adequate time for staff learning and collaborative work should be 20 percent of an educator's week" (Morocco & Solomon, 1999, p. 262). The aforementioned status of teachers at the school under study in which most teachers have approximately twenty two teaching lessons per week excluding lesson preparation tasks and other official duties, militate against finding time to engage in TPD activities. No wonder one participant observed that TPD was usually relegated to the 'AOB' part of departmental meetings when everything else 'of importance' had been addressed!

A study of how some countries like China, Germany and Japan prioritize teacher development would be the envy of many a Kenyan teacher. Villegas-Reimers (2003), reports that teachers in these countries have a significant amount of time to engage in their professional development. Unlike their professional counterparts in Kenyan secondary schools, teachers there teach fewer classes and spend an average of 30 to 40 percent of their day out of the classroom, conferring with students and colleagues and engaged in other professional activities (Abdal-Haqq, 1996; Darling-Hammond, 1996) cited in Villegas-Reimers (2003). It is also 'amazing' to hear of Japanese schools providing teachers with 20 or more hours each week for collegial work and planning, visitations of other classrooms and schools, and other such professional-development activities (APEC, 1999) cited (Ibid.). In addition to making time to participate in particular activities, Burget (2000) also asserts that teachers need time for 'mental space' for their professional development. It is imperative that there is a for a restructuring of the way in which teachers' time is divided, with policy modifications on recruitment of extra teachers, school routine changes, lightened lesson load allocation, and teaching time table adjustments.

Although several of the participants reported being involved in planning TPD sessions and also getting opportunities to give their views, majority of sessions especially those convened by external organizers failed to involve teachers actively. Hence participants in most of

those forums were passive receivers of knowledge. Tatto (1997) cited in Ono & Ferreira (2010) say of this type of TPD characteristic:

Beliefs about what teachers should know are linked intrinsically with beliefs about the type of knowledge worth teaching in schools...In most countries schooling is characterized as using a "transmission model" where teaching is telling, and learning is "absorption". This description fits most teacher education as well. (p. 61).

The rise in constructivist approach to learning coupled with criticism of traditional teacher professional efforts lead to an alternative paradigm of professional development. Advances in brain research support the understanding that the human brain is constantly searching for meanings and seeking patterns and connections (Bransford, Brown & Cocking, 2000). Based on this notion, it is implied that learners construct knowledge of their own deconstruction, interpretation and reconstruction when engaged in activities and in social discourse that take place in a certain context. In other words, knowledge is situated and is socially and culturally constructed (Brown, Collins & Duguid, 1989; Bruner, 1996; Rogoff, 1998). In agreement to these findings, Villegas-Reimers (2003) suggests that a new perspective of professional development should be based on constructivism, perceived as a long-term process and one that takes place within a particular context, conceived as a collaborative process.

The principal's handling of professional development meetings in which it emerged she gives teachers 'democratic space' is commendable. Teachers are more likely to grow professionally in a climate where they can voice their opinions, even dissenting views. As the principal commented: "I don't know it all" because she is likely to learn more about teachers' needs by listening to them. Brookfield (2001) asserts that:

...without such a climate or culture, teaching-learning encounters run the risk of becoming nothing more than exchanges of entrenched opinions and prejudice, with no element of challenge and no readiness to probe the assumptions underlying beliefs, behaviours, or values. It is useless to run a staff development workshop in which participants compliment each other, repeat the public norms of the organization, and confirm prejudices but never address fundamental differences in philosophy of practice. What is valuable however is the honest expression of differences in an atmosphere where challenge and dissent are accepted as part of the educational process. (p. 14.)

Murphy, R. (n.d.) also observes that adults do not generally respond well to being put in the position of 'passive learners' or treated as 'empty vessels' into which knowledge can be poured. Teachers are described as mature professionals with many years of relevant

experience and who are used to being highly involved in their own decision-making. The 'offensive' language, used in some invitation letters to professional development forums and also by some HODs during internal meeting, has no place in effective TPD organization. It is imperative that organizers establish a positive and respectful context within which learning can occur. Teachers learn best when they feel valued by themselves, those they are learning alongside and by whoever is facilitating their learning (Murphy, *ibid.*). There needs to be a climate of mutual respect in these situations.

It emerged from the data that some collaboration existed between teachers supporting each other in the common pursuit of their professional growth. On the whole, teachers at the school under study collaborated in various ways including consultations among colleagues, joint setting, moderation and marking of examinations and some kind of team-teaching. Banks & Mayes (2001) in Townsend & Bate (2007) think highly of teachers collaborating with each other as they develop professionally:

....teachers learn much from each other. They cite fellow teachers as the most valuable source of professional development. In recent years, teacher development approaches which built on collegial and collaborative work among teachers have become prominent in the discourse on school improvement and educational change. (p. 447).

Sachs (2003) also proposes that cooperating with peers helps to break down individualism and isolationism and facilitates a mode of working where trust can be engendered and new solutions to recurrent problems debated and tried out. As a participant in the study put it:

Through comparing experiences and seeing what the challenges are and how others have been able to surmount those challenges. One begins to learn that 'I'm not in this alone in whatever difficulties I'm experiencing, and even begin to realize that 'I can find new ways of dealing with whatever is coming other than what we learn out there in TPD forums. (Interview 1 on *****).

With regard to the limited occasions for teachers at Aspire to learn from each other in classroom teaching situations, Townsend & Bates (2007) caution the culture of isolation which is inherent in teaching must come to an end. Observing that teachers have historically existed in a 'one room schoolhouse' world, these scholars advise that in order to make substantive gains in student achievement, classrooms must become open for professional collaboration.

Building an effective collaborative school culture requires the involvement of teachers, administrators and other professionals working in schools, as all merit, and can benefit

from, professional development opportunities (Villegas-Reimers, 2003). The principal at the school seemed to be doing her best to collaborate with teachers as demonstrated through the many TPD activities she is reported to fund and lend moral support. When focusing on the teachers' needs alone, several studies report that the leadership of principals is crucial to support their professional development in schools (for example Clement & Vandenberghe, 2001; Fernandez, 2000; Moore, 2000). This view is especially applicable in many Kenyan secondary schools where principals wield great power and authority, so their goodwill would be a definite asset in TPD. Wanzare & Ward (2000) bring to light the role of the head teacher in staff development in Kenya which was emphasized by the Presidential Working Party:

The most important supervision and guidance in any school is that given by the head of the school. The [Presidential] Working Party sees the need to strengthen this role of the heads of schools as "first inspectors" of their own schools and to give them appropriate training. (p. 3).

On the whole, evaluation of TPD initiatives to determine its outcome on both teachers and students was absent at the school under study. Lacking formal structured mechanisms, most teachers reported resorting to self-evaluation as a means of determining the nature and extent of changes in their own practice as well as any modification in student behaviour. Such self-evaluation is highly based on self-opinion and is quite subjective. Considering the myriad other actors in the arena of school improvement efforts as well as other personal attributes, self-evaluation can be inconclusive and not yield credible judgment on the outcomes of TPD. In the same way, student performance in examinations and their general discipline which some participants claimed to use as data was unreliable.

The principal's frank confession that she did not know how TPD outcomes could be measured represents the general scenario documented in the literature which points out the apparent absence of this important aspect of TPD. To solve this, Haslam & Seremet, (2001) propose three level of evaluation of TPD initiatives. First, they suggest an assessment of the quality of the activity against the professional development standards (see appendix G). This level of evaluation begins with the quality assurance process. The evaluation assesses the extent to which the content, format, and organization of the TPD activity meets the standards. Data collection for this level includes review of plans and materials prepared for the activity, observations, and surveys of participants. Survey items should ask participants to rate the clarity and appropriateness of the goals and objectives and the usefulness of the materials and learning opportunities. These surveys should ask the participants to comment on the extent to which they are likely to change their practice as a result of the activity.

The second and third crucial levels involve the assessment of the extent to which participants develop and use new skills and knowledge and the extent to which professional development contributes to improved student outcomes, respectively. For teachers, if the activity was intended to foster the development of new skills, Haslam & Seremet, (2001) propose that the evaluation should follow participants back to their work places to ascertain whether they did, in fact, put the new skills into practice. Perhaps this is what the Physics teacher expected would happen when he said he had never seen SMASSE evaluators or filled a questionnaire despite attending their sessions faithfully for five years.

A study of some SMASSE policy documents however revealed that this programme had highly structured mechanisms for evaluation, so this participant perhaps was just never part of their sample during the five years of participation. Kibe, Odhiambo & Ogwel (2008) report findings that indicate the SMASSE programme is monitored and evaluated, for example students' achievement, which they say is an important reflection of the quality of teaching and learning following participation in SMASSE training sessions. They report findings which showed the correlation between students' performance in the Kenya Certificate of Secondary Education (KCSE) examination and the achievement tests for each subject being very high. From a survey carried out in 2002, the achievement scores of students taught by SMASSE trained teachers are said to be higher than those of students whose teachers had not undergone SMASSE training. SMASSE also determines the impact of INSET³ activities on participant's attitude towards various issues on the teaching and learning through the administration of pre-INSET questionnaire just before INSET begins and post-INSET questionnaire at the end of the training. The impact of INSET activities is felt to the extent that they influence teachers' classroom practices. Classroom observations have indicated that teachers' classroom practices in terms of quality of teaching and the extent of student participation are better after undergoing SMASSE INSET. Despite this confirmation by SMASSE reviewers about the success of their initiatives, the Physics teacher's concerns still need to be addressed through such programmes perhaps widening their evaluation sample or through decentralizing evaluation structures to have district or local zone evaluation systems.

For students, linking professional development to their learning outcomes is difficult, but if evaluation results indicate that participants, especially teachers, have mastered and used knowledge and skills they acquire in TPD, it is worth trying to learn whether there are changes in student learning (Haslam & Seremet, *ibid.*). Overall, teachers at Aspire receive a lot of support from different stakeholders in their professional development. Of crucial significance is the principal's support which emerged from the data as being impressive.

3 In-service Training

Support of the school administration is crucial for promoting teacher development (Komba & Nkumbi, 2008). If school managers are empowered they will be able to play their social and technical roles more efficiently (Blasé & Blasé, 1999; Moshā, 2006).

Within schools, the principal is in a unique position to influence the implementation of these guiding principles and to affect the overall quality of TPD. One of the primary tasks of school principals is to create and maintain positive and healthy teaching and learning environments for everyone in the school, including the professional staff. (Bredeson, 2000). School principals' ability to influence the structure, culture and mission of the school is well documented in the literature and principals are cited as key players who provide strong leadership in staff development through their advocacy, support, and ability to influence others (National Staff Development Council (NSDC), 1995). Dufuor & Berkey (1995) also offer that principals "...help create conditions which enable staff to develop so that the school can achieve its goals more effectively." (p.2). However, the school principal cannot fulfil this crucial function alone. Parents and educational authorities need to strengthen this role of the principal through financial and moral support, for example through levies and grants to schools. A better understanding of the place of TPD in the school should be created especially considering the perception that some activities are a waste of funds as the principal described some parents' reactions to be when teachers had to go retreats in external venues. Again, it emerged that teachers can sometimes be their own worst enemies in TPD implementation. There were cases reported of negative attitudes leading to non-participation in some activities, for example, teachers saying there was nothing new to learn (Physics teacher interview 1 on 11.5.2010). Some teachers and HODs were also reported to having 'felt threatened' when their colleagues continued to develop professionally. Such attitudes retard any gains made in TPD programme implementation.

From the data studied, the organizational attributes of TPD initiatives contained some glaring gaps. This was especially discernible from the various descriptions of involvement by many participants in many professional growth activities which lacked some sense of control and direction. It became clear that an internal school policy would help streamline and enhance the way TPD was conceptualized and implemented at the school under study. Consider the principal's response on this issue:

Researcher: Would you say there is an internal policy guiding the way teachers develop professionally? Some guidelines? How would you say you've been operating so far?

Principal: I don't think there is an internal policy...or whether we grope in the dark. You know we become fire fighters. Sometimes we are fire fighters. When there is a need, you come in.

Researcher: You come in with the (fire) extinguisher?

Principal: (If) we are not performing (well in examinations), then we come in very strongly. And I think after that we slow down until maybe we have another problem.

The principal seemed to recognize the need for some direction and wished there was a policy guiding the school's engagement in TPD initiatives. She decried such a 'reactive' culture in which schools like hers came up with initiatives as a reaction to crisis citing the case of urgent forums organized to address decline in examinations. Rather, she was of the opinion that teachers in the school needed to "...keep on the move all the time" in a well thought-out programme with clear structures.

The TSC policy on TPD was described by the principal as being 'a contradiction' since the teachers' employer on one hand encouraged professional development of teachers but at the same time suspected teachers of abandoning their 'core duties' (i.e. teaching in class) in pursuit of higher qualifications. The other fear was that teachers continued professional development usually culminated in higher career mobility or even complete departure from teaching. However, the principal revealed that some 'little money' levied on students' fees was allocated to school budgets by the Ministry in the Free Secondary Education programme to cater for 'capacity building', which translated to TPD and other training for other school personnel. Data gleaned from the school's strategic plan which made a brief reference to support for in-service programmes, but the principal acknowledged that as much as TPD was provided for:

...we are groping in the dark. We really don't have the ...(pause) you know...someone should come up with a kind of a module which we can follow so that we (schools) don't just do anything, as all of us do different things, others don't do anything. Sometimes we have it factored in the strategic plan and we don't do it. (Interview 2 on 19.5.2010.)

While qualified teachers are needed in the classrooms at all levels, Kiminza (2007) writes that "Lack of structured teacher development programmes in Sub-Saharan Africa" (p. 18) militate against this important ingredient in the realization of a globally competitive quality education. The World Education Forum held in Dakar in 2000 reaffirmed the expanded vision of education for life (agreed upon at the World Conference on Education For All (EFA) held in Jomtien, Thailand in 1990). Among the twelve strategies arrived at to ensure realization of EFA included enhancing the status, morale and professionalism of teachers (Elimu News, 2007).

It is noteworthy that several policy documents at the MoEST level recommend the constitution of a training and teacher development committee at school level, responsible

for needs assessment, identification of avenues for training and development, designing programmes for staff development as well as an annual training projection to be submitted to the District Education Board (DEB), and also the evaluation of the impact of such programmes. (Teachers Service Commission (TSC), 2002). This well-intentioned directive however amounts to just 'words in print' as schools are "groping in the dark" as the principal put it. Some guidelines on TPD implementation would be of much help in strengthening organizational structures in the school. As the principal observed:

Researcher: How do you feel TPD initiatives in the school could be strengthened or improved?

Principal: It could be improved if a module is developed by MoEST. Because they have factored it (in-service training) in the Free Secondary Education programme, but if they could give us something that we can follow, maybe like (the one they have produced) for Life Skills...They should come up with something so that the head teacher is not left to think about it and there is really no time as there is so much else to do for the head teacher. (interview 2 on 19.5.2010)

If MoEST could outline clear operational structures with guidelines for TPD implementation, this would trickle down to schools and help streamline internal school structures, for example, time tabling and routine structures to accommodate TPD activities. Again, this could help address concerns about the limited time available for professional growth in schools. TPD should also be envisaged to target all teachers and all subjects as in some cases seniority was cited as a factor in deciding who would attend some forums, thereby creating power struggles among colleagues in the school. It is quite clear from the documents, observations and interviews that there is a bias for Mathematics, Sciences and English subjects. Opportunities for professional growth of PE and Geography, and indeed teachers of all subjects should be availed so as not to create negative attitudes among teachers and even students.

Conclusions and recommendations

The findings indicate that teacher professional development is a practice that has not been well conceptualized in terms of its structural organization in the secondary school under study. While every study participant seemed clear about 'why' they needed to develop professionally, it emerged that the other 'w' and 'h' questions were not easy to answer. An analysis of the structural components of professional development activities clearly demonstrate deficiencies in. *what* 'was to be learnt (content and context focus), *when* it was to be learnt (timing, duration and frequency), *where* it was to take place (proximity to teaching and learning context) and also *how* it was to happen (for example the

incorporation of adult learning principles such as utilization of teachers' prior knowledge and experience). Considering the unanimity among the study participants on the need for TPD, a well structured, coherent and sustainable programme needs to be initiated.

The findings of this study have several implications for different stakeholders in educational practice, either directly or indirectly involved in organizing TPD in secondary schools. Teachers, being the intended beneficiaries of these programmes, need to take the lead in identifying what works for them, what their real professional needs are and seeking solutions to problems they face in their profession through appropriate TPD initiatives. Komba & Nkumbi (2008) comment that teachers' intrinsic drive towards self-improvement cannot be matched with any amount of pressure from educational authorities and so they need to own the concept. In the study, teachers were found to be part of the problem when they resisted new ideas or left the responsibility of organizing TPD initiatives to HODs, the principal and educational authorities at the regional or national level.

The school administration has a crucial role in ensuring that professional development of teachers is one of the priorities in the school's programmes. 'Time factor' emerged as a big challenge to TPD organization, necessitating the organization of brief, infrequent and unsustainable programmes. This problem was said to be compounded by teacher shortage in several subject departments as teachers had a big work load in class and doing other duties assigned to them. An overloaded curriculum which is examination oriented leaves little time for teachers to engage in professional development forums and they were attracted only to those that addressed KCSE marking procedures and how to prepare students for the final examination. This implies that the organizers aim at 'quick fixes', rarely addressing specific concerns of teachers in their school contexts. Budgetary constraints were also cited as a hindrance as this affected the frequency and sustainability of some TPD programmes. However, the biggest hindrance to effective implementation of TPD in the school appeared to be ignorance. As the principal confessed, they were "groping in the dark". The implication here is that schools need some guidelines on how to organize professional development initiatives. The assumption that they know what to do was found to be inaccurate.

Another implication of the study is that while MoEST has a policy for supporting TPD initiatives in the country (as seen in policy documents studied), there are no implementation procedures for the various agents (principals and district education officers). Indeed, it emerged that many private organizations and groups of people were organizing forums for teachers without coordination from educational authorities. This implies that crucial organizational aspects are compromised because such organizers are themselves suspected of incompetence and interested only in monetary gain.

It is noteworthy that MoEST has some official policies concerning professional development of teachers. However from the various documents studied, there are some glaring gaps with regard to implementation systems. There is need to have a harmonized structure that incorporates clearly stipulated roles and responsibilities for the various educational organs. I recommend that MoEST introduces a special agency within the Ministry to play the role of rationalizing and harmonizing the work being done by different bodies such as TSC, KESI, KIE, KNEC, and the myriad other groups or organizations implementing some form of TPD in the country. This study revealed that some of these bodies had not been effective in their mandate and so schools were left to their own devices with no guidelines on how to engage in TPD internally or externally. Hence, 'mercenary' individuals and organizations masquerading as professional consultants had taken advantage, commercializing TPD.

A harmonized policy would develop TPD curriculum guidelines and stipulate organizational attributes expected of programmes run in schools, making them more attractive and beneficial to teachers. In this era of performance appraisals, I recommend that the bodies charged with implementing professional development initiatives be regularly evaluated for efficiency. The huge investment made in student learning, including budgetary allocation and efficient structures for supporting and evaluating learning outcomes should be applied to teacher learning. Another aspect of policy should be to ensure all teachers teaching curricular subjects benefit from TPD as it emerged that certain subjects, especially Physical education and those in the Humanities were neglected.

A shift away from an examination-oriented syllabus could add value to professional development as teachers would have more time to reflect on their performance in class and engaging in more TPD activities which are sustainable. Ultimately, as Elmore (n.d.) in MacNeil, (2004) advises, "the knowledge gap...is not so much about knowing what good professional development looks like; it's about knowing how to get it rooted in the institutional structure of schools. (p. 4). Hence, I recommend the institutionalization of TPD so that it forms part of the daily routines and accepted as a legitimate activity supported by all. Teachers and school administrators need to be empowered to play their roles in making TPD a way of life in their schools. This way, schools will not have to wait desperately for someone to charge them an exorbitant fee to run for them workshop. Hence, internal school structures need to be streamlined with clear roles defined for the teachers, HODs and the administration.

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FACTORS INFLUENCING EFFECTIVE USE OF ICT IN TEACHER EDUCATION: A CASE OF KENYA TECHNICAL TEACHERS COLLEGE

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ABSTRACT

Information and Communication Technology (ICT) is becoming an integral element of educational reforms and innovations. Its exploitation as an important tool across the curriculum has resulted in increased pressure on teacher education worldwide to improve teacher effectiveness and delivery. This is because ICT is not just regarded as a tool which can be added to or used as a replacement of existing methods; but as an important instrument to support various approaches used in teaching and learning. Integration of technology into classroom learning has been seen as an ideal way of improving or even reforming the traditional curriculum processes. Every teacher should therefore acquire the necessary skills on how to use technology, to ensure that pedagogy and subject area content is effectively used in the daily classroom teaching. ICT integration however goes beyond computer literacy to include, the ability to prepare and use, the selection and operation of appropriate ICT materials in order to build knowledge, as well as to develop critical and creative thinking among students. Teacher education and training is a means for professional updating, which deals with all developmental functions directed at the maintenance and enhancement of one's professional competence and literacy. This paper is based on a study carried out among technical teachers in Kenya Technical Teachers College. The purpose of the study was to find out factors that influence effective use of ICT in teacher education. The study used the descriptive design. A total of eight (8) heads of departments (HODs), forty-eight (48) lecturers and three hundred and forty eight students (348) from both regular and school based programmes participated in the study. Data was collected using questionnaires, interviews and observation. Data was analyzed using percentages and frequencies. The major findings of the study were that the HODs and lecturers were highly qualified with the majority having master degrees. This is a proof of high professional development among the teaching staff. A positive attitude towards ICT use was also evident based on the kind of responses given on the importance of ICT use in instruction. ICT competence was also very high among the lecturers with majority using internet to find

information and also to give presentations. Management and technical support was also highly rated. However ICT use in the teaching-learning process was almost below average. Most lecturers felt there was need for training in ICT integration as a way of helping them to gain confidence to use ICT in their specific subject areas. The study recommends among others that there is need for policy so that ICT is part of teacher training to ensure its effective use as a tool for instruction, and effective content delivery. Teachers should have a solid understanding of ICT use as this will help them understand their roles in a technologically oriented classroom. Such understanding can only take place when teachers are actively involved in teaching and learning with technology across all disciplines. As a way of disseminating the appropriate ICT knowledge, a training plan for the lecturers who do have the skills should be put in place in order for them to acquire the appropriate ICT skills and knowledge.

Key words: *ICT Integration, effective use of ICT, teacher education.*

INTRODUCTION AND CONTEXT

The use of technology in education is one of the major trends in educational reforms all over the world. Integrating technology into teaching and learning is a process widely perceived as a great asset in the reforms. It is seen as an ideal way of reforming the traditional curriculum process and pedagogy. According to Makau (1988) computer is capable of transforming the teaching and learning process from being a dull teacher dominated activity to an exciting teacher centered process which nurtures confidence, initiative and mental skills. Kenya like many developing countries has not been left behind in the use of technology. Rosenberg (2001) emphasizes the need to use new technology by citing the ancient proverb, "if we don't change our direction we'll end up exactly where we are headed

The Ministry of Education has put in place policy strategies aimed at addressing the issue of ICT in the education sector. The objectives and strategies pertaining to ICT and education being; the use of ICT in schools, colleges, universities and other educational institutions in the country in order to improve the quality of teaching and learning. The strategy puts emphasis on ICT as a tool for improving curriculum delivery and learning. The implementation process however, has been surrounded by many problems. As cited by Newton (2003), while innovators and early adopters embraced ICT enthusiastically, majority of facility members seem still disengaged and uninterested in learning. Some of the reasons for these problems as cited by Bower (2001), McKenzie, Bennet and Waugh (2002); include concerns about poor access to network and general unwillingness by adopters to move out of their comfort zone to develop new skills and competencies in order to be able to cope

with new phenomenon . This means that despite research studies showing that computer technology as an effective means for widening educational opportunities, most teachers neither use technology as an instructional delivery system nor integrate it into their curriculum.

Muriithi (2005) argues that in Kenya like most developing countries, ICT usage is still at the computer literacy training. She contends that the present ICT curriculum merely deals with “teaching about computers” not how they can be used to transform teaching and learning in schools. She goes on to say ICT that integration should consider learning pedagogy pattern of student use of ICT and the extent of use in teaching- learning program. Teachers must therefore understand their roles in technologically oriented classrooms. Waiharo (2007) identifies the teacher as a strong determinant in the school’s use of ICT. This is echoed by Kiaire (2007) who says that ,it is the teacher and not the technology that is a critical factor in gauging the readiness of a school system to adopt an innovation like e-learning. Given that teachers are key to effective use of technology in the education systems, there is need to ensure that teacher education programs prepare teachers for the effective integration of ICT in the classrooms.

The aim of teacher education is to develop skills and appropriate knowledge among teacher trainees. However, the emphasis on ICT as an important tool across the curriculum has exerted pressure on teacher education worldwide to offer more skills in ICT training to teachers. Teacher Training Institutions are expected to play a significant role in introducing ICT in education in order for graduates to be more competent in ICT use in the classroom. Hawk ridge et al (1990) cites the pedagogical rationale related to ICT integration, and use of computers in education as a supportive tool to improve teaching and learning. Therefore every teacher should know how to use technology, pedagogy and subject area content effectively in their classroom teaching. Three areas of knowledge that are very important in any teacher education program are identified as content which is the subject matter; Technology which consists of modern technologies such as computers, internet, video and overhead projectors and pedagogy which involves the practices, processes, strategies and methods of teaching and learning. According to Collis & Jung,(2003) teachers can be trained to learn how to use ICT tools where ICT can be used as a core or a complementary means to the teacher training process.

Teacher education needs to take a leading role in promoting ICT education and preparing the right personnel to enhance ICT use in content delivery. One of the challenges facing teacher educators is how to ensure that the teacher trainees have the necessary combination of skills and pedagogical knowledge that will enable them to effectively use today’s technologies in the classroom as well as continue to develop and adapt to new

technologies that emerge in future. As cited by Ndungu (2005), teachers are intimidated by technology and are comfortable with their own teaching styles. Due to lack of exposure on ICT use, on completion, teacher trainees go to teach using same methods, techniques, media and equipment. This happens regardless of the needs of the learners who according to Mwaka (2004) are the 21st century learners who are informed and up to date in the use of modern information and communication technology.

In Kenya, the development of ICT policy and strategy document is an indication of political goodwill of the government. The Kenyan government recognizes education as playing a major role in the successful implementation of ICT policy in the country. However, draft 2 of ICT National policies and Development of teacher education cites that 'majority of teacher training students are graduating in information age without proper guidance on how to use technology in the classroom.' (Gok, 2005)

According to the Sessional paper No.1 2005, the success in the use of ICT in all sectors requires sufficient and competent human resources that are developed and equipped in the educational and training sector (page 68). In its policy framework for education training and research, the Ministry of Education targets to achieve Education for All (EFA) by 2015. The kernel of the policy is to integrate ICT in education and training systems in order to prepare learners and staff of today for the Kenyan economy of tomorrow and therefore enhance the nations ICT skills. Being in the information age, any academic qualification devoid of basic ICT is perceived to lack critical components. This has led to a number of initiatives carried out towards ICT in education in Kenya. According to a report by Glen Farrell (2007), KTTC is one of the institutions which have benefited from the ICT initiatives and projects in Kenya in the recent past.

In line with the governments' policy on training, KTTC has the primary objective of training technical skilled personnel, not only to teach in technical institutions but also for employment in all sectors of the economy. Over the years the institution has continued to produce highly qualified teachers for the technical sector in the country, and continues to take pride in being able to produce most if not all of the technical oriented manpower of this country. The KTTC Strategic Plan 2008-2012 constitutes a huge responsibility and undertaking in technology. The challenge emanating from the need for technical teacher training due to rapid technological changes in the country poses an obvious need for embracing best practices in service delivery. According to Bevernage (2002), ICT education is not transformative on its own and therefore, throughout their teacher education experiences and professional development programs, pre-service and in-service teachers should learn how to incorporate ICT in their subjects. Therefore due to this realization, the

current study sought to find out the factors influencing effective use of ICT among KTTC teachers with the aim of proposing intervention measures to address the problem.

Concept of ICT in Education

Technology has transformed the nature of education. The 'where' and 'how' learning takes place and the roles of students and teachers in the learning process has changed. In a learning process, teaching with ICT or through ICT is the presentation and distribution of instructional content through the web systems, offering an integrated range of tools such as computer and CD-Rom among others to support learning and communication. Technology encourages teachers to use more student centered approaches which makes them more open to multiple perspectives on problems and more willing to experiment in their teaching (Coley, 1997).

Many terms have been used to describe teaching-learning supported by ICT. These terms cover a wide set of applications and processes such as web-based learning and virtual classrooms. ICT use in education includes delivery of instructional materials via internet, intranet/extranet, audio and videotapes and CD ROM (Klein and ware 2003). The use of ICT in the teaching-learning process is based on the principle that the linkage between content and methodology determines the learning outcome (Tony ,1992). The focus of control is shifted from the teacher to the learner, while the teacher facilitates active learning process which brings about a desired learning outcome. According to Massy and Zemsky (1995), as cited by Gakuu (2006), there are three levels of technology adoption. The first is the application level where learners perform familiar tasks faster and more effectively; second is the enrichment level which is the injecting into 'old' teaching and learning without changing basic mode of instruction, for instance using e-mail or web page searches; whereas the third level is the paradigm shift which involves the faculty and institution reconfiguring teaching and learning activity to take full advantage of new technology.

Information and communication technology (ICT) use creates a powerful learning environment and it transforms the learning and teaching process in which students deal with knowledge in an active, self directed and constructive way (Volman and Van Eck,2001). According to Flagan and Jacobsen (2008), technology integration is meant to be cross-curricular and not a separate course or topic in itself. Therefore technology should be used as a tool to support the educational objectives such as skills for searching and assessing information, cooperation, communication and problem solving which are important for preparation of students for the knowledge society (Drent & Meelissen, 2007).

Factors Influencing ICT Use in Education

The use of ICT as a medium of teaching focuses on the use of technology for the enhancement of the teaching and learning process (Drent, Meelissen, 2007). ICT has become a significant component of school curriculum as a support tool to enhance teaching and learning opportunities in a wide range of subjects. (Drossos,1998). However according to the literature reviewed , a wide range of factors have been found to influence the use of ICT in the learning process. Many studies show that teachers are the center of curriculum change but both human and institutional factors play a major role in the way these changes are adopted.

Teachers' ICT Competence

Information communication technology literacy goes beyond how to use ICT instructional materials to include the ability to prepare, use and appropriately select ICT materials in order to build knowledge, develop critical and creative thinking in students. According to Larose et al (1999), regardless of quality of ICT equipment available to teachers in the school environment, the level of transfer of acquired competencies and learning to practice is very weak. The impact of technology on the educated still remains at the level of 'private' use of technology and not into daily teaching practice. Janssens (2002) further argues that ICT education is not transformative on its own and therefore, throughout their education experiences and professional development programs, pre-service and in- service teachers should learn to incorporate ICT in their subjects. This is echoed by Ololube (2006) who emphasizes that teachers need training not only in computer literacy, but also in application of various educational software, for teaching and learning.

Drossos & Kirdis (2000) argue that in order for teachers to use computer in teaching they should first be competent and confident in the use of ICT, as this will make them to be inclined to use it in teaching. As highlighted by the Ministry of Education (2005), Teacher education is important in preparing teachers for their work and is expected to equip them with necessary knowledge, skills and attitudes for competent performance. Amutabi (2004) points out that, lecturers resist ICT because of their unfamiliarity with technologies. In his study, Prava (1996) found that professional development was necessary in helping teachers learn not only how to use new technology, but also how to provide meaningful instruction and activities using technology in the classroom.

According to Beck and Riel, (2003) the more extensively one is involved in professional activities; the more one is likely to have philosophies compatible with constructivist learning theory. Teachers, who regularly participate in professional interactions activities beyond their classroom, teach in different ways than teachers who have minimum contact with their peers or professionals. As cited by Mukeka (2006), Sergiovanni (1979) points out that

the quality of school programs depends on the insight, the skill responsibility of overseeing and helping teachers with their work. Therefore the way teachers are trained should be keenly considered in order for any education system to be in tune with the modern technology.

It is important that teachers understand and master, and dedication of those persons who are charged with the the various technologies involved in teaching, if they are to make appropriate decisions about the roles that learning technologies will play in classrooms and schools in general (Roberts 1999). Subject teachers should therefore be trained in the various methods of introducing ICT into their particular content areas .

Teachers' Perception

Teachers are key people to effective use of technology in the education system. The attitude of the teacher has been found to play an important role in ICT use in the teaching-learning process. According to Edooley (2000) as cited by Gakuu (2006), how people perceive and react to the technologies is far more important than technical obstacles in influencing ICT implementation and use. Kiarie (2007) argues that the teacher- level barriers over ride the school-level barriers in ICT adoption. Comber and Lawson (1999) further identify teachers as the main limitations on the successful use of ICT in the classroom; due to fear of computers, lack of skills or understanding on how ICT can enhance individual educational experience. Simpson et al (1998), points out that if a revolutionary initiative such as ICT implementation is to be successful, it is absolutely necessary to be aware of dominant ideologies such as perception towards those obliged to contribute to the realization of the initiative.

According to Nzuve (1999) as cited by Kyengo (2006), human perception is a fairly complex process in that, what we perceive can be influenced in a variety of ways and this can lead to the possibility of perceptual distortion and misunderstanding. Leask and Pachler (1999) cites perception of teachers toward technology as important in determining how much a teacher is willing to learn and use computers with their students. They argue that, one way through which teachers can be motivated to learn and use technology is to help them see the benefits of technology in their lives. Tonduer et al (2007) further emphasizes that, teachers who perceive greater ICT related support being available to them make use of technologies in the teaching-learning process much better.

Teachers need to develop their understanding of value of technology then develop proficiency in using technology and ultimately teach students how to use it. This is further emphasized by Almusalam (2001) who points out that teachers attitudes have been found

to be major predictors of the use of new technologies in instructional settings. This means that for teachers to successfully use technology, they need to possess a positive attitude to use technology. Adoption of new technology therefore calls for behavior modification particularly on the part of the teacher.

Self Efficacy

According to Bandura (1986) self-efficacy refers to 'people's judgment of their capabilities to organize and execute courses of action required to attain designated types of performances'. Self efficacy as regards to ICT use refers to a person's perception of and capabilities to apply computers. According to Compeau and Higgins (1995), computer self efficacy is positively correlated with individual's willingness to choose and participate in computer related activities, expectations of success in such activities and persistence or effective coping behaviors when faced with computer related anxiety.

Despite having positive attitudes toward technology, teachers may not consider themselves qualified to teach with it or comfortable using it (Duane and Kernel, 1992). This is because self-efficacy is an important aspect in ICT use. Self-efficacy is not concerned with the skills one has but with the judgments of what one can do with whatever skills one possesses. According to Ertmer et al, (2003) teachers who have high levels of efficacy in regard to teaching with technology are more likely to participate more easily, expend more effort and persist longer on technology-related tasks than teachers who have low levels of efficacy. Therefore teacher preparation programs should develop the cognitive, social and physical environments that will help teachers feel efficacious and in control of learning to teach with technology.

Technical Support

Along with ICT training, one needs an ICT related support mechanism to gradually induce the integration (Lai and Pratt, 2006). Teachers need support in use and integration of ICT into the curriculum and teaching methods. According to the 1997 report by the National Council for the Accreditation of Teacher Education (NCATE), lack of technical support is one of the barriers that result in computers being under utilized in classes. This is because teachers are afraid of using computers when they are not sure of where to turn for help when something goes wrong.

Institutional ICT Policy

As a way of having coordinated approach to ICT use in education, the Kenyan government has come up with a number of policy recommendations which include the adoption of the National ICT Policy draft from which institutions of learning should formulate their own policy guides. Chisenga (2006) defines institutional policies as guidelines to the integration of ICT in teaching and learning, by articulating the expected characteristics and experiences; and how they will be used to enhance the use of ICT in the teaching and learning process. The ICT policy further influences the school culture which is an important aspect in terms of ICT integration. According to Albirini (2006) teachers who have positive perception about the cultural relevance of computer technology will apply ICT in teaching. Martinez (1999) argues that one of the major challenges facing developing countries is how to make technology an essential part of the culture of the people. Harper (1987) contends that cultural factors play an important role in creating a negative perception towards computers.

Management Support

Management support refers to the support given by the heads and the entire institution administration. It is important because it is at this level where decisions on implementation of new policies are made. Leadership is also crucial to the successful implementation of educational innovations. It plays an important role in adopting technology as a part of an institutional culture which plays an important role in people's perception.

William-Green et al (1997) contends that culture developed within an institution or within an organization can act as a barrier to change. In order for a new technology to be placed into an organizational culture, there must be a match of organization and technological values. (Hodas, 1993). This is further emphasized by Gakuu (2006) who cites organization culture as playing a major role in designing and implementing change in an organization. According to Fullan (1992) the role of the leader is crucial to the successful implementation of educational innovations. In management support, Kara (2008) suggests that management of ICT should involve two levels: Strategic level, which involves reviewing and putting in place the most appropriate ways of exploiting ICT, sourcing and using new ICT as needed by the organization; operational level which involves providing high quality, reliable, capacity building, delivery, implementation and application as well as monitoring usage and effectiveness.

Benefits of ICT in Teaching and Learning Process

Technology transformation emphasizes the use of technology to teach that which was not possible when technology was unavailable. Education technology refers to the technology that is used to facilitate the teaching and learning process. Electronic learning and multi

media have been recognized as effective tools which provide great possible array of students input and interaction (Dringus 1995, Safres, Gundersen & Behana 1998, Delvin & James, 2003). In education, ICT is used as an informational tool that provides vast amount of information in various formats such as audio and video, where students experience real life situations such as simulation and virtual reality.

ICT application in both teaching and learning can enhance both campus based as well as distance learning courses (Gaibe 1998). This is made possible by enabling online team work for increased participation, collaboration and information sharing through use of emails, web and other collaboration tools; enabling rapid creation of in-expensive distribution of education reference materials and knowledge within and outside national boundaries; allowing each student to learn at his/her pace and speed, thereby giving greater control over their learning process. It can also improve education outcome and enhance the quality of instruction.

Use of ICT enables the teacher to facilitate active learning process resulting to a desired learning outcome. According to Makau (1988), computer is capable of transforming the teaching and the learning transactions from being in a dull teacher dominated activity, geared to dishing facts and knowledge to an exciting learner centered process which nurtures confidence, initiative and mental skills. Mugenda (2006) as cited by Kara (2008), argues that ICT enhances research through virtual research groups composed of interconnected specialists in different parts of the world by allowing databases to be shared, conferences organized, papers circulated and discussed as well as undertaking collaborative research and writing reports.

Theoretical Framework

This study was based on Rogers (1995) diffusion of innovation Theory (DOI). Rogers identifies five essential characteristics that enhance the rate and effectiveness of diffusion. The first concerns the relative advantage of the innovation over the idea it supersedes. The second concerns gauging compatibility of the idea with existing values, past experiences and needs of the adopters. The third characteristic relates to complexity or ease with which an innovation can be understood directly depending on the efforts of advocates to keep a new idea simple. Finally the fourth and fifth characteristics are related and are described as triability or the degree to which adopters can implement an innovation.

This theory further describes the patterns of adoption and explains the mechanism it uses to assist in predicting whether and how a new innovation will be successful. Diffusion innovation theory is concerned with the manner in which a new technology technique has

been used in a theoretical basis. It emphasizes on how technological innovation is communicated through particular channels overtime and among members of a social system. The theory highlights stages through which technological innovations pass. These stages are:-knowledge which is the exposure to its existence and understanding of its function; persuasion which is the forming of a favorable attitude to it; decision which is the commitment to its adoption; implementation which means putting it to use and finally the confirmation which is the reinforcement based on positive outcome from it. Rogers' work has served as a valuable theoretical framework in a number of implementations. In the e-learning implementation for content delivery at the University of Nairobi, Omwenga (2004) used a modification of the theory as shown below.

Table 1: Modification of diffusion innovation theory

Rogers' Aspect	Stage In The Proposed Model
Advantage to current practice	Identify the benefits involved and cost benefit analysis
Triability	Evaluation of current status Establish channels of communication Sensitization of the benefits, demonstrations etc
Observability	Involvement of staff, Training of trainers, TOTs training others
Complexity reduction	Fitting curriculum onto technology and vice-versa Avoidance of the 'not invented here' syndrome
Compatibility with current practices	Changes in policies Implementation plans and options

In this study, the Rogers diffusion theory focused on the adoption analysis approach. This means that the focus was on both the macro and micro adopters. This enabled the study to focus on the institution (KTTC) and also the individual adopter who is the lecturer, who is meant to adopt the technology as a tool of instruction during the teaching-learning process in order to make learning more interactive.

Conceptual Framework

The conceptual framework for this study was based on human and institutional factors as the independent variables and the ICT vision of the institution and institutional culture as intervening variables. According to Mugenda and Mugenda (2003) an intervening variable is recognized as being caused by independent variables and as being a determinant of dependant variables. The dependent variable is the effective use of ICT.

Independent variables

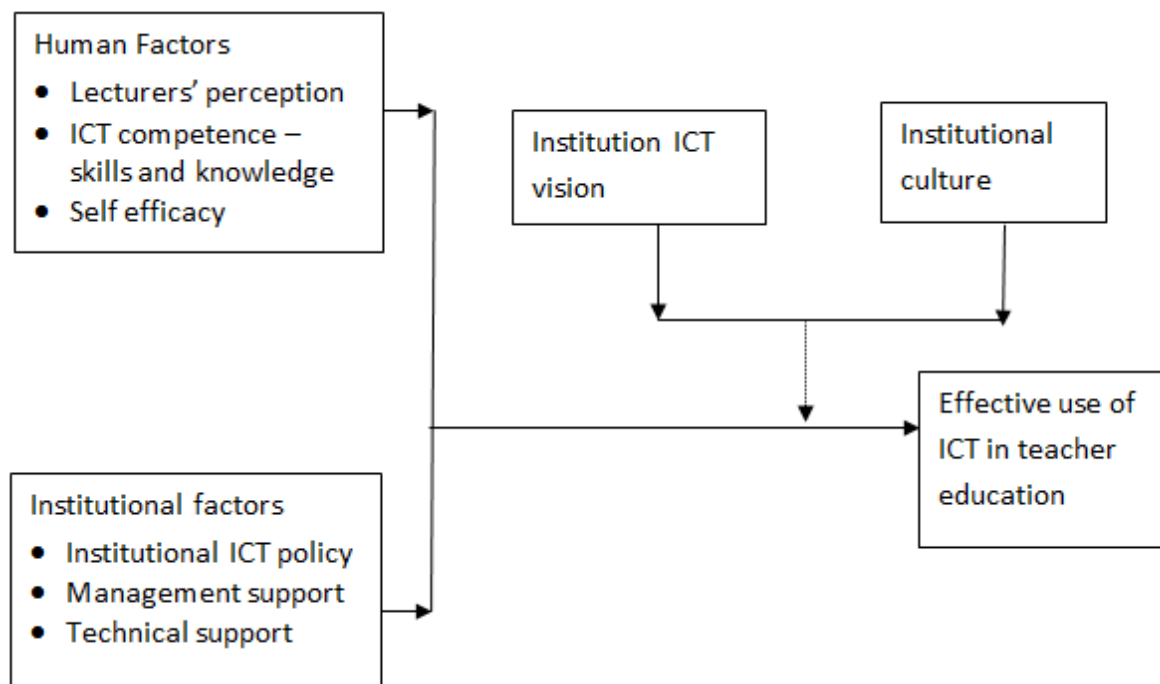


Figure 1: Conceptual Frame

Summary

Based on both the theoretical and conceptual framework of this study, it is a clear that teachers are the center of curriculum change and they control the teaching and learning process. However, the implementation of ICT use is influenced by both human and institutional factors. Human factors are the factors that directly influence teachers' use of ICT in the teaching-learning process which are manipulative in nature. They refer to the attitudes of teachers towards teaching and ICT, teachers' knowledge and skills in ICT use and self- efficacy among others. Institutional factors on the other hand refer to factors influenced by the institution in the use of ICT in the teaching-learning process. They include the institutions' ICT policy, whether available and how well it is implemented. The management support given by the entire institutions' administration and also the technical support which plays a major role in influencing the vision and the culture of the institution. Effective use of ICT in teaching-learning process is influenced by institutional and human factors which are interrelated. The successful use of ICT is not dependent on the availability or absence of one individual factor but is determined by a dynamic process involving a set of interrelated factors.

Statement of the Problem

ICT has become an integral element for educational reforms and innovations. This transformation requires teachers who can use technology to improve students' learning. Teachers must become effective agents to be able to make use of technology in the classroom. Knowledge development during teacher training is important in that exposure to ICT during this time is helpful in increasing students' teacher willingness to integrate technology in the classroom situation.

KTTC trains teachers who are employed in technical institutions, institutes of technology, polytechnics and secondary schools. These institutions offer training relating to industrial techniques and applied sciences. Therefore demands of the technological age must be met in order for the students to fit in the competitive job market.

Purpose of the Study

The purpose of this study was to investigate the human and institutional factors that influence the use of ICT in teacher education, with special reference to KTTC.

The research problem was defined by the following questions:

1. To what extent does the lecturer's perception of ICT influence its use in teacher education?
2. How does the lecturer's ICT competence influence the use of ICT in teacher education?
3. How does self efficacy influence the use of ICT in teacher education?
4. To what extent does the institution's ICT Policy influence the use of ICT in teacher education?
5. How does management and technical support influence the use of ICT in teacher education?

Research Design and Method

A research design is the investigator's plan of action for answering research questions and realizing the study objectives (Nachmias and Nachmias ,1996). Research design is the process of creating an empirical test to support or refute a knowledge claim. The study being descriptive in nature employed a quantitative approach to research. Descriptive survey is a method of collecting information by interviewing and administering questionnaires to a sample of individuals (Orodho, 2005). Questionnaires were used in collecting quantitative data. The target population of this study comprised of the students,

lecturers, and heads of departments at KTTC. Students from the regular and school based programs were used in the study. All the 13 departments were included in the study. The sample is as shown in Table 1.

Table 2: Sample size

Population	Total no.	Sample	Percentage (%)
Students: Regular	755	151	20
School-based	778	157	20
Teachers	120	48	40
HODs	13	8	60

Data Collection

The researchers used questionnaire for data collection from the HODs, lecturers, and students from the 13 departments. This tool was chosen because it saves on time and also gives respondents freedom to express their views without any interviewer bias. The questionnaire had different parts. Part A contained the demographic data of the respondent, while other parts focused on the human and institutional factors influencing ICT use. However, to compliment quantitative data, the researchers also used observation of lecturers at the Learning Resource Centre to establish frequency of ICT use by lecturers for instruction and also on the physical facilities as a way of confirming information gathered through questionnaires. In addition, observations were made to find out the extent to which the computer laboratories are used and the extent of ICT use by the lecturers when teaching. The researchers sought permission and authority to conduct the study from the head of the institution..

Data Analysis Technique

Quantitative data were analysed using frequency tables and percentages. Frequency tables are the most commonly used method for presenting data in descriptive research (Kathuri &Pauls, 119). The data was organized by classifying the responses according to the pattern of responses in relation to the research questions. Coding was also done to help in analysis. This was done after editing and checking if all the questionnaires were correctly filled. The analysis of the structured items was done using the Statistical Package for Social Sciences (SPSS).

Research Findings

The purpose of this study was to investigate the human and institutional factors influencing effective use of ICT in teacher education with reference to KTTC. The research findings are based on the research objectives and questions, and are organized into various sections.

Demographic Information of the Respondents

The demographic information was obtained from all the respondents in the sample, namely HODs, lecturers and students in KTTC. Most of the respondents were the students forming 85.5% of the entire sample, 13.3% were the lecturers and 2.2% the HODs as shown in Table 3.

Table 3: Distribution of the respondents

Respondents	n	%
HODs	8	2.2
Lecturers	48	13.3
Students	305	85.5
Total	361	100

Table 4: Gender of Respondents

Gender	Students		HODS		Lecturers	
	n	%	n	%	n	%
Male	197	35	5	62.5	26	54.2
Female	108	65	3	37.5	22	45.8
Total	305	100	8	100	48	100

Table 4, shows that majority of the respondents were male. The issue of gender had a significant relationship to the technical courses offered in the institution which are mainly engineering. The engineering departments are all headed by men, and the majority of the lecturers are also men apart from education department which had majority females. Majority of the students in the engineering departments were also the male.

Academic and Professional Qualifications

The majority of the HODs had a working experience of many years. The ones who have worked for over twenty years were 75% and for over sixteen years 25%, while the majority of them (62.5%) had an experience of over 1-5 years as HODS (Table 5). On their academic qualifications, it was evident that they were all very qualified with all the HODs having higher diploma and above. This is an important aspect since according to Allison (1997)

skilled and knowledgeable workforce is closely linked with successful implementation of technology.

Table 5: Academic Qualifications and Working Experience of HODS

Variable	Category	N	Percentage
Academic Qualifications	PhD	1	12.5
	Masters	3	37.5
	Degree	2	25
	Higher Diploma	2	25
	Total	8	100
Experience as HODS	1-5	3	37.5
	6-10	2	25
	11-15	1	12.5
	Over 15 years	2	25
	Total	8	100
Working Experience	1-5	0	0
	6-10	0	0
	11-15	0	0
	16-20	2	25
	Over 20	6	75
	Total	8	100

Table 6: Lecturers' Academic Qualifications and Work Experience

Variable	Category	Frequency	Percentage
Academic qualifications	Ph D	1	2.2
	Masters	35	72.9
	Degree	9	18.7
	Higher diploma	3	6.2
	Total	48	100
Work experience	1-5 years	0	0
	6-10	6	12.6

11-15	10	20.8
16-20	16	33.3
Over 20 years	16	33.3
Total	48	100

It was important to find out the academic qualifications and the working experience of the lecturers so as to determine how they affect ICT use by the lecturers. Majority of the lecturers have been working for more than ten years. Going by their qualifications, the figures show that many lecturers are professionally qualified.. This makes it very easy for them to use ICT during instruction. Becker and Riel (2000) found that the more extensively one is involved in professional activities, the more likely one has teaching philosophies compatible with constructivist learning theory and use computers more in exemplary ways.

Factors Influencing Effective Use of ICT by Teachers

To investigate the factors that influence the effective use of ICT, the researchers looked at three human factors (teachers' perception, ICT competence and self efficacy) and three institutional factors (management support, technical support and institutional ICT policy).

Lecturers' Perception

From data collected majority of the lecturers had a very positive attitude towards the use of ICT as an instructional tool. All the lecturers (100%) believed ICT is an important teaching tool. On enhancing quality of teaching, majority of the lecturers (98%) felt it enhanced quality of teaching while just a few (2%) felt it didn't enhance quality. (75%) of lecturers expressed their readiness to learn how to use new software and felt that they should be taught more computer applications. These findings are a clear indication of behavioral intent to use ICT.

ICT Competence

Teachers are a very important component of the teaching and learning process. They facilitate the learning process; therefore they provide a vehicle for passing on new skills to the learners. It was therefore important to assess the ICT competence of the lecturers at KTTC .Majority of the lecturers (98%) had the ICT skills, however very few had skills on installation of educational software.

In fact, majority of the lecturers were very competent in ICT use given that 38% were rated as very good, 52% were good, 6% were average and 4% were poor as shown in Table 7; but at least all respondents had some ICT knowledge. Internet and computers were the most

highly used technologies by both the lecturers and the students. LCD projectors and overhead projectors were moderately used, however very few lecturers had knowledge on smart board use.

Table 7: Lecturers' ICT competency level

Response	Number of Respondents(n)	Percentage (%)Population
Very good	18	38
Good	25	52
Average	4	8
Poor	1	2
Very poor	-	-
TOTAL	48	100

Self Efficacy

When asked about self efficacy which is “their judgment of their capability to use their ICT skills in the teaching and learning process”, the responses showed that many lecturers were not very confident to use ICT for teaching. However majority (67%) felt that more training for lecturers was necessary especially on application and on the emerging trends such as e-learning. Majority of the lecturers (85%) used internet to find information, only 2% used ICT for content delivery and little was used in lesson preparation and monitoring of students' progress (13%). Lecturers rarely collaborated with their colleagues by use of ICT.

Table 8: Lecturers' level of ICT Use

Nature of ICT use	Always		Frequently		Occasionally		Rarely		Never		TOTAL (%)	LEVEL OF USE COMMENT
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%		
Use computers to prepare lessons	4	9	11	23	15	32	4	9	13	27	100	Medium
Use ICT for monitoring students progress	2	4.5	2	4.5	17	36.4	10	22.7	13	27.3	95.5	Medium
I use internet to find information	22	45.8	22	45.8	4	8.4	-	-	-	-	100	High
I use ICT to collaborates with other lecturers	-	-	4	8	13	27	18	38	13	27	100	Low
I use ICT to give presentations	-	-	17	34.4	13	27.1	13	27.1	4	8.3	96.9	Medium
I provide self guided materials to students to	2	4.2	4	8.3	20	40.9	15	31.8	7	13.6	98.8	Medium

support learning												
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Management Support

Management support in ICT use at KTTC was highly evidenced based on the responses on barriers affecting ICT use in the institution. It was noted from the respondents that there were sufficient computers for the students. The ratio of computers to users was good because at least there 192 working computers which are used by a population of 755 regular students.

Most lecturers (96%) as noted earlier had ICT skills but many (75%) had difficulties in integrating ICT into their subject area which, according to the findings was one of the major barriers to effective use of ICT. The issue of insufficient time was raised by many lecturers who felt that all offices should be fitted with hot points in order to make it easy for them to use their laptops to explore the internet at their own time. Table 8 shows the perceived barriers.

Table 8: Barriers on ICT use

Nature of Barriers	Not at All		Minor		Major		Total %
	n	%	n	%	n	%	
Insufficient number of computers	3	38	5	62	-	-	100
Teachers lack of knowledge	2	25	5	62.5	1	12.5	100
Difficulties to use integration	1	12.5	2	25	5	62.5	100
Slow network	2	25	5	62.5	1	12.5	100
Scheduling time	1	12.5	3	37.5	4	50	100
Quality of ICT training	1	12.5	6	75	1	12.5	100
No time for teachers to explore	1	12.5	5	62.5	2	25	100
Running cost	4	50	2	25	2	25	100

Technical Support

According to the data collected, the maintenance of the available hardware (22%), adequacy of access time (22%), personal help and guidance (19%) were all rated as good as shown in Table 9. However most lecturers felt that there was need for provision of appropriate software and training with regard to new ICT trends such as e-learning.

Table 9: Level of Technical support

Nature of technical support	Excellent		Good		fair		poor		very poor		total
	n	%	n	%	n	%	n	%	n	%	
Personal help and guidance	2	3	19	39.4	22	45.5	6	12.1	-	-	100%
Up to date software	-	-	19	39.4	20	42.4	9	18.2	-	-	100%
Maintenance of hardware	-	-	22	44.5	15	30.3	12	24.2	-	-	99%
Adequate time to access	-	-	22	45.5	19	39.3	4	9.1	3	6.1	100%

ICT Policy

Concerning the existence of an ICT policy in the institution, most of the respondents (75%) said there was no working policy on ICT use, although some (25%) indicated that it has been developed as shown in Table 10. Lecturers' use of ICT depended on the subject being taught especially computer based subjects where ICT must be integrated. Lecturers own initiative also plays a major role in ICT use in the institution.

Table 10: HODs awareness of existence of ICT policy

ICT policy	Frequency	Percentage (%)
Yes/exist	2	25%
No/doesn't exist	6	75%
Total	8	100%

Summary of findings

The major purpose of this research study was to investigate the human and institutional factors that influence effective use of ICT in teacher education with reference to KTTC. The results are summarized based on the research objectives, which were used to guide the study.

Lecturers' perception on ICT use in Teacher Education

It was quite evident from the responses given that respondents' perception of ICT use was very positive. Their expression was in high regard of ICT in the teaching and learning process

and their readiness to fully embrace it. Most lecturers expressed their readiness to learn how to integrate ICT in their teaching subjects and in the use of different software.

Perceptions of lecturers play a very important role in ICT adoption however, other factors must be considered if positive results are to be achieved. According to the findings, the results showed that over 80% of the sampled lecturers were very positive about ICT use.

The extent to which lecturers' ICT competence influences ICT use

Competence is very essential in ICT integration. In order for teachers to use technology such as computers in teaching, they should first know how to use it and have confidence as this makes them inclined to use it in teaching. Most of the lecturers (98%) perceived themselves ICT competent. However; only a few used ICT for instruction. Majority of them said they require skills on the installation and use of different educational software.

According to the study findings, the use of ICT by the respondents does not measure to the level of their competence. When asked about their confidence, the responses showed that many were not sure of themselves when using ICT for instruction. However the level of internet use was high and this shows that lecturers were more comfortable when not interacting by means of ICT due to lack of confidence.

The study also established that among the students, the ones who were quite competent were those from departments such as Computer and Information Studies where integration was inevitable, while students from other departments just had basic knowledge on ICT. This is a clear indication of little use of ICT during the teaching-learning process as ICT is more learner- centered and therefore learners require the skills. The students also reported low use of ICT during lesson presentations.

How self efficacy influences ICT use in Education

The study established that although lecturers' attitude towards ICT was positive, the use of ICT was just moderate. This is because either they did not consider themselves qualified to use ICT for teaching or they were not comfortable using it. The use of Internet by lecturers was very high compared with the way they used ICT for collaboration with colleagues and also for instruction in the classroom. This shows that lecturers were confident when individually interacting with ICT. When asked about their confidence, the responses showed that many were not sure of themselves when using ICT for instruction. This supports Duane and Kernel 's argument (1992) that despite having positive attitude toward technology, teachers may not consider themselves ready to teach with it or comfortable using it.

The extent to which institutions' ICT policy influences ICT use

ICT policies are essential in that they guide the integration of ICT in teaching and learning by articulating the expected teacher and learner characteristics and experience; and how they will be used to enhance the use of ICT to make teaching-learning effective. As noted earlier, very few respondents were of the view that there was a working ICT policy in the institution although all of them asserted that, ICT policy has a great role to play in effective use of technology in the teaching-learning process.

Influence of Technical Support in ICT use

Technical support was highly rated. According to the findings, personal assistance and guidance was effectively done. There was evidence of good maintenance of hardware. However, despite this, the use of ICT was still not high and did not match the support offered. This shows that technical support alone does not influence ICT use by the lecturers during the teaching and learning process. This supports Edooley (2000) as cited by Gakuu (2006) that, how people perceive and react to the technologies is far more important than technical obstacles in influencing its implementation and use. This means that other factors must be considered if ICT is to be effectively used.

Influence of management support in ICT use

The support of ICT use by the management was rated very high by the respondents. There were no major barriers which prevented ICT use in the institution. However respondents felt it was important to have staff development on a continuous basis since technology is always changing, as this would assist in effectively using ICT in the teaching and learning process.

Conclusion

The conclusions made were based on the findings of the study and are as follows: The ICT facilities in KTTC are adequate however, the use of ICT does not match the available resources. On the other hand, lecturers have ICT skills however adequate training is required especially on integration and use of different educational software.

All lecturers agreed that all the courses offered in KTTC require ICT applications and therefore appropriate software should be provided. This supports Ololube (2006) who emphasized the need of teachers to be trained not only in computer literacy but also in the application of different types of educational software.

The high percentage of lecturers who have ICT knowledge is a clear indication that lecturers' perception of ICT as an instructional tool is very high. However the percentage of lecturers that use computers during instruction is small compared to the total number of lecturers. In addition, most students are fairly exposed to Computer facilities and training except for those from ICT, Information Studies and Computer departments who are fully exposed.

ICT permits use of new pedagogical approaches involving active and interactive learning methods. Effective integration of ICT into learning systems therefore needs much more than just providing computers and securing connections to internet. This means that effective ICT implementation is not dependent on just one factor but it is a dynamic process of involving a set of both human and institutional factors. The human factors such as knowledge, skills and a positive perception should be emphasized.

Technology integration on the other hand takes time to learn about innovation and also for one to be adequately prepared to use it, and therefore management support is very important. This is in agreement with Rogers (1995) argument that technological innovation is communicated through particular channels overtime and among members of a social system.

Recommendations

On the basis of the data collected and analyzed, the study concludes that both human and institutional factors cannot be separated in effective use of ICT in teacher education. The researchers therefore recommend the following:

1. Since KTTC has lecturers who are competent in ICT, a training plan for those who do not have skills in ICT should be used in order for them to acquire the appropriate ICT knowledge and skills. The training can be facilitated both internally and externally.
2. Policies are very essential in determining behavior in a society. Therefore it is recommended that a working ICT policy should be put in place as a guide on how ICT should be used as a teaching and learning tool.
3. ICT training should be continuous for all teachers and students. This will help them keep abreast with the new technology and therefore boost their confidence in ICT use during teaching and learning
4. ICT should be fully integrated by making computer use cross-curricular instead of being taught as an independent subject. This means that students who are prospective teachers, will not just be taught about computers but how to teach using computers.

5. This study was meant to establish the extent to which human and institutional factors influence the effective use of ICT in teaching and learning. It is clear that teacher training programs play an important role in providing the necessary leadership in training teachers to deal with current demands of the economy and technology. Teacher training institutions should therefore strengthen the utilization of ICT in education to increase teacher effectiveness.

Suggestions for further Research

1. Given that this was only a case study of KTTC; the same study can be repeated to cover a wider area by including other teacher training institutions. This would allow the findings to be generalized in the whole country.
2. Further studies could be carried out to establish how effective use of ICT in teacher education influences ICT integration in schools.

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LAB TO LAND: INDUSTRY-ACADEMIC-AGRICULTURE INTERFACE - A CASE STUDY

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Abstract

India is an Agrarian Country. Seventy Per Cent of its population still depends on Agriculture. India's advances in the field of Green Revolution are highly commendable. The country is now harping on to herald the Second Green Revolution. In this context, our institution took up the challenge to take up Lab to Land Programme by establishing Industry-Academic-Agriculture Interface. The Institution has established forward linkages by exploring super synergies of Industry-Academic-Agriculture Interface. The *state-of-the-art* 'Scientific Research Center' is established with focus on the development and Mass Propagation of Medicinal and Aromatic Plants by Plant Tissue Culture. Patchouli – an Aromatic plant has been successfully developed for Commercial Production. An agricultural consultancy of the center provides basic *know-how* and training to the farmers. A large number of farmers in the coastal states of India have taken up Patchouli Cultivation either as a main Crop or as an Inter-Crop. The Institution tries to bring about Lab to Land transfer of Technology by equipping Students and Farmers with all the necessary skills. The institution has been awarded the prestigious 'Center for Potential Excellence Award' (CPE) by University Grants Commission (UGC), Government of India. A Center of Excellence in Biotechnology is created, which harnesses Industry-Agriculture-Institution synergies. CPE Programme as envisaged and approved by UGC is a Research and outreach programme involving extensive interface with Local Self-Government, Agriculture, Industry and Academic Institutions. Curricular Training, Research and Consultancy, Dissemination of Field Oriented Technologies, Collaborations, MoUs and Academic Linkages are successfully accomplished by CPE. The institution is first to get the CPE status in India and the Patchouli Cultivation Programme is awarded as the 'Best Innovative Programme' by the Ministry of Commerce and Industry, Government of India.

Introduction

India is an Agrarian Country. Seventy Per Cent of its population still depends on Agriculture. With its sprawling biodiversity, rich genetic pool, conducive climate with sunshine

throughout the year and above all the enterprising young human resource capital of the country India is poised for the major leap in Agricultural Revolution. India's advances in the field of Green Revolution are highly commendable. The country is now harping on to herald the Second Green Revolution. India can accomplish it in the area of Aromatic and Medicinal Plants.

Agriculture continues to be at the center of a succession of technological and organizational changes that are slowly altering the traditional relationships between final production, its location, and the land and other natural resource inputs. Agribusiness is the most capital-intensive, most technology-intensive, and most information-intensive industry around. In this context, our institution took up the challenge to establish Industry-Academics-Agriculture Interface taking technology from Lab to Land.

Institution

Kelkar Education Trust's V G Vaze College of Arts, Science and Commerce, now into its Silver Jubilee Year, is a Multi-Faculty Institution established in the year 1984 by the Kelkar Education Trust. The Educational Trust is the Philanthropic Foundation of the Kelkar Group of Companies, pioneering in the field of Perfumes and Aromatics in India. The Trust being managed by eminent Educationalists and Industrialists provides the right kind of vision and direction for the healthy growth of the Academic Institution. Just in a short span, the institution has grown into a Landmark Quality Educational Institution with over 5000 students opting educational programmes from Higher Secondary to Doctoral Research.

The Institution is the First to receive Accreditation and 'A' grade 'Five Star' Accreditation and Reaccreditation Status by the 'National Assessment and Accreditation Council' "NAAC", an autonomous accreditation agency of the Government of India.

The college has established healthy forward and backward academic linkages. The college has established a strong Industry-Academic Interface in Academics, Research and Consultancy with Extension Programmes by establishing DST recognized 'Scientific Research Center', 'Cosmetology Testing and Research Laboratory' and 'Natural and Synthetic Chemical Research Laboratory'.

The institution has developed an aggressive forward integration by promoting Research for corporate applications in the field of Biotechnology and Cosmetology. The institution with the State-of the-Art infrastructure offers UG to PG and upto Doctoral Programmes in Biotechnology. The institution also runs a Diploma Course in Perfumery and Management, only of its kind in the country, in collaboration with ISIPCA, France

The College has been ranked amongst 'TOP 5 Best Institutes in India' by 'Biospectrum Magazine'. The institution has been granted the coveted status of 'College with Potential for Excellence' by the UGC, the only college in Mumbai University to get this prestigious award. The first ever 'India Today –ORG Marg Survey' ranked the College amongst the 'Top 20 Colleges' in India. The college has been awarded the first 'Best College Award' by University of Mumbai during the Sesquicentennial Celebrations of the University.

Forward Integration

The *state-of-the-art* 'Scientific Research Center' is established as forward linkages. Scientific Research center is a part of the institution, which carries out corporate research. At present, the focus is on the development and mass propagation of Medicinal and Aromatic Plants. Forward integration aims at super synergies from Industry-Agriculture-Institution. The college faculty Botany/Zoology/Biotechnology collaborates with the Scientific Research Center while conducting research. The Research Guides and Scholars have access to facilities including modern equipments of the Research Center.

College with Potential for Excellence Programme (CPE)

University Grants Commission (UGC), a Government body, under X Plan has granted the award of 'College with Potential for Excellence' to Vaze College. The Kelkar Education Trust's Vinayak Ganesh Vaze College of Arts, Science and Commerce has been identified under the CPE Scheme. The College with Potential for Excellence scheme started its activity and the project is in operation from the Academic Year 2004 -05 and the project has been granted a sum of Rs 60 lakhs.

CPE Programme as envisaged and approved by UGC is a Research and outreach programme and it involve extensive interface with Local Self-Government, Agriculture, Industry and Institutions. This in an Interdisciplinary Programme involving departments of Chemistry, Biophysics, Botany, Zoology, Biotechnology, Molecular Biology, Microbiology, Information Technology etc.

Objective of the Scheme

CPE Programme at Vaze College is initiated with the main objectives to harness Industry-Academics-Agriculture- synergy for mutual growth. to project Agriculture as Chief Beneficiary by providing Viable Technical Inputs to Develop Field Oriented Technologies, to

tap Material Resources from the Industry and to provide Employment in Rural Areas by accomplishing Lab to Land transfer of Technologies.

The programme also envisaged training Students as per the user needs making education as tool for empowering career and to develop research facilities leading to developing patentable technologies leading to export with collaborations, MoUs and Academic Linkages. The important objectives of the project is to establish a Center of Excellence in Biotechnology, Harness Industry-Agriculture-Institution synergies, Curricular Training, Research and Consultancy, Dissemination of Field Oriented Technologies and Develop Research and Consultancy Facilities,

The project aims at creating R & D and Training and Consultancy in the field of Aromatics, Oriental Perfumes, Plant Biotechnology, Bioremediation, Skin and Body Care, Herbal Cosmetics, Microbiology, Environmental Biotechnology etc

Secondly, in the area of out reach programmes the project envisages Agricultural Extension, Training and Research Activities, by establish Linkages in the areas of Aromatic and Medicinal Plants, Plant / Animal Tissue Culture, Screening and Toxicity Testing, Molecular Analysis, Chemical Analysis and Creation of Digital Database.

Salient Features of the CPE Scheme

The basic objective is to harness the super synergies of Industry-Agriculture-Institution synergies for mutual growth. *The Golden Triangle* will be able to harness the potential of each one of these functionaries to act as Mutual Catalyst and grow in the process independently.

The Activities of CPE involve development of Industry Oriented Relevant Courses in fields like Aromatic and Medicinal Plants, Cosmetics, Plant Biotechnology, Bioremediation etc, Agriculture Extension Activities, On Campus Training, Development of Green House, Model Farms and On Campus Production Processes, Establish Collaborations and MoUs at National and International Level and Creation of Database.

Infrastructure

The college has provided for 4500 sq feet of built up area for this specific purpose. The existing infrastructure include well developed Biotechnology Laboratories in operation, Cosmetology Research Facilities, Library and Conference Room for the project

Geographical Catchments

The institutional tie-ups with farmers in coastal states of India like Maharashtra, Gujarat, Andhra Pradesh, Karnataka and Kerala are enhanced by conducting extensive out-reach programmes and programmes on campus. The College caters to over 5000 students each year. These students represent a wide cross section of society; mostly urban middle-income groups. Advanced Technical Courses are aimed basically at this target population.

Research

Patchouli – has been successfully developed for commercial production. A Green House and a Nursery provide planting materials to farmers for cultivation, with a buy-back agreement. A large number of farmers in the coastal areas of India in states like Orissa, Andhra, Maharashtra and Karnataka, have taken up Patchouli cultivation either as a main crop or as an inter-crop. An agricultural consultant of the center provides basic know-how and training to farmers.

To facilitate processing and marketing of Patchouli oil special attention is given. The company is exploring export markets as well. At present Indonesia has the monopoly for Patchouli oil in the world market.

Patchouli

Patchouli (*Pogostemon cablin* Benth.) is an herbaceous plant native of South East Asian countries like Malaysia, Indonesia and China. One variety is found in India which is known as '*Panch*' or '*Panadi*'. There are about 80 species of Patchouli found in wild but the commercially important perfumers variety is the one found in Indonesia

The leaves of the plant yield Aromatic Oil, which is highly valued in Perfumery. The Plant grows well in many parts of India. Indian perfumery market imports over 100 tonnes of Patchouli Oil every year, therefore anticipating its potential as a prospective agricultural crop for production and marketing of the aromatic oil, Patchouli was selected.

Perfumery products containing essential oils obtained from plant sources and these oils have a high rate and can be produced in small scale industry or farm. There is a great demand for these oils in National and International market.

The present world consumption of Patchouli per annum is 1200 tons and India imports approximately 150 tons of this oil from Indonesia. Besides India the major consumer of this

oil is USA (500tons) and Europe (250 tons). The major producers of this oil is Indonesia (500 tons) , China (60 tons) Brazil (1.5 tons) and Malaysia (1 ton)

Kelkar Education Trust's Scientific Research Center has extensively carried out research on Patchouli and developed the Tissue Culture Protocol and Extraction and Process Technology for Patchouli. The Center has promoted the scheme for Cultivation of the Plant where the detailed Agronomic Studies and Protocol for *in-vitro* production of Patchouli is developed and the Cultivators are given the Buy-Back Guarantee of the Patchouli Produce of the dried herbage of Patchouli. The Center conducts programmes to Train the Farmers by providing the Technical Guidance for Cultivating Patchouli.

Training

As a part of CPE activity, training is imparted to students and farmers in cultivation practices of medicinal and aromatic plants, Tissue culture methods Greenhouse technology Isolation of active constituents Processing of medicinal plants, Standardization of Herbals, Analytical methods for identification of adulterants, quality checking. Till the date 15 batches of students, comprising 10 students each have been trained.

The Ministry of Micro, Small and Medium Enterprises, Government of India has come up with a novel scheme of promotion and development of Entrepreneurship in the field of Biotechnology by sponsoring a 4 Week Entrepreneurial Skill Development Programme in the vital field of Biotechnology, identifying Kelkar Education Trust's VG Vaze College, Mulund, Mumbai-81 as the Nodal Center to organize ESDP Programme. This is first of its kind 4 Week Skill Development Programme in the County.

The Programme was designed for budding entrepreneurs willing to take up Biotechnology Entrepreneurial Projects. A batch of 30 prospective entrepreneurs selected across the country on the first come first serve basis by MSME. The programme was aimed at Skill Development in the specific fields of Biotechnology. The ESDP Programme focused on various avenues in Biotechnology and hands-on Practical Training Sessions based on these topics.

The present Programme Module has been very meticulously planned to incorporate the entrepreneurial aspects of Biotechnology with special emphasis on the hands on training in all the major avenues of Biotechnology.

Summary & Conclusions

The CPE Programme aims to develop core competencies in the fields like Aromatic and Medicinal Plants, Bioremediation and Teaching Training and Extension Activities in the field of Agriculture, Industry and Academics Vaze College has successfully established a healthy Industry-Academic Interface in Research, Consultancy and Extension Programmes incorporating Knowledge Management

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QUALITY EDUCATION AND SOCIETAL TRANSFORMATION: THE CASE OF THE NAMIBIAN EDUCATION SYSTEM.

Introduction: Namibians have witnessed many years in which their lives were dehumanized by the German and South African colonial masters. During this period, black Namibians were declared non-existent and their land declared uninhabited in keeping with the European racist arrogance and colonizers felt that democracy was not suited for Namibians (Moleah, 1983). Namibians had to fight for their freedom and liberty in order to restore their humanity and democratic rights. In 1990 when the country became independent, it introduced a new democratic structure of government to replace the apartheid system. This was a new era and an introduction of a process of social transformation to change the entrenched and dramatic inequalities of apartheid. In this process education has played a key role in transforming and promoting equity, quality and democratic participation through constructivist and learner-centred policies and rejecting the positivist behaviorist, rote learning and teacher-centred policies of the past (Van Graan, 2005). Since independence Namibia introduced various measures to decentralise the provision and delivery of education services. The process of public sector reform as well as to introduce strategies to improve the quality of education planning and management are still ongoing and at times very tedious.

Quality is difficult to define let alone implementing it in the education system where the majority of people did not have the opportunity of attending formal schooling because of the racial restrictions which were imposed upon them. The concept 'quality education' is equally subjective as it lingers on the priorities of a particular education system (Ipinge, 2005). Contrary to the problematic and complications regarding the definition of quality education the following could serve as guidelines:

- content in schools should reflect relevant curricula and materials for the acquisition of basic skills, in the areas of literacy, numeracy and knowledge in such areas as gender, health, nutrition, HIV/AIDS prevention and peace.
- processes through which trained teachers use child-centred approaches in well-managed classrooms, facilitate learning and reduce disparities.
- outcomes that encompass knowledge skills and attitudes should be linked to national goals for education and positive participation in society.
- understanding of education as a complex system should be embedded in a political, cultural and economic context.

- human rights issues should be discussed and implemented in all sectors of society, schools being no exception.

Quality Education and the Constitution.

In its efforts to realize this ambition, the Namibian Government at the dawn of independence enacted legislation to enhance and propel education towards quality status. The government inserted Article 20 in the Constitution as a guideline in regulating education in the country. According to this Article, education should be seen and taken as a right, not as a privilege. The provision states very that:

- All persons shall have a right to education
- Primary education shall be compulsory and the State shall provide reasonable facilities to render effective this right for every resident within Namibia, by establishing and maintaining State schools at which primary education will be provided free of charge.
- Children shall not be allowed to leave school until they have completed their primary education or have attained the age of sixteen (16) years, whichever is the sooner, save in so far as this may be authorized by act of Parliament on grounds of health or other considerations pertaining to the public interest.

Parents and other stakeholders in education should assist the government in realizing this right. In addition there should be no conditions and restrictions imposed in schools in terms of race, colour or creed.

The right of access to education: With this right in mind, education must be available to all learners, irrespective of their social status. In the Namibian education system, this right is first of the major goals of education sometimes referred to as the Namibian philosophy of education. The other three goals of education are equity, quality and democracy. Although this right is usually stressed and emphasized by two Conventions, very few countries actually achieved that.

The right to quality education: In this right education needs to be child-centered, relevant and embrace a broad curriculum and be appropriately resourced and monitored. Many countries fail to realize the achievement of this right because of the scarcity and mismanagement of resources. There are of course few exceptions, where countries devote and commit more than a quarter of their national budgets to education with the main aim of achieving quality education. Although the Namibian Government allocates a quarter of its

national budget to education, the performance and educational turnover remain poor as compared to other countries particularly in the SADC region.

The right to respect within the learning environment: Education must be provided in a way that it is consistent with human rights, equal respect for culture, religion and language and above all free from violence. For many years in Namibia and many countries learners have been subjected to the use of corporal punishment which is a form of torture and terror. In the Namibian Constitution corporal punishment of both learners and adults is inhumane and degrading and hence in conflict with Article 8.

The Education Act

The Education Act in Namibia was promulgated in December 2001 and was instrumental in the following:

- Provide for an accessible, equitable, qualitative and democratic national education service.
- Provide for the establishment of National Advisory Council on Education, Regional Education Forums, National Examination and Assessment Board, School Boards and other relevant bodies.
- Establishing the code of conduct for teachers
- Establishing the Teaching Service Commission
- Incidental matters

In addition to the above legal documents regarding the provision of quality education, the Namibian Government translated the utterances into a more clear vision in *Toward Education for All – A Development Brief for Education*. In this document there are four main goals of the Namibian education system of which the third one is quality. The other goals are access, equity and democracy. In all these goals the Namibian Government is trying to forge ahead with quality education intended to transform the society. Through accessibility to education through schools, the majority of Namibian children and their parents will have a share in education and enlighten them and transform their life styles for the better. It was equally intended to ensure that the majority of Namibians will acquire

ETSIP Education and Training Sector Improvement Programme in the Namibian Education System.

In order to transform the Namibian society with its high levels of inequality inherited from South African apartheid rule, the country with the assistance of the World Bank, devised a

fifteen-year improvement plan for education known as the Education and Training Sector Improvement Plan (ETSIP.) and its main aims included the following:

- **The quality of general education** : The curriculum needs to be revised to ensure that it meets the demands of a knowledge-based economy. The supply of textbooks and other learning materials should be increased and new standards enforced. According to ETSIP programme, systems of performance management and accountability will be introduced, including licensing of teachers and performance targets for each school. Support for teachers will be stepped up through re-organised inspection and advisory services through the cluster system. Special education will be enhanced, initially through policy development.
- **Information Communication Technology** will be rapidly spread throughout the sector to enhance learning and administration. The curricula will be revised to make ICTs a cross-curricular tool as well as a subject. Staff will be trained, and ICT services and support structures developed, so that technology can be deployed and maintained. Education management will also be enhanced through the use of ICTs.
- **The provision of senior secondary education** (grades 11 and 12) is to be expanded. Currently 46,3 % of grade 10 learners are taken into grade 11. The intention is to increase this to 80% by 2020. Fuller use is to be made of existing facilities, some of which will need expansion of classroom and hostel space. Six large new senior secondary schools of a high standard, to be known as comprehensive schools, are to be established by 2011, mainly in the northern regions.
- **Vocational Education and Training** is to be reformed and expanded. A National Training Authority will be established with the private sector having the majority of seats on the Board. Competency-based qualifications, curricula and study manuals relevant to the needs of Namibian industries and circumstances will be developed.
- **Tertiary Education and Training** is to be strengthened and expanded, especially in areas where human resources are in short supply. The National Council for Higher Education, and other bodies, will be established to ensure high standards and efficient allocation of resources. Relevant research will be supported. Training of teachers in relation to need will be speeded up.
- A national system of **Knowledge Management and Innovation** is to be developed, considering the experiences of other countries. An institution will be established to act as a broker between those who need technical solutions to particular production

challenges and those who might be able to provide or develop solutions that can increase local value-added production, enhance productivity and promote innovation. A 'marketplace' for information and knowledge will thus be developed.

- **Access to information, culture and lifelong learning** will be strengthened through revision of policy, legal and institutional frameworks and improved access. Making arts training more vocational and market related will promote the employment creation aspects of arts education.
- **HIV/AIDS Management** is to be enhanced. Strategies to be implemented to prevent HIV infection include awareness raising and empowering, regulatory issues and curriculum and learning issues. The treatment, care and support of learners will be addressed by devising a system of holistic care, counseling and support. Workplace activities will focus on management actions, workplace support and advocacy.
- **Equity** in education will be increased through a general pro-poor bias. Disadvantaged learners will be given preference in admission to the new comprehensive senior secondary schools to be established in their communities. Systems to allocate funds fairly in terms of unit costs will be developed as part of the decentralization process in government. Scholarship programmes and grant schemes will be reviewed with a view to greater support for the most disadvantaged applicants. Orphans and vulnerable children will enjoy specific attention, especially at school level.
- **A capacity development programme** will be pursued to ensure improvement in all aspects of institutional development, including leadership, strategy and planning, human resource management and development, partnership development, and change management.

Challenges in providing quality education in Namibia.

Despite government's efforts in trying to provide quality education, there are of course factors which hinder this process. The following could be cited as impinging on the provision of quality education in Namibia:

Colonial legacy: During the South African colonial period, a form of oppressive education system known as Bantu Education was enforced and imposed upon the Black masses in Namibia. In addition to the brutal and terror campaign against the civilian society, school children were instructed to believe and learn stereotypes and evil indoctrination that Black

Namibians were warmongers while Whites were peace-lovers (International Conference on Teacher Education for Namibia, 1989). The distortion and ideology that Africans are slow thinkers, less civilized, unintelligent, dangerous, and irresponsible were only imposed on them by some Europeans. The fact that many Africans did not excel in many developmental issues and projects had to do with limited facilities at their disposal. The Whites created and turned Blacks into means of cheap labour; restricted competition between Blacks and Whites; promoted Afrikanerism and instilled the notion of '*baasskap*' (boss-ship) of Whites among Blacks. Some African countries fell victim to colonial education, to such an extent that most of the citizens of these countries lost their language, African names and identity completely. This takes time and resources to remedy that the society should be transformed.

Learner – teacher ratios: The ratio of learners and teachers is still high in many previously disadvantaged regions that it makes the provision of quality education almost difficult to maintain or attain. One is likely to find as many as fifty learners stuffed in one classroom. In some cases these learners are forced to share few textbooks or even having none except one being used by the teacher. Very little attention is always given to learners in such overcrowded classrooms and hence quality education is compromised leading to the sluggish process of societal transformation. As Uugwanga (1998) argues, large classes could impede the quality of education that students receive. The official teacher- learner ratio is 1:25 for secondary schools and 1:30 for primary schools. Despite this official ratio figure one finds teacher – learner ratios skyrocketing to 1:50 or more for both levels. Namibian teachers like many teachers in many countries that have adopted reform policies based on constructivism (active learning, student centred and critical thinking approaches) have found it increasingly difficult to interpret and practice the new education policies especially in the context of extreme overcrowding and severely limited resources (NIED, 2003).

III – equipped and training of teachers: A full investigation of the Namibian education system by the World Bank (2005) concluded that, despite the Government's massive investment, the education system would not be able to produce the desired results, due to poor quality, inefficiency, inequity, inadequate management, and the impact of HIV and AIDS.

Challenges to policy makers: A recent study undertaken on the quality of Namibian teachers pointed out to four challenges in this aspect:

- Unclear policies that guide teachers' work within a nexus of contradiction about policy and expected practice.

- Lack of teacher development and support to ensure the infusion of new knowledge throughout the system in combination with whole school groups of stakeholders working on planning, reflection and assessment of quality initiatives
- Misunderstanding of quality teaching at school level
- Very little effort is made to incorporate the complexity of process in the development of policies and programs.
- **Lack of facilities in schools** :Adequate buildings are critical component of effective schools. School buildings and grounds must be well maintained and safe. They must provide sufficient space for learning. Although the Namibian government has tried to put up permanent structures, the majority of schools still lack basic facilities such as classrooms, desks, textbooks and other necessities.
- **Information and communication technology**: Teachers and learners should have access to appropriate information technology resources: In an era of technology, it is only proper that learners and teachers be provided with computer for them to access the internet to enable them to find current information on many aspects including information on the subject itself. Many schools and teachers alike have no access to computers in most parts of Namibia. This makes societal transformation pretty difficult as the majority of Namibians lack information crucial for development.

Conclusion: Despite the enormous challenges the new Namibian government had to tackle, significant strides have been made in providing quality education for the transformation of the society.

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RE-ENGINEERING AFRICAN HIGHER EDUCATION TO COMPETENCE BASED EDUCATION

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Abstract

The 21st century has been referred to as the knowledge society due to the propensity of the production of knowledge as a result of the learning revolution. As a consequence, focus has been drawn to the education models and the effectiveness in producing a citizenry that is able to keep abreast with the dynamism of the times.

This paper offers a critical examination of our education model, in view of the fact that recent literature has indicated that most of our school graduates do not learn much (KNLAR, 2010; MOEST, 2003 & Mamdani, 2007). We propose the use of a competence based model of teaching and learning, where by, the learning products are defined explicitly, the delivery options are varied and the level of learning is what drives the assessment model rather than the evidence of credit points usually captured in the traditional teaching and learning model.

The competence-based model has been said to be the bridge between the traditional education paradigm and the learning revolution that has beset the 21st Century, since, learning can be described and measured in ways that are apprehended by all parties. The student is able to return to one or more competencies that s/he has not mastered in the learning process, rather than repeating a whole unit, as would be in the traditional model (Voorhees, 2001).

Using a case study of the DePaul University/Tangaza B.A. degree programme, which is based on the competence-based model, this paper will outline the critical elements that underline the effectiveness of the model and why it would be useful as an alternative to re-engineer our traditional model of teaching and learning at institutions of Higher Learning in Africa.

Introduction

The traditional functions of Universities world over have been identified as research, teaching and learning and public service. However, as Sifuna and Sawamura (2010, 105) contend the role of the University in an African context needs to be reviewed since it is different from the institutions in Europe and North America, on which they were modeled. They identify the following tenets as critical to the role of a University in an African context:

- To develop, advance, preserve and disseminate knowledge and to stimulate intellectual life
- To train and prepare high-level human resource needed for development;
- To promote cultural development and the highest ideals and values of society; and
- To provide, through research and consultancy, knowledge, skills and services to the community by helping solve problems facing the society.

Indeed, the universities in the South have a critical role in the transformation of the African society to relevance in the 21st century. The communities look up at the tertiary institutions for high skilled professionals who will fill in positions in both the public and private sector; they also expect generation of new knowledge and innovation through research that will improve on the livelihoods of the people. Critical to the African experience, is a populace who are well grounded in the culture of the people and who are keen to connect the indigenous knowledge with new understandings, whilst still preserving the cultural heritage. However, the narrative on the ground is disturbing since the quality of higher education in Africa is poor compared to other institutions elsewhere. This is as a result of a variety of factors, such as the colonial impact which as we have noted the University in Africa was modeled on Universities in the North. According to Nyambura (2010), the curriculum, pedagogical approaches, publications, language of instruction and research approaches in education institutions in the south, are still based on Western models thus inadvertently affecting the identity of the African student. Another factor is that, African governments are the lowest investors in research world over and thus institutions of higher education have the least scientific publications in the world. Tijssen (2007) has illustrated through research that Africa in 2007 had only 3499 scientific publications compared to 265,506 from East Asia and the Pacific; it had also the lowest global scientific output at 0.3%. Mamdani (2007) through the case of Makerere University has illustrated the negative effects of marketization of university programs and their detriment to the quality of education. Other factors that militate against the quality are: poor graduate training, since most Universities still use the traditional model of teaching through the banking system; high student teacher ratio, the massification of secondary school graduates without an increase or expansion of

facilities and personnel; bad governance practices; corruption; lack of sufficient funding to support research.

There is a great concern that our fresh graduates do not have the core or specialized competencies to succeed in school, work and life. Illich (1979) observed that for many in the developing world, education has become an opiate; this is evident from many of our graduates who continue to dream of getting white collar jobs, in spite of the fact that due to the socio-economic changes, chances of getting these jobs are rare. These youths can be forgiven because their schooling does not offer them with the skills necessary for them to become job creators. The philosopher Alfred Whitehead, is famously remembered for having said that, there is nothing more useless than a merely well informed man, thus as much as institutions of higher learning continue to lay more emphasis on the reproduction of knowledge from the North there is an inadvertent effect on the development of society. Fresh graduates from our institutions of higher learning, find themselves in awkward situations when, they are unable to meet the expectations of their employers. Indeed, there are now many corporate organizations that have developed bridging programmes for their new employees so that they can be inducted into the labor world.

Gibbons (1998) made two distinctions of knowledge production, the first mode referring to school-based, disciplined-based knowledge which is typically produced in traditional based universities and the second mode where knowledge development is the production of knowledge in the context of application, that is it arises in the process of solving particular complex problems in collaborative trans-disciplinary teams and partnerships situated both within and outside the institutions of higher learning. As Maamori and Wagner (2001) contend many universities in the South operate on the first mode, which impedes on the quality and relevance of education. It is evident that the global developments in Science, technology and social sciences also affect the South and thus the quest for a relevant education is critical to African Higher Education. In the past year, the suspended Kenyan Minister of Higher Education, Mr. William Ruto, was condemned for airing the view that there was a need for institutions of higher learning to be reviewed and restructured in order to be relevant to the needs in the society. The Ministry of Education in Kenya has embarked in setting a higher standard of measurement for Universities, through ranking tertiary institutions based upon the rate their graduates are employed or create employment. Indeed, they have requested the Federation of Kenya Employers to provide the Ministry with data on hiring graduates. This new pedestal, according to Dr. Mwiria, the Assistant Minister, will turn Universities into centers of innovation, enterprise and knowledge (Daily Nation, 2011).

Indeed, Universities in Africa, have to rethink the purpose of the University in the 21st century, if it has to become relevant and meaningful in enabling Africa transcend the challenges of marginalization in the age of globalization. It is our contention that the means for institutions of higher learning to achieve quality in its teaching and learning processes, will be through bridging the gap between the society and education. As is evident in most Universities in Western societies, this link can be addressed through a competence based education.

The Competence Based Education model

The competence based education (CBE) model is the latest development from the five disciplines of learning which includes behaviourism, cognitivism, experientialism, and constructivism. It is based on the work of Mager (1960), who build upon Bloom's taxonomy (1956) on the need to use learning outcomes in terms of expected performance, the conditions under which it is attained and the standards for assessing quality.

The first discipline largely focused on behaviours, how people conduct themselves in relation to the environment. The second discipline took note of the mental – cognitive influences on our behavior. Experientialism on the other hand attempted to explain some of the learning behaviours that cognitivists could not. It is sensory based and looks at self-reflection and meaning-making of peoples behaviors. Constructivism came up later, whereby learning could be created through sharing and exchange of ideas with others. It heavily relies on the interpretation of individuals through logic and analysis of learning experiences. CBE model is based on three critical aspects, namely performance task, criteria and standards. It aims at getting learners to think and go beyond the information they are given in class, through an integrative skills of bringing knowledge, skills, understanding and experience together in problem solving activities and environment, which provides them with the best kind of preparation for life long independent learning (Waghid, 2000). In essence, the CBE model, emphasizes a hands on, and do it to learn practice.

Spady (2001) has developed further thinking on CBE, through his total learning for total learning thesis, whereby, he contends that learning is an inherent part of living, and since, living is a continuously unfolding array of new input and experience, things have to be assimilated, interpreted and used in some useful way in order for one to function. Thus, whatever, one learns becomes a new resource for living, whether one chooses to live the same way or differently. He identifies the four domains of total learning as, competent learning, creative learning, conscious learning and collaborative learning.

Competence based education was introduced in the US in the 1960s due to the concerns that students were not taught the skills they needed in life after school. The CBE model has also been popularly used in the United Kingdom, Australia, New Zealand (Faris, 1995) and Malaysia. In Africa it is gradually gaining ground, in Mozambique, Ghana and South Africa, where some graduate programmes have been developed. The US office of Education defines CBE as, 'a performance based process leading to demonstrated mastery of basic and life skills necessary for the individual to function proficiently in society.' Other definitions include: an instructional system in which a performance based learning process is used; a form of education that derives a curriculum from an analysis of a prospective or actual role in modern society that attempts to certify student progress on the basis of demonstrated performance in some of all of the aspects of that role. In essence, all these definitions touch on the focus of CBE which is guided by the needs of the society, and the quest to produce a competent and relevant graduate of the education system.

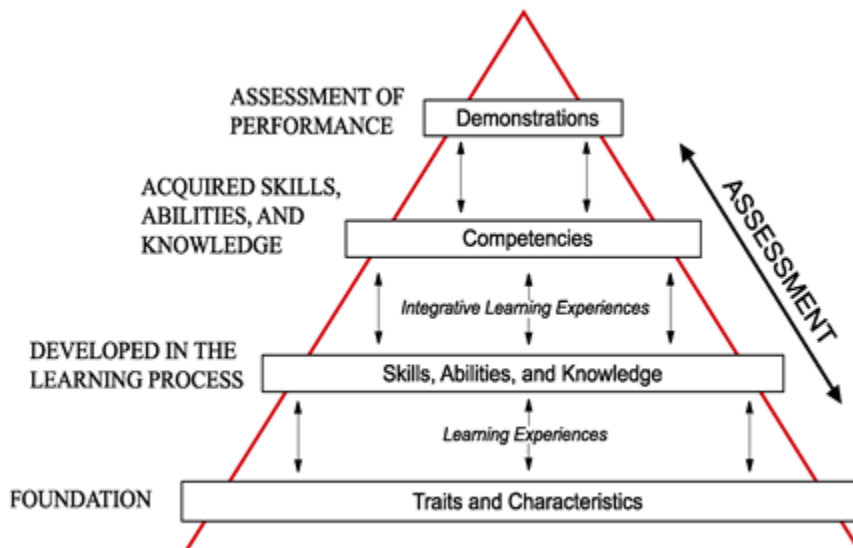
A competence on the other hand is defined as a statement of learning outcomes for a skill or a body of knowledge. When a student demonstrates a competence, they are demonstrating their ability to do something; they are showing the outcome of the learning process. The competence statement is written in a 'can...statement...', making it easier for the student to recognize the competence s/he has to demonstrate.

The competencies are distinguished between the generic or core and the domain specific competencies for the given course. The generic competencies are those set of appropriate competencies needed in all content domains and can be utilized in new professional situations such as, IT skills, Numeracy skills, Communication skills etc. The domain specific competencies are based on the clusters of knowledge, skills, attitudes within one specific content domain related to the professional. In curriculum development therefore, a variety of competencies cutting across various disciplines are identified in order to holistically equip the student with all skills and knowledge critical for a competent professional.

According to Van der Horst and Macdonald (1997), CBE is based on the following six critical elements:

- Explicit learning outcomes with respect to the required skills and concomitant proficiency (standards of assessment)
- A flexible time frame to master these skills
- A variety of instructional activities to facilitate the learning
- Continuous and criterion-referenced testing of the required outcomes
- Certification based on demonstrated learning outcomes
- Adaptable programmes to ensure optimal learner guidance

The following figure illustrates the conceptual model for CBE, whereby learning is viewed as an integrative process, and assessment as an integral aspect in the achievement of competencies.



Source: U.S. Education Office (2001)

According to Vorhees (2001), the bottom rung, constitutes the foundation of all learning as it shows the innate makeup of individuals on which further experiences can be built. The variation in traits and characteristics explains why students pursue different learning experiences and acquire different levels and kinds of skills, abilities and knowledge. The second rung is developed through the learning experiences at the school, community and in the work place. The third rung is a result of the integrative learning experiences in which skills, abilities, and knowledge interact to form learning bundles that have currency in relation to the task for which they are assembled. The top rung, on demonstrations is the results of applying competencies. At the end of the learning experience, the learners should be able to demonstrate the required competencies.

CBE is adaptive to the changing needs of students, teachers and the community as the competencies describe the students' ability to apply basic and other skills in situations that are commonly encountered in everyday life. Competence is a point on a continuum and becoming a professional means going through a predictable sequence of qualitatively different patterns of knowledge, skills and abilities.

In the traditional model of education, a student learns what the teacher chooses to teach them, s/he moves through the curriculum through the requirements of the curriculum by

taking a course and being assessed at the end of the semester on how well s/he has done in meeting the requirements of the course. The assessment says how well the student has done in the class, but it doesn't necessarily assess what the student has actually learnt. When the Semester ends the student is done with that learning and moves on to the next level. In the CBE model, the student knows from the beginning what the expected learning outcomes are and each student is expected to fully demonstrate all the competencies. It is thus not enough to just have the knowledge; one must be able to demonstrate a given competence. The student from the traditional model, graduates with packages of knowledge necessary for a teacher, lawyer, doctor etc, some of these packages may be retained after graduation but some will be deleted or forgotten. But those graduating from a CBE model will not only have the knowledge but also the necessary skills needed for them to be qualified or rather competent teacher, lawyer, doctor etc. This is because the CBE curriculum is based on a set of outcomes that are derived from an analysis of tasks typically required of students in life role situations and then provides a sequence of defined learning experiences for the students. In a CBE model, the statements of competence define what learners are expected to be able to do. These statements also define the standards expected to confirm that the required learning has been achieved. When the outcomes of learning are clearly specified, assessments must logically be based directly on these outcomes. Such assessments tend to be continuous and comprehensive rather than end of course exams, with more emphasis being placed on assessing performance and demonstrations of skill or competence rather than simply of knowledge.

Methodology

This study has used the qualitative research paradigm, whose focus is to have an in-depth understanding of the case under study. Purposive sampling was used to identify the case study due to the fact that, the DePaul/Tangaza programme offers an interesting and unique CBE case for study in Africa. The fact that it is a joint collaborative study that has brought together two Catholic Institutions of Higher education, one from the North and another in the South was also an impetus towards this research. Some of the other main reasons for the choice include: the excellent student performance as indicated in the academic awards, publications and implemented projects; evident transformation of students from timid to confident, book worm to pragmatic thinkers; the elaborate, exciting & enriching teaching and learning experiences by the facilitator, learner, peer, mentor, PA, and finally the unique assessment modes, the weekly assessments with less focus on summative assessment

The methods used for data collection included, content analysis of the DePaul/Tangaza Academic Handbook and guidelines plus other relevant materials; we had a few interviews

of the graduates of the program and finally we largely depended on our own personal experience of the programme as co-ordinators of the programme, facilitators of some of the courses and mentors to the students.

DePaul/Tangaza B.A. program in Leadership and Management: Case of a CBE model in Africa

In the design of the DePaul/Tangaza degree programme, the School for New Learning which offers the degree program and the Tangaza team noted that leading and managing others in any kind of professional or ministry requires the learners to develop and apply a set of very specific competencies which we called domain-specific competencies and also generic competencies. The School for New Learning has developed a set of competencies for its programmes, based upon research on the needs of the society and the requirements for competent professionals in the area of their academic programmes. It is from this large database of competencies that the DePaul/Tangaza team selected and developed in designing the programme.

We shall illustrate the tenets of CBE as illuminated in the DePaul/Tangaza model, through the following main areas:

Curriculum design

The CBE approach does influence curriculum development and design. As we have noted earlier the content is not the starting point for the curriculum, but rather the competencies which are critical for a professional in the field of study. Thus, curriculum development in CBE is a backwards approach which is more informed by the occupation practice, rather than a body of knowledge. For the B. A. programme with a focus in management and leadership, the SNL team had to work together with the Kenyan based team, in identifying competencies necessary for a leader and manager in the African context and more so, for one who would also be working in church ministry, since at the beginning the program was being designed for women religious.

As a result of the concerted efforts of both DePaul faculty and the Kenyan faculty, several competencies were identified, which were organized in the following three areas:

- **The life long learning area** – Learners should develop into independent, critically minded leaders capable of directing their own learning and the learning of others and of creatively adapting to new challenges. The students would thus develop the essential competencies in adult learning, including self-assessment, goal-setting,

connecting their experiences to the experience of others, critical and appreciative thinking, college level writing, quantitative reasoning, formal research and experiential learning.

- **The Liberal learning area** – Learners should develop the ability to understand the complexities of Africa, the Church and the World from many different perspectives. In this area the students learn about ethics, creativity, social injustice and globalization in ways that they can apply in their professional work. The competences acquired in their diploma work are taken into cognizance and augmented through new learning on Information technology, environmental science and public health. This ensures that the students are broadly educated and able to understand the complexities of the world from multiple perspectives.

- **The Focus area** – Learners should develop the ability to be competent professional able to foster human and faith development in a particular form of ministry. This enables the students to customize the program to fit in with their individual differences and interests. They build on and broaden what they learned in the diploma program and complete an advanced level independent project focused in concrete leadership challenges they are likely to face in their professions. This project allows the students to demonstrate that they are competent professional prepared for a lifetime of leadership and service

Under these three areas, a set of 50 competencies were developed that would describe a broad range of knowledge and skills critical for manager and leader. Being a completion degree programme, a student would have to demonstrate 18 competences from his/her diploma study so that from the degree he could acquire the remaining 32 competencies.

As we can note, the content in the B.A. programme is not just based upon one discipline but rather it has an inter-disciplinary approach cutting across other fields e.g. environment, IT, Math's etc

Course design

As is evident in the following example from a course syllabus, the competence statements inform the learning outcomes that are important for one to be able to demonstrate the given competence.

Course: Critical and Appreciative Thinking

Competence Statement: Can analyze issues and reconcile problems through critical and appreciative thinking.

Learning Outcomes:

- Analyze, critique and evaluate different forms of thinking and reasoned discourse
- Construct well-reasoned arguments in the context of real-life experiences and issues
- Identify claims and assess their reasonableness and distinguish between reports, inferences and judgments.

Thus rather than use instructional objectives, which are based upon content, the CBE approach provides the learner with an environment where they are required to be pragmatic in their thinking. The facilitator of the course has to keep finding relevant materials and cases happening in the world, as he helps achieve the competence.

Teaching and Learning

The CBE approach as we noted above is not based upon what Paulo Freire called the banking system, whereby the students just load knowledge which later they vomit in the exam. The CBE approach dictates a joint partnership in the teaching and learning between the teacher – who is referred to as the facilitator and the students.

The facilitator is challenged to keep focused on what students must be able to do when they begin to work. S/He is thus not limited by the curriculum, but rather challenges the students to be more critical in assessing the contexts of their professional practices in pursuit for relevance. S/He thus encourages integrative learning, through using various delivery modes such as: Lectures, experiential learning, discussions and presentations, projects, directed study, prior learning evaluation etc.

The students on the other hand are not just passive in the learning process, but rather actively involved. In the DePaul program, right from the beginning the students go through a Learning Assessment Seminar, whereby they have to reflect upon their prior learning experiences. There are several exercises such as using a time frame, whereby they have to look back and recognize some of their major learning's. Then they also have to develop their individual and professional goals. The students own their learning and since they already identify the competencies they want to achieve through the program, then it becomes a meaningful learning experience, with no rote learning. The students' prior work is recognized and appreciated in the learning experience, thus augmenting the learning process through the shared experiences; this is portrayed in their writings and projects which have mostly been original, unique and quite relevant in their fields of practice.

Assessment

The assessment in the CBE approach is not merely based on the end of course assessment or just on the packages of knowledge acquired. The assessment is continuous, criterion-based and comprehensive cognizant of the competencies. Since the competencies are already identified upfront, the focus is geared at both assessing performance and the demonstrations of competence. For instance in the Course College writing, whereby the competence is:

L4 Can write clearly and fluently

The students have several assignments where they have to demonstrate the following competence. They write several essays, demonstrate their competence in referencing system, and also prepare a public speech. These assignments make the formative and summative assessment of the course. What we have observed is that students put a lot of effort in doing and re-doing their assignments until they feel they have attained their optimum in demonstrating the given competence.

The program is also designed on the basis of a self-assessment and course evaluation. In the self-assessment, the students are given an assessment form for that particular course at the beginning of the course, together with the course syllabus. This gives the students an opportunity to assess their level of competence in the meeting the identified outcomes for the course. This is a useful exercise since it enables the learning and teaching to be a shared experience, when students inform the lecturers on their areas of weakness, thus enabling a facilitator to lay more focus on the mentioned areas.

The course evaluation is geared towards students giving their views regarding the content of the course and the role played by the facilitator. This enables the administration to improve on the course content in their review, and also to advice the facilitator on how to improve on the teaching/facilitating skills.

As indicated, assessment in the CBE approach is a learning experience not only for the students but also the facilitators. The pressure of vomiting packages of knowledge is not there and students work through a self-directed and motivated assessment which is an integral aspect of their development of the required competencies.

Academic Rigor

As we mentioned earlier, the CBE approach entails both domain specific and generic competencies. In this regard therefore, the academic rigor is unquestionable as students and the facilitators strive for excellence and relevance in their different areas. The CBE approach is based upon the constructivist paradigm, whereby the quality of acquired knowledge is gained through an active construction between the facilitator and the students in view of their environment, rather than a passive gaining of knowledge as exacerbated in the traditional model, where faculty over-use their yellow notes.

For instance, the course on Leadership in a World of Conflict and injustice whose competencies are:

H-4: Can analyze power relations among racial, social, cultural or economic groups

FX: (written by the student)

While the facilitator will work with the students to achieve H4, the students on their part have to demonstrate an FX, whereby through research they have to construct new knowledge based on their context and experiences. In this way, they have to be actively involved in developing a piece of work that will be relevant to the given course.

The students' assessments are assessed not only by the facilitator but also the peers, as they all work towards achieving the desired competence. Through reworking their assignments several times, with the support of peers and faculty, the quality of the students work is greatly enhanced. This is evident in the number of students who have won academic awards for excellence from DePaul Univ., having undergone an international panel of examiners; one work is already published, while there are a few considered for publication; there are also several projects that have been implemented by the students after their graduation a recent example being a student who is giving seminars on personality to religious leaders, so they may improve their leadership skills; some of the students are already enrolled for a Masters program both locally and internationally. We have also received success stories from the alumni who are working in the field, some have been promoted due to their excellence in performance.

Project- based learning

One of the critical aspects for CBE is that since it is based on the future occupational practice of the graduate it seeks to establish partnerships with the practitioners in the field. These practitioners are major stakeholders as they offer their expertise and continue to inform the teaching and learning experience.

The B.A. program works in consortium with these partners in various ways. First, through a course called Externship whose competencies are:

L-10: Can reflect on the learning process and methods used in an experiential project

L-11: (written by the student)

In this course, the students are required to assess their own learning ability and the strengths and weaknesses of their learning styles. They do this in an environment of best practices in leadership and management, where they are also expected to reflect upon leadership and management practices, which they have to demonstrate in L 11, through their learning and experiences of the context. These contexts are provided to the program by our partners in the field, thus our students have been to CBOs and NGOs in their locality.

Secondly, these partners also support our students when they have to work through their Advanced project, which is a bigger project based upon the students focus area. Once the students identify an area of interest for this project, we identify from our partners, what we call Professional Advisors (PA) – these are professionals who have demonstrated expertise in their field of specialization. The PAs, know the aptitudes, skills and body of knowledge practiced by professionals in the specific area, they know the developments and trends in the area, and they have a demonstrated professional mastery through academic work and achievements. For instance, in the past, we have had managers of successful CBOs to mentor our students interested in management of projects, Child rights advocates to mentor students interested in child issues and also Counselors to mentor those students interested in a variety of issues under psychology. From experience, we have observed that the mentoring given by the PA's greatly adds value to the students Advanced project through bridging the gap between theory and praxis. Besides, the research work, the students also have to achieve an F-12 competence which is a practical project addressing the needs that emerged from the study. Some students after graduation still move on to attempt to implement these projects.

In view of the above discussion, some of the advantages that we have observed from our experience of the BA program are:

- The fact that it is based on the constructivism approach ensures the learner is active throughout the learning process and thus reduces the typical passive dependence on lectures.
- The students performance is enhanced due to their active engagement in learning through problem solving

- The program encourages critical assessment of theory and praxis through the various learning tasks and projects.
- There has been an improved inter-disciplinary understanding through the range of courses offered.
- There is an improvement in research and writing skills and thus improved quality of students work.
- An established liaison with community partners at different levels.
- Through working on their individual and professional goals from the onset, there is more focus and purpose on what students must be able to do when they complete their studies.
- focuses the minds of lecturers through the integration of teaching, the disciplines are broadened and enhanced through the inter-disciplinary approach.
- The students view learning as continuous and holistic.
- An improved culture of teaching – since it strives for creativity and ingenuity.
- A student who is self-aware and capable of facing their weak points with courage and desire to improve and to be better.
- An improved learning environment, where peer review is enhanced – the students build partnerships with their peers who are critical in their learning process.
- Relevant and viable projects that are of benefit to the community.

Challenges of CBE model

When the DePaul program was being implemented, it received a lot of challenges, for instance that the entry requirements of the students were low and that thus the quality of the program and thus the model were poor. However, we all understood that the opposition the program encountered was from the ignorance or lack of knowledge on the CBE approach of education by the critics most of whom believed in the traditional model of education. Indeed, those students whose grades were low demonstrated competencies of prior learning, this is considered in CBE model, but not in the traditional model. Since as we noted the students are encouraged and directed to own their own learning experience, they become honest on their weak areas and are ready to work hard in order to demonstrate the needed competencies. This is contrary to their previous learning models, which were largely based on the banking system and had great emphasis on exams. We observed a steady transformation and improvement on their academic work, such that some of them won International awards due to their academic excellence.

Another related critic to the above challenge was that, this program was not discipline based, in that one would not find the traditional approach towards curriculum design and development. The courses in the program were drawn from a cross-section of disciplines

which would be important for any leader and manager in the African context. Some of the courses included public health issues, Information Technology, Spirituality and Quantitative Reasoning. Some of the students who lacked the traditional courses on leadership and management in our programme, decided to go to other institutions. But, as we have noted previously, the CBE model is largely shaped by the needs in the field, and thus all the courses are relevant, timely and comprehensive. Those who have graduated from the programme have gone on to the communities more professional, competent and all-rounded, with a lot of zeal to transform their communities through their focus area.

The other challenge encountered in the implementation of the program at Tangaza was the aspect of faculty remuneration. Since, this was a new program, in an institution that already had a culture of teaching, learning and remuneration of faculty; any new programs were measured according to this pedestal. The faculty felt that they were doing more than the peers, since for them, there was a great demand to be relevant and student focused. In other countries, such as the US, to be more precise, DePaul University, where this model had become a culture, the faculty did not measure themselves to others, since, they grew into that system and thus, felt whatever attention being given to the students, was normal if they had to demonstrate the desired competencies. At Tangaza, however, in order to encourage and motivate our faculty we developed other forms of remunerating their efforts.

In general, the CBE model has also been criticized as being more appropriate for vocational education than general education, since much focus is geared towards the acquisition and demonstration of skills. However, as we have been able to illustrate the emphasis on knowledge, skills, values and behaviors is all important for any competent professional.

Where the policies are not clear and appropriate, for instance in the case of massification of students and marketization of university programs, with poor remuneration of the faculty, or lack of good will in the current political leadership, it may be difficult to implement the CBE model.

Conclusion

We noted in the beginning that it is important for our teaching and learning experiences in the African Universities to be reviewed, so that they can be relevant and capable of addressing the four critical aspects of a University in Africa. We argued that, it is important to focus our attention on the needs of the society in our design of a relevant education system.

It is our belief that it is time Africa took responsibility of the quality of education provided to its citizenry. The attention that is being given on quality control and assurance mechanisms in institutions of higher learning is an important aspect and its success will be based upon what Prof. Zimba (2005) denotes as excellence, improvement and enhancement of educational processes at tertiary institutions leading to transformation, liberation from inadequacy and empowerment. The Delors report (1996) to UNESCO on education for the 21st Century, points out that in order for graduates from education institutions to be competent in coping and addressing the needs of this century, they should be well prepared to learn to think, learn to create, learn to do things, learn to live with others, learn to change the world of things and people, learn to respond to change, learn to mentor and learn to understand.

It has been our contention that the CBE model would enable us to refocus our attention to the society and thus improve on the quality of our education system, through ensuring that our graduates are competent professionals capable of living and coping with the dynamism of the society. Through the use of the DePaul/Tangaza model, we have been able to illustrate how relevant and successful the program has been in training leaders and managers who are competent to address the current societal needs and challenges. The students' choice of research works was deeply rooted in their communities, and thus the product from their work would improve on the people and environment.

It is time, we stopped being more Roman than the Romans themselves, most Universities in the North reviewed and changed the traditional model of teaching and learning, we in the South, have no reason to still continue upholding systems that have long become superfluous. It has been our contention, through this case study, that the CBE model offers us the framework to rethink African Higher Education, in the attempt to ensure and enhance the quality, relevance and competence of our graduates in the 21st Century.

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THE OPPORTUNITIES AND CHALLENGES OF USING TECHNOLOGY TO SUPPORT CONCEPTUAL TEACHING AND LEARNING OF MATHEMATICS AND SCIENCE

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Author Note

Work based on HP Catalyst Project housed at Kenyatta University, Department of Educational Communication and Technology.

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Abstract

It is common knowledge that many teachers are under pressure to complete the syllabus and so use instrumental understanding strategies of teaching scientific and mathematical principles and procedures. This type of understanding is known to stunt critical thinking and has led to two main learning outcomes. (1) Students have continuously failed to achieve in these subjects leading to gaps in generation of innovative ideas for solving emerging and existing social problems. (2) Students pass the subjects based on instrumental understanding and this leads to a reproductive rather than a productive mathematics and scientific citizenry. In an attempt to address some of these issues, Kenyatta University is involved in a project that seeks to support teacher and student conceptual learning of mathematics and Sciences. This paper highlights outcomes and expectations of an HP catalyst initiative project which uses technology to support teacher and student conceptual learning of mathematics and Sciences. The two year project holds workshops for pre-service, in-service teachers and Kenyatta University faculty from subject content areas of Biology, Physics, Chemistry and Mathematics where use of technology for teaching and learning is unpacked. Workshop experiences with technology together with the challenges and opportunities inherent in this experience are discussed. An insight on the effectiveness of methodology used in the project and the observations made on the use of technology for teaching and learning are outlined.

Introduction

Integrating Technology in the classroom takes more than just having computers. Technology has become part of the educational process the world over, however too often it is separate and not integrated into the learning experience. Integrating technology into curriculum needs to be a priority if not a mandate in our schools. However it is important to have technology integrated and used as a tool to promote and extend student learning on a daily basis. To achieve this, teachers need to get support to appreciate what technology can do, learn how to maximize technology for teaching and then skillfully integrate it without lose of class control and content scope. This needs to be done to enhance teaching but not to increase workload. Students also need to find ways of using technology for education purpose without spending too much time on the social section of the internet.

There are many subjects at school level that students are exposed to, but Science, Technology, Engineering and Mathematics, commonly referred to as STEM education, has been an area of concern for many educators around the world. Learning is STEM education is expected to be concept based but often the teaching and learning approaches used in these subjects often lead to misconceptions. To harmonize these basic conceptions, technology can be used as it provides a platform that teachers can use to share teaching strategies and virtual manipulations that enhance conceptual learning of typical STEM concepts.

Kenyatta University participates in a global collaborative supported by the Hewlett Packard (HP) catalyst initiative which is aimed at synergizing global efforts and joining communities to come up with innovative ideas that can be translated into classroom practice for STEM subjects. The HP Catalyst initiative at Kenyatta University focuses on both preparation of teachers and the practice of Mathematics and science education. To achieve this, faculty staff from the Kenyatta University content area departments of Mathematics, Physics Chemistry and Biological Sciences, together with Mathematics and Science education academic staff from the department of Educational Communication and Technology have come together to address the issue of conceptual learning of these subjects. Their contributions is presented through the project on how to “use technology to support teacher and student conceptual understanding of mathematics and science” This two year project on the use of technology to support conceptual understanding of mathematics and science is aimed at giving preservice and in service teachers opportunities to learn and use technology in their daily lesson encounters.

With the use of technology, this faculty plan and share with learners about how technology can be integrated for the purpose of conceptual learning support and then monitor implementation process and use the data collected to improve the initial plan. While the academic staff from content areas use technology as they unpack advanced concepts in

their lecture halls, the Mathematics and science education academic staff train through workshops selected preservice students from their third year cohort undergoing practicum preparation session.

The workshops are aimed specifically to show them how they can integrate technology when teaching mathematics and science subjects. The methodology involves a group of lecturers mounting practical sessions at school levels where they observe teachers use technology then hold post class conferences to improve the practice and address the challenges. Besides the preservice teachers, the project is piloted among practicing teachers from two selected national schools based on gender and locale. For these practicing teachers, workshops on how to integrate technology in their classrooms are held as for preservice but they use HP PC tablets more frequently as they are expected to browse the internet, make academic links to sites with virtual manipulative and use this encounter in their classrooms. Monitoring and post lesson conferences are also held to support teachers efforts and address observed challenges and enhance opportunities.

How to Integrate Technology

Research is the number one reason to use the internet in education. Students have a wealth of information open to them. Often, when they are researching obscure topics, school libraries do not have the needed books and magazines. The internet helps solve this problem. For example students can research on the Pythagoras theorem in Mathematics or the human heart in Biology, the electric bell in Physics or the mole concept in Chemistry. Depending on the level of students, information gathered can be shared during a lesson. At the same time teachers can research on how best to present these topics and identify virtual aids for teaching, access online worksheets on the subjects and identify sites for students extended work. In addition, both teachers and students can use technology to make their presentations. Since the internet is an open source, and due to the large amount of information available online, teachers require to do some advance 'footwork' along with stringent recording requirements for sources, that can help the student determine whether their information is from a reliable source. This is also an important lesson for them to learn for research in school, college and beyond. Opportunities can be increased through the creation of a website where students can publish information they have researched or personally created. Examples of what this page might focus on include solutions to noble problems, information from science fair projects, all these against the major concern of plagiarism and school support.

A newer area of the internet to explore is online assessment. It is possible to create own tests online through own website. It is also possible to access assessment from other

internet sites that are standardized. In the near future, there is expectation that many companies will offer not only online testing but also instant grading of exams. Assessment can be done on the internet. The possibilities for assessment of research on the internet are endless, many of them involving other forms of technology. Some ideas include essays, debates, panel discussions, role play, video presentation of information, web page creation, and PowerPoint presentations.

The Kenyatta University HP projects' needs assessment found problems that were feared would impact on implementation. These concerns concur with similar international research finding that arise when integrating the internet and technology into the classroom.

Concerns

1. Time Objection: Teachers hardly have enough time to do all that is expected of them as it is. Where do we find the time to implement this into the curriculum without 'wasting time'?

Possible Solution: Teachers have to do what works for them. The internet, just like any other technology, is a tool. Many times information can only be passed on through books and lectures. However, if you feel that integrating the internet is important, just try one project each year.

2. Cost and Available Equipment Objection: Schools do not always provide a budget for technology. Many schools don't have the necessary equipment. Some aren't connected to the internet.

Possible Solution: If the school is not supportive or unable to provide technology, a policy approach by the ministry of education can provide the guidance on the issue.

3. Knowledge Objection: Learning about new technology and the internet is confusing. You will be teaching with something you may not completely understand.

Possible Solution: Most schools have instituted an inservice plan to help acclimate teachers to the web. Barring this, there are some online help sources.

4. Quality Objection: Quality on the internet is not guaranteed. It is easy to run a biased and inaccurate website with no regulation whatsoever.

Possible Solution: First, when you are thinking about having your students research a topic, do a search to make sure the information is available. A lot of time is wasted searching for

obscure topics on the web. Second, review websites either on your own or with your students.

5. Plagiarism Objection: When students research off the web to produce a traditional research paper, it is often difficult for teachers to tell if it is plagiarized. Not only that, but students can BUY papers off the web.

Possible Solution: First, educate yourself. Find out what's available.

6. Cheating Objection: There is nothing stopping students from cheating with each other while on the internet, especially if you are giving online assessments.

Possible Solution: First, cheating off of each other has always existed, but the internet seems to make it easier. Many schools make the sending of emails and instant messages against the school code because of possible abuses. Therefore, if students are caught using these during an assessment, they would not only be guilty of cheating but also of violating school rules.

Second, if online assessments are given, watch students carefully because they could switch back and forth between the test and web pages that might give them answers.

7. Parental and Community Objections Objection: The internet is full of items that most parents would rather keep away from their children: pornography, foul language, and subversive information are examples. Parents and community members might fear their children would be able to access this information if given the opportunity to use the internet at school. Also, if students' work is to be published on the internet, it might be necessary to gain a parent's approval.

Possible Solution: Unlike school libraries that have the ability to restrict what is viewed on the internet. Students caught accessing information that is questionable can be subject to disciplinary action. Libraries would be wise to make sure that computers with internet access are easily observable in order to monitor student activity. Classrooms pose a different problem, however. If students are using the internet, the teacher needs to check and make sure they are not accessing questionable material. Fortunately, teachers can look at the 'history' of what was accessed on the internet. If there is any question whether a student was viewing something that was inappropriate, it is a simple matter to check the history file and see which pages were viewed.

Despite all the objections the use of the internet in the classroom, the integration of internet into the classroom provides endless possibilities.

A report by Ron Richmond provides an instruction perspective of the integration of Technology in the Classroom. This report explores issues and concerns relating to the pedagogical uses of the new technologies for learning across the curriculum. There exists appropriate pedagogical uses and potential misuses of technology in the classroom. Within the broader definition of technology, there is a need to move beyond acquisition of tools and ensure the development of technique if teachers and students are to profit from greater access to technology. This report calls for greater support for teachers in learning to use technology effectively in the classroom.

We have the opportunity and challenge to explore the potential benefits of one of the most significant developments in communications since the invention of moveable type. However, planning must ensure that priority is given to the quality of teaching and learning and that educators at all levels understand the pedagogical relevance of new technologies. Although technology has been acquired by schools primarily to support learning *about* technology, it is now possible to consider technology for its potential in supporting learning *with* technology. The latter applications may be categorized according to various types of available software. Each type has different potential benefits and limitations when applied to classroom situations. In preparation for the effective use in classrooms, teachers will need to have a critical understanding of these different types of applications, and be given guidance in integrating the new technologies into their repertoire of teaching skills and strategies. Basic to this analysis is the idea that tool-type technologies are only as effective as the techniques employed in their use. Too often, the emphasis on technology acquisition is to acquire the tools without adequate priority to technique.

Effective use of technology to support teaching and learning across the curriculum has the potential to transform the learning environment. While there are calls to use technology to restructure, there are reasons to view these calls with a critical stance, and to recognize that few blueprints for this type of massive change exist. Rather, there is much experimental use of technology in classroom learning. Many attempts to implement change are locally conceived and are often dependent upon the leadership of certain key educational leaders. While this may be perceived as meeting immediate needs there are reasons to believe that, as a strategy, it is inadequate to bring about the significant and effective change that is possible with the new technologies.

A major weakness of current change strategies for achieving greater learning with technology is the optional 'add-on' nature of most attempts at local change. Typically,

teachers and students engage in classroom learning within an existing system of teaching/learning resources and relevant methods. Adding new technologies to an existing system does not achieve a transformation so much as the addition of more responsibilities for technical creative approaches by teachers. Some teachers will feel comfortable adding technology in their teaching. However, other teachers may perceive technology as demanding too much time and effort for the limited benefits that they perceive will accrue them or their students. If new technology is to achieve an appropriate supportive role for both teachers and students, a plan for systemic change is needed to use technology in a highly integrative way so that both teachers and learners can realize practical benefits of having technology available.

Since local attempts to enhance learning is currently the primary mode of bringing about change, it is important for teachers to understand the pedagogical functions of various types of technology and software. At a basic level, it is possible to distinguish between objectives and activities that focus on technology as an 'end' of instruction, and those that focus on technology as a 'medium' for enhancing learning across the curriculum. In the latter case, there is a need to recognize that certain software applications promote forms of 'direct' instruction. Often these applications (including educational games, simulations, practice activities and tutorials) are easiest for teachers to use and have the potential to provide significant assistance to teachers. In the past, however, many of the products in this category were misused in the classroom and, at times, earned the criticism of more discerning educators. Effective use of software intended for direct instruction has been beneficial in many settings and for many specific uses when implemented by teachers who have a clear understanding of potential benefits and limitations of such learning resources. Other learning software includes the common basic applications, such as word processing and spreadsheets, which serve quite different purposes in the learning environment and make different demands on the creative ability of teachers. Too often, the reliance upon tool-type software in the classroom creates significant demands on the teacher without adequate provision for training and the continuing support necessary for teachers to implement these methods successfully.

Providing adequate support for teachers, both in terms of professional development and on-site technical support, is critical for the effective encouragement of teachers to become active technology-using teachers. A number of issues relate to this process need to be taken into account when developing plans for technology implementation. Planning and implementation strategies that place a high value on a systemic perspective considered essential when addressing the full range of needs and inherent relationships that together create and sustain an effective learning approach.

Finally, it is important to recognize that certain cooperative and commercial approaches to achieving change in the classroom are on the horizon. Such options provide means to develop an instructional model for adoption at the local level. While the options are limited, the trends in the use of technology indicate that standardization and mass utilization of products will affect both cost reduction and quality enhancement. The prospect for use of these approaches seems to be currently in conflict with the strong desire for examination performance. While costs may yet be too high and curriculum content issues continue to exist, it is likely that major solutions to the effective integration of technology throughout the curriculum will be achieved more quickly through collaborative and even certain commercial approaches than through relying upon school initiatives to bring about the desired change.

In this paper the nature of technology is briefly analyzed, together with the nature of teaching and learning, to identify the potential application of technology to classroom learning. Different types of applications to learning are identified together with an analysis of the benefits and limitations of each. The paper identifies and analyzes different perspectives on how change should be approached and implemented.

THE NEED FOR STRATEGIC PLANNING

An important finding by the hp catalyst group is the need for strategic planning when using technology at classroom level. According to Cradler (1996), information usually available on the internet need to be used to make relevant decisions, while being sensitive at the same time to specific local needs and priorities for change. This is because, while educators are often aware of needed improvement in schools, the potential role of technology is not always clear. However, there is a growing recognition that the approach chosen for engaging in technological change has significant cost implications and needs to be approached with both technical and professional insight. Leaders who choose to promote technology need to be aware of the growing body of research findings including those by the Kenyatta University HP catalyst initiative lead planners. Among the findings include the two major problems which characterize technology implementation efforts: 1) lack of clarity about the purposes and processes of implementing technology, and 2) limited understanding about the systemic change necessary for successful implementation. Without effective planning to address such critical concerns, there is evidence that considerable waste in resources associated with technology acquisition and use—a loss that schools can ill afford will occur.

SYSTEMIC' PERSPECTIVE

The concept of 'systemic' change is central to technology implementation. The term emphasizes the complexity inherent in classroom learning environments, the importance of inter-relationships which exist among various components of an instructional/learning system, and the significant relationships that exist between the classroom and the larger organizational and community environment. The complexity and uniqueness of each community require that change facilitators adopt a process of planning and implementation that is open to collaboration with stakeholders. Without such participation, research findings suggest that change efforts have little hope of continuing success. (Carr, 1996)

THE POTENTIAL IMPACT OF TECHNOLOGY

THE NATURE OF TECHNOLOGY

Technology as Tool and Technique

The idea of 'technology' encompasses both 'tools' and 'technique.' In general, a 'technical approach' may mean either an approach that is dependent upon specialized tools, or it may refer to an approach that is characterized by well-defined and systematic procedures.

The integration of the new media technologies into learning environments can be analyzed in terms of both tools and appropriate techniques. Acquiring a tool may be desirable, but learning to use it effectively is of critical importance—a matter that is frequently overlooked in our current preoccupation with acquiring physical hardware.

The Importance of Technique

Learning to use certain computer-based technologies effectively is not always a simple process. A computer, by itself, is of little educational value in the classroom. A computer acquires value only with the addition of software—a program that effectively reconfigures the machine into a highly specialized tool. We can expect that teachers will need dozens, if not hundreds, of programs. Furthermore, each reconfiguration or application is associated with appropriate techniques for its effective use.

Realistic expectations for effective use of computers in the classroom are important. First, some forms of technology will make heavy demands for the professional development of teachers. For example, in the near future, teachers will be expected to have skills with word processing comparable to many secretaries while, in addition, will be expected to guide up to 30 youngsters in learning its use, develop the technological literacy to converse meaningfully about the technology, and be able to trouble-shoot the variety of problems created by novice users who are struggling to achieve skill and competence. Likewise,

effective teachers may be expected to be proficient with dozens of other specialized software packages in addition to word processing—and be skilled in teaching others to use these techniques as well.

Presently, teaching skill in using the existing technologies has been acquired through extended personal experience, the inculcation of teaching methods in teacher education programs with the conventional technologies, and the continuing use of these technologies, will help increase frequency of use.

What has evolved over the years are patterns of professional functioning, dependent upon certain physical technology elements (chalkboards, textbooks, worksheets, writing instruments, and even different types and arrangement of classroom furniture), that define the instruction and learning of teachers and students.

There have been some changes in learning methods. Many teachers attempt to implement cooperative learning methods however, these techniques have been introduced with relatively little demand for new and different hardware-type technologies. But change of methodology—as in the case of resource-based learning—often creates demands for further change in the types and variety of both the tools (i.e., resource materials) and facilities (i.e., resource centres).

Our concept of learning resources now includes a vast range of on-line, immediately accessible electronic resources that will create a new framework for expanding resource-based learning methods. New techniques will need to be acquired by teachers and new facilities will be required to effectively integrate these new resources into classrooms.

While it is true that using word processors, spreadsheets or the new multimedia tools in the classroom will place certain new demands on teachers, there are other computer applications that are sufficiently well designed that first-time users can find the products of immediate advantage in both teaching and learning. The level of sophistication in newer educational software products has largely reduced barriers to effective use. Well-designed software products using the newer graphical user interfaces (GUIs), popularized by the Macintosh and Windows operating systems, create user environments that are highly intuitive, increasingly natural, and potentially 'transparent' to the user. The goal in the design of such tools is for learning to take place in ways that allows users to focus directly on the curriculum ideas being developed with few distractions by the hardware/software tools that mediate the learning.

This review suggests that there are categories of hardware/software applications (for example, many curriculum-specific products) that make relatively few demands upon the technological sophistication of teacher and students. However, teachers need to use their pedagogical knowledge to decide when and how to use these tools for effective learning.

Transformation of Teaching

From a systemic perspective, the introduction of computer-based technologies into schools will have a transforming effect on the roles of teachers and the administrative and physical structures of schools. From a professional perspective, teachers will be expected to add to their repertoire of teaching strategies and methodologies. This is not likely to come easily, since there is seldom much time available for practicing teachers to acquire new skills and strategies. But new tools, without appropriate techniques to use them effectively, render the tools largely ineffective. This systemic change will affect the interrelationships and interconnections in classrooms and schools.

Since in Kenya, many teachers and the larger society are only starting to become aware of the potential of changes underway, technology will tend to be added in ways that makes few demands for substantive organizational change. For instance, we can expect that students will learn word processing to allow them to create their papers and reports in the crisp, attractive form which students themselves, find to be so attractive and motivational. From a curriculum perspective, however, not much may change immediately. Additions to the curriculum will have to be made to include the introduction of some basic computer knowledge and skills, the development of keyboarding skill, and ability to create and manipulate graphic images that may be used to dress up a report. All of these changes are generally regarded as marks of progress. However, research and writing skills likely will not have changed substantially. Technology in this case, may be viewed as peripheral to the basic curriculum processes involved. But the potential to bring substantive change to the educational scene through technology starts with activities of this type.

The 'intelligence' of computer- and communications-based technologies now promises to add significant value to the learning process. The new technologies can create a strong impact on the ways learners engage in the perceptual, communicative and intellectual domains of schooling activity. The potential of the computer as a 'mind machine' promises to do for the 'knowledge industries' what earlier forms of machines have done for industries that relied on physical labour.

THE EFFECTIVE MANAGEMENT OF TECHNOLOGY IN CLASSROOMS

The Hp catalyst lead can confidently state that technology is a phenomenon that can and must be shaped and controlled to meet real needs. However it must be understood, however, that change is the product of collective personal and social decisions and actions. If technology seems to take on a life of its own, it is because heavy investments are frequently required to implement new systems and, once they are in place, there is no turning back—the new system must be used. Problems also arise due to the 'unintended consequences' which invariably become evident after new systems have been adopted. There are frequently many positive details about an existing system that are taken-for-granted—details that are not fully understood and appreciated, at least not until it is no longer available. The introduction of new systems, often perceived to be so glamorous and convenient when promoted, often have hidden flaws and short-comings that frequently lessen the enthusiasm of adoptees at later stages.

While there is an important role for critical analysis of trends involving the new applications of technology, it is also important to balance this stance with a critical assessment of prevailing instruction and learning practices. This balanced examination of both new and old systems is necessary to determine what needs to be preserved and what needs to be replaced. The current system is highly deficient in many ways; we have become conditioned to accept its limitations and too often rationalize its lack of success, for example, failing in mathematics and science subjects has for long been accepted as the norm

While change, for the sake of change, is clearly foolhardy, clinging to the familiar and the routine will jeopardize effective learning on the part of many students. While a conservative approach to change may be a pragmatic stance until the advantages of change are evident, there comes a time when a conservative response must be classified as reactionary and possibly even professionally irresponsible.

Our common experience with technology is that we can do more—better and faster. Even a book is a far more efficient form of participating in story-telling than is the more 'natural' and intensely 'human' methods of past storytelling. While few would deny the beauty and appropriateness of traditional story-telling, we recognize the advantage of capturing stories in media form—experiences in an accessible and convenient form. The new technologies create a similar opportunity to break the conventional molds of teaching and learning practices. They are following the same trends that we learned to with books to new levels of sophistication, interaction, and accessibility.

Many opportunities to use sophisticated technologies is evident as students expect and even thrive on increased access to technology in the school environment. Many of the computer-based applications, from word processing and Internet browsers to graphics

programs and other multimedia development software, represent powerful tools that provide learners with opportunities for creating something intensely personal. Other forms of technology, such as many of the interactive learning programs, are highly structured and designed to simulate the role of the tutor in one-on-one interactive learning contexts. But even within these highly prescribed forms, students have unique opportunities to enjoy flexibility and quality of learning that exceeds what is available in traditionally structured, teacher-centred learning environments.

Teachers, too, need support in discovering the empowering benefits of technology. Too often novice users of the newer technologies are intimidated by the required discipline to use the new technology effectively. This phase of learning seems far removed from the feelings of empowerment that technology often promises. When technique has been mastered, however, through structured professional development experiences and adequate practice, the technology will become a commonplace extension of the teacher's personal capability—in a manner not unlike our use of telephones or the driving of our cars. Technology has the power to multiply the effectiveness of teacher time and energy directed at teaching and learning.

One of the major setbacks in the HP Catalyst project initiative is the infrastructure. Structure in any environment creates an arrangement of freedoms and limitations that both enable and restrict. This new learning technologies are celebrated for their ability to convey information in multimedia formats, with little delay, and with greater access to vast stores of information. To achieve these 'freedoms,' however, an infrastructure of hardware and software technology must be in place, all configured according to high degrees of technical conformity to industry-wide standards and conventions. Indeed, many of the 'high-touch' benefits are found increasingly to be achievable through 'high-tech' environments.

The key to optimum technology integration is to provide the appropriate freedoms conducive to effective learning within technology structures that are ideally designed to support such teaching/learning activity. Unfortunately, the classroom market in the past has not been lucrative enough to entice the media industry to respond with quality products for classroom use. Even the production of educational software, especially those products identified as 'edutainment,' has been developed primarily for the home market. Educational versions of many software products have appeared to be 'afterthoughts' with only minimal efforts expended to truly create a product for effective use in classrooms.

The development of quality products for the school market is an expensive process that requires a huge potential market. That market is now under rapid development and expansion. Indeed catalogues of software products for schools are burgeoning with new

titles. It seems that high-quality products will continue to be developed for use in schools in the future. Existing products in Kenya require extensive improvement even for local market consumption.

In adopting technology there are significant pitfalls to be avoided, and the motives of proponents for change need to be understood and frequently countered. As with mobile phones and other technologies with which we are familiar, computer-based technologies are too often adopted as adornments and status symbols rather than acquired simply for their functional value. There is little reason, for instance, to equip labs expensive Pentiums for the purpose of providing practice in keyboarding or providing opportunity for text entry if a notebook-type machine can perform essentially the same functions. Close attention needs to be given to the functional value of acquired equipment.

MAINTENANCE AND REPLACEMENT

During periods of improvement and change, technology becomes obsolete rapidly. It seems that the rate of change of computers appropriate for classroom use is leveling off and the periods for effective use of equipment can be extended before obsolescence sets in. While advances continue to move ahead on the networking fronts, currently PCs clearly have more than enough power and capability to meet most of the interactive needs of classroom learners for many years to come. HP catalyst initiative provides state of the art PC tablets and workstations, whose function can be relegated to social status and miss out on the numerous functions that they can serve at the classroom level.

CONSIDERATION OF SYSTEMIC SOLUTIONS

A SYSTEMIC APPROACH

A systemic approach to planning and implementation of change is quite different than supplying a teacher with a few computers and closing the door. It attends, rather, to the whole picture or environment for change. The following questions are intended to stimulate systemic planning:

Physical needs. Are the physical facilities conveniently available? Are they configured appropriately for the age/size of the learner?

Technical needs. Has the equipment and software been appropriately installed, tested, and maintained? What help is available if the system fails? Are there levels of backup assistance available, so that if the first attempts to correct problems fail, there is another level of

assistance to which the teacher can turn? Has the teacher and related support personnel been given appropriate training in the functioning of the system?

Pedagogical needs. Has the teacher been given adequate support in identifying the generic uses of various types of curriculum-based software? Have specific learning objectives been clarified for various uses of a specific software product? Also, for a given software product, have expectations been defined to guide teacher activity prior to the hands-on student use, during use, and following student use of the technology? What resources are suitable to complement the computer activity? To what extent is it necessary to monitor individual achievement of intended learnings?

Instructional resource support. Have efforts been made to provide supporting print materials or other reference materials to teachers to facilitate the implementation of technology-based activity? Is there a need for printed reminders for students on correct procedures? Is there a need for detailing tasks to be performed by students and criteria for acceptable performance?

Monitoring/Evaluation resource support. Are there suggestions or other means supplied that will provide convenient monitoring of student time on the tasks, performance achieved, need for further time/practice/mastery? Are procedures in place so students can engage in the activity independently, or with a working partner, until learning expectations are achieved?

The difference between good planning on the part of a teacher, and the implementation of a systemic approach to program delivery, is the degree to which the organization attends to implementation details, utilizes proven practices and provides effective support to teachers. The need for effective support is increasingly viewed as critical to the emergence of quality schooling practices.

ADVANTAGES OF SYSTEMIC INTEGRATION OF TECHNOLOGY

As identified earlier, a 'systemic' perspective on change in the classroom represents some of the most effective approaches to planning for, and guiding the implementation of, new technologies in support of learning. For instance, asking teachers to simply 'add-on' additional technical enhancements to their existing classroom practices may provide an appropriate challenge for some teachers, but, 'add-ons' are frequently perceived to be 'options.' They may be tried for a time, then discarded. For lasting effect, appropriate ways and means must be found to integrate technology into the teaching and learning environment so that instructional and management demands on teachers can be reduced.

There is a tremendous need in many classrooms for teachers to have more time—not less—to interact at the personal level with individual students. Although technology has provided labour-saving benefits in most environments where it has become established, we must be realistic in assessing the work-load effects of technology on teachers if we expect the new technologies to be accommodated by them.

THE ROLE OF TECHNOLOGY IN THE CLASSROOM

REASONS FOR ACQUIRING TECHNOLOGY

To clarify the instructional functions of technology in schools, a primary distinction can be made between:

- technology as an objective of instruction, or an 'end' or goal to which learning is directed, and
- technology as an enhancement to learning methods, or a 'means' by which learning can be facilitated across the curriculum.

Until recently, the primary reason for computers in schools has been to learn *about* and learn *how to use* the technology. The HP catalyst initiative projects' priority is on integration of technology into general classroom learning which involves using technology as a means by which learning of objectives across the curriculum can be facilitated and is commonly described as learning *with* technology. This category of use differs significantly from the first. Teachers use both 'curriculum-free' and 'curriculum-specific' software that conforms in difficulty level and content to the established curriculum.

The focus on learning *with* technology includes at least the following:

- use of 'curriculum-free' programs such as the common tool-type applications (identified above) for exploring ideas and relationships with data; engaging in problem solving, locating, organizing data and presenting information; creating reports of various types
- use of the Internet and CD-ROMs to access information
- use of 'curriculum-specific' courseware of the following types:
 - educational games
 - practice activities
 - simulation
 - tutorials.

In order to integrate technology in the classroom, Learning both *With* and *About* technology is needed. The two different emphases on technology may be integrated to a degree in the classroom. This integration is achieved in different ways at different grade levels. The Ku HP catalyst initiative focuses on secondary education . At primary level s children can benefit from the interactivity of using the computer as a kind of teaching machine. In a game-like activity, children can practice identifying shapes and attributes of figures, recognizing numbers and letters, and performing simple mathematical operations—sometimes through simulated manipulation of objects. At secondary school level, the integration of technology at both ends and means occurs with the use of the common tool-type programs (word processing, etc.).

A summary of the types of activities that characterize learning *about* computers and learning *with* computers and those that attempt to integrate both, is summarized in Table 1 below.

COMPUTER-MEDIATED LEARNING: PRACTICES AND ISSUES

The Nature of 'Mediated Learning'

The use of computer-based media for instruction and learning is sometimes referred to as 'mediated learning.' This describes situations where the primary learning stimulus for engaging students is not provided by the teacher, but is provided at least to some degree by the computer software.

Curriculum-Specific Learning Software—Direct Instruction

In the case of computer-based practice and tutorial programs, the software is designed in most cases to provide a linear sequencing of information, questions, feedback, answers, and so on, much as the teacher would do one-on-one with the learner. Sometimes the term 'direct instruction' is used to classify this type of teaching whether structured by the teacher in a conventional classroom setting, or whether structured in the form of a computer program.

In this type of learning software, there may be varying freedoms for the student to select and terminate lessons at will, but their role is typically that of a reader, possibly a listener, and definitely a responder. If student responses are consistent with those deemed acceptable by the teacher/author of the program, students will be judged positively on their responses and often receive some type of feedback or grading on their performance.

These are the types of programs that are increasingly integrated with a database of performance objectives. As students proceed through the curriculum, their progress can be

recorded and tracked. Students can proceed at their own rate. Where these approaches are appropriate, research findings indicate that learning may not necessarily be better than that achieved by conventional classroom approaches, but learning is often achieved in less time. (Geisert & Futrell, 1995)

A number of the more popular types of curriculum-specific learning software are analyzed for their perceived benefits and limitations in Table 2.

Curriculum-Specific Learning Software—Indirect Learning

Another form of curriculum-specific software includes simulations and programs like Logo. In these cases, students operate in an environment with freedom and choice. Using simulations, learners may choose to make good or bad decisions from time to time, and the program will respond with consequences that simulate reality. In this way students may learn from their mistakes, but in quite a different manner than most linear practice programs that respond immediately with an evaluation of user input.

Table 1. Types of Computer Uses in Schools

Levels	Learning about computers	Learning with computers	Integrated activities
Primary	<ul style="list-style-type: none"> - develop positive attitudes/confidence through fun-type activities - develop awareness of keyboard/mouse operations - start some formal instruction in keyboarding 	<ul style="list-style-type: none"> - game-type learning activities to reinforce verbal, mathematical, and general skills such as making visual discriminations 	<ul style="list-style-type: none"> - use of a variety of curriculum-based software and simple creative tools designed especially for this level
Intermediate	<ul style="list-style-type: none"> - extend understanding of basic operations and develop basic vocabulary to communicate about computer-based activities - develop proficiency in basic operations of simplified word 	<ul style="list-style-type: none"> - use a variety of recommended computer-based interactive learning programs that are appropriately matched with curriculum learnings; use a mix of computer-based activities together with other activities to 	<ul style="list-style-type: none"> - Use programs such as LogoWriter to develop some basic concepts of number and geometry while developing a sense of computer programming · extend graphics capabilities, file

	<p>processors, and graphics programs</p> <ul style="list-style-type: none"> - develop proficiency in word processing to 20 wpm - develop skill in navigating multimedia environments 	<p>develop and consolidate learning</p> <ul style="list-style-type: none"> - use well-defined learning objectives appropriately structured in progressive steps to identify suitable learning goals for students as a group and individually; monitor individual progress with computer-based records of mastery objectives. 	<p>management and creative expression through the development of HyperStudio stacks</p> <ul style="list-style-type: none"> - explore topics of curriculum and personal interest through use of CD-ROM and Internet access; create reports by accessing and documenting sources of information located in these media
Secondary	<ul style="list-style-type: none"> - establish basic expectations for all students in the practical uses of technology - ensure that all students develop the vocabulary of technology use—both concepts and correct terminology—as appropriate for technology in use - provide opportunities for specialized courses in technology 	<ul style="list-style-type: none"> - acquire a range of recommended curriculum software as resource materials in support of curriculum areas - consider acquisition of complete media-based course materials in cases where conventional instructional support may be lacking or over-committed 	<ul style="list-style-type: none"> - encourage use of spreadsheets and database programs in addition to word processing and graphics programs for exploring relationships among data elements - use the Internet to critically assess various points of view and assess validity and biases of different sources of information

A program of this type is generally considered an example of an 'indirect learning' approach. It is often favoured by teachers because such approaches tend to provide a larger and more realistic context for learning. It also places the learner in a more active role, with greater freedom for the learner to make decisions.

Logo is a kind of interactive environment in which a student learns to control a simulated turtle that can be directed to different positions on the screen, creating a track as it proceeds. Learners can be asked to create a geometric figure of certain size or shape. They may respond by doing this in any number of ways. The task is generally presented as a problem, and learners develop certain problem-solving skills in coming up with a solution that works.

Table 2. Curriculum-Specific Learning--Examples of Direct Instruction

Types	Benefits	Limitations	Concerns
Educational games	<ul style="list-style-type: none"> - usually enjoyable by students; may support positive attitudes - some are well-designed and potentially very effective 	<ul style="list-style-type: none"> - entertainment value often detracts from learning value - often sound, animation and competitive nature render learning value questionable 	<ul style="list-style-type: none"> - evaluate usefulness on knowledge and skills involved - be sure learner is ready for this type of practice and is within appropriate range of challenge.
Practice activities	<ul style="list-style-type: none"> - useful when massed and distributed practice is beneficial - valuable for consolidating skills and some verbal learning 	<ul style="list-style-type: none"> - too often used to teach rather to practice - program are often low-cost, poor quality and are used inappropriately or over-used 	<ul style="list-style-type: none"> - use where level can be adjusted to match child - choose where record of individual performance can be recorded
Tutorial lessons	<ul style="list-style-type: none"> - generally of value to more mature students - may provide an alternative means of learning/review - supports individualized progress approach 	<ul style="list-style-type: none"> - often found to be boring if not used in a mix of approaches - content often differs significantly from textbooks and other in-class approaches 	<ul style="list-style-type: none"> - may have value where individualized approach is required - short tutorials are often integrated into practice programs - select with care; quality is often an issue

This, too, is an example of indirect learning. The task to be achieved does not depend on any one particular procedure that might be memorized. Rather, different procedures can be attempted with a variety of potential learnings to be achieved along the way.

In both of these settings, there is an active role for the teacher, but in terms of direct interaction with learners, it is significantly reduced. Most of the learning that takes place is dependent upon feedback provided by the program. In both types of programs summarized here, the computer assumes many of the interactive functions that teachers would provide

if they were available one-on-one with the learner. The use of these programs can have a significant role in improving the amount and quality of engaged learning time for students while actually freeing up the teacher to engage in other teaching functions within the classroom.

A summary of the benefits and limitations of the more popular types of curriculum-specific learning software that exemplify indirect instructional methods is analyzed in Table 3.

Allocating Resources for Mediated Learning

In the past, extensive use of technology as a *means* of instruction and learning has suffered from a lack of adequate computer facilities. With continuing cost reductions, this situation is changing.

Table 3. Curriculum-Specific Learning Software--Examples of More Indirect Instruction

Types	Benefits	Limitations	Concerns
Simulations	<ul style="list-style-type: none"> - can be used for discovery-type learning - often used as a culminating activity after basic learning has been achieved 	<ul style="list-style-type: none"> - there are not a lot of good simulations out there; difficult to design - too much reliance on discovery will be counter-productive 	<ul style="list-style-type: none"> - important to be realistic about the need for advanced teaching in the basic concepts and relationships - be sure the model used adequately reflects reality
Logo (math, geometry, programming)	<ul style="list-style-type: none"> - strong on problem-solving and 'learning by doing' - can be used effectively to explore many geometric concepts and relationships 	<ul style="list-style-type: none"> - range of challenge issues; too often task is too difficult - promise of developing generic problem-solving skills has not been realized; some advocates are now questioning its value 	<ul style="list-style-type: none"> - limited and periodic use is probably most beneficial when learning goals are well defined - can be used well with some students who are more self-directed and need some challenge and enrichment

While resources have been in short supply, it is common for these learning resources to be allocated to special education needs in schools. Specialist teachers in this area are frequently committed to checking for mastery of basic knowledge and skill components that are prerequisite to higher-level learning. Through 'direct teaching' methods and the provision of a variety of practice activities, these fundamental building blocks are developed and established through intensive one-on-one interaction with learners.

While mediated learning provided by computer interaction is only one of a number of methods used in such settings, the novelty of using a computer, and the immediacy of feedback to learners, can provide a series of effective learning activities for many students.

Implications for Teachers

New applications promise teachers instructional support and have the potential to off-load the increasingly heavy classroom burden. Their judicious use in the classroom provides for a range of electronic learning resources that can be increasingly seen as alternatives to teacher-directed lessons and common seat work. Use of these programs does not signal the automation of teaching and learning within the classroom as feared by some, but rather represent possibilities for various degrees of sharing of the instructional role.

To use curriculum-specific technology to best advantage, teachers need a renewed professional understanding of the potential role of technology as a medium for learning and a renewed understanding of the teaching methodologies and strategies that must now accommodate various types of technology integration across curriculum areas.

Teachers may be inclined to approach these new applications with skepticism. While a critical stance is to be encouraged, we must avoid the assumption that a given product must provide 'all things to all children.' In contrast, teachers who find value in many of the new products are critically aware of the potential benefits and short-comings of a particular product. Some of the pros and cons of different software types were outlined in Tables 2 and 3.

Indirect teaching methods are increasingly popular in the classroom. Imbedded in these methods are activities that address specific learning needs. However, rather than separating out the knowledge and skill components into discrete activities that are disconnected from larger, meaningful contexts, indirect methods attempt to create larger, meaningful contexts within which the learnings are found to be practical and useful.

Contextualized learning involves projects of some type and provides freedom for students to pursue their own interests within acceptable bounds. As much as possible, projects and activities are suggestive of real-life activities, if not directly connected themselves to real-life. Structuring activities and orchestrating them to optimize learning for students remains one of the great challenges that occupy the planning time of creative teachers. These methods provide opportunity to engage learners in ways that are highly interesting, practical, and personally meaningful to students. When motivation can be sparked through creative activities of this type, learning is thought to be more natural and the learnings acquired to be of greater personal relevance leading to better understanding and retention.

As much as current pedagogical methods have championed the more indirect methods of learning, most teachers find exclusive use of these methods limiting. When the methods are balanced with other more direct teaching methods, they have considerable benefits for learners. A mix of methods is considered appropriate so that methods match the learning needs of students and the characteristics of the learning objectives prescribed by the curriculum.

Indirect learning resources available in computer-based format include use of both the curriculum-free applications, and programs that are focused to a degree in a particular curriculum area.

Choosing the most effective method may have a lot to do with how well students are motivated to focus attention on an activity. In this example, the group-learning environment may create a social environment that can capture student interest and engagement more effectively than would be the case when students are expected to work independently. On the other hand, two students might be encouraged to view a learning program of this type together in an environment where a teacher/mentor circulates among learners, talking with them while they engage in a variety of interactive learning activities. The methods of ensuring learner engagement would certainly be different, but it is not immediately evident that one approach would be better than the other.

If creative teaching methods using such computer applications as word processors, spreadsheets and graphics programs provide one range of technology use in the classrooms, at the other end of the spectrum lie a range of highly-structured and thoroughly programmed alternatives that are known as integrated learning systems (ILSs). Such commercial systems typically come with a full suite of software that spans an entire curriculum and includes tutorial, practice, testing and record-keeping activities. Between these extremes, however, lie a variety of software products and teaching strategies for infusing the learning environment with technology.

The potential introduction of technology into the classroom can take a variety of forms. Some may be perceived to be labour-saving, others may actually demand more time and effort on the part of teachers than conventional methods. Some may facilitate very creative activities under the control of the teacher or students, others may be much more structured and prescriptive. In every case, teachers will want to be involved in choosing the type of electronic resources that suit their particular situations.

Teachers need to adapt to the presence of technology in the classroom if they intend to enjoy the benefits. This will often require basic changes to the teacher's role and an upgrading of technical competencies to enable teachers to appropriately select, adapt, and structure suitable experiences for learners. Without an enhanced understanding of how technology can and should be used in the classroom, the addition of technology of itself is not likely to achieve anything like the desired results.

The largest unmet need for professional development to date is the need to address the instructional strategies required to integrate technology across the curriculum. It is precisely this need that must be met if the rapidly increasing expenditures on technology are to be effectively translated into effective learning environments for students.

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AN INVESTIGATION OF UTILIZATION OF TEACHING TECHNIQUES THAT ENHANCE INTEGRATION OF THE FOUR BASIC ENGLISH LANGUAGE SKILLS IN SECONDARY SCHOOLS IN KENYA

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Abstract

English language in Kenya is taught as a second language and it is also the country's official language, as well as the language of instruction (LOI) in secondary schools. It is through English that all the other subject contents are taught and examined (except for other languages). This scenario implies that proficiency in the LOI is essential if learners are expected to advance to institutions of higher learning for tertiary education. The four basic language skills that were of interest in this study are listening, speaking, reading and writing; grammar and vocabulary are embedded in these four. These skills are expected to be integrated during the actual classroom teaching. Performance in English language in Kenya Certificate of Secondary Education (KCSE) examinations (terminal secondary school examinations) has been going down, year after year. There was a need, therefore, to find out if teachers used the integrative approach when teaching English. Use of teaching techniques that promote integration of language skills is expected to improve language learning. The study was conducted in ten secondary schools in Gatundu district of Kenya. The sample comprised 20 English language teachers who teach Form three students and 10 Heads of English department. Instruments for collection of raw data were a questionnaire, a classroom observation schedule and an interview schedule. The SPSS program was used to analyze the generated qualitative data, which were presented descriptively using basic statistics. Research findings showed that most teachers found integration of language skills during teaching, a challenge. Classrooms were teacher-centered rather than learner-centered. A negative backwash effect was evident as 80% of the teachers said they ignored listening and speaking skills as they are not tested in KCSE examinations. Conclusions have been drawn and recommendations made.

INTRODUCTION

English language can be looked at as a system and like all systems, it has elements that have to work in harmony for the intended objectives to be realized. The system comprises three subsystems namely, Pronunciation, Grammar and Semantics/meaning. These three are further divided into sub-subsystems as follows: phonetics/phonology, morphology, syntax, lexis and discourse. These elements are taught through the four basic language skills of listening, speaking, reading and writing. Grammar is normally seen as a central element in the language system and together with vocabulary, is embedded in the four basic language skills. Teaching of listening skills, both auditory awareness and visual observation are important in enhancing understanding. Listening is the process by which language is converted to meaning in the mind, (Lundsteen, 1971; Floyd 1985). The learner should also be able to critically examine what is heard (Gigous, 1996; Dangerfield, 1991). Competence in the speaking skill encompasses knowledge of the sounds and the way they are combined to form words, phrases, clauses and sentences. An utterance should be a meaningful unit. According to Haycraft (1971) a proficient speaker should have appropriate speech flow, using proper stress, intonation and sound linking. These involve ear training and sound identification. Competence in the speaking skill encompasses knowledge of the sounds and the way they are combined to form words, articulation and fluency (Rod, 1997). The main goal of teaching speaking skills is for the learners to attain communicative competence (Groenewegen, 2008). Proficiency in reading has been identified as one of the most reliable indicators of whether a learner will attain competence needed to achieve academic success. Access to most of the information is through this skill. Ability to read various genres fluently and with understanding should be one of the main goals of learning English (Gathumbi and Masembe, 2005; Bailey, 1991). Stern (1983) argues that reading widely helps learners to develop a word bank of vocabulary and exposes them to new ideas and sentence structures that are used later to communicate both verbally and in the written form. Ability to read is part of education for life (Adams, 2001). Lastly, writing is more than putting words on paper. It's the final stage in the complex process of communicating that begins with conceptualizing an idea, thinking about it and putting it down on paper. Writing skills avail the learner the means through which the exposition of ideas and responses to given tasks can be carried out. Cummins (1996) and Wells (1989) say writing depends to a large extent on the writer's knowledge of the language. Writing is used deliberately as a tool for thinking. It is seen as a permanent way of recording and communicating information and ideas. Proficiency in writing is important as all examinations are taken through this skill. By engaging in cognitively demanding listening, speaking, reading and writing activities, the learners develop the expected English language proficiency levels.

Teaching of English is both a complex and demanding profession. For one to be said to know a language, s/he should be proficient in all the skills needed to communicate in that

language. In the academic field, a learner is expected to be able to communicate both verbally and in the written form. This is the ultimate goal of English language teachers and learners. In Kenya, since the introduction of the 8-4-4 system of education in 1985, English and Literature were combined to be taught as one subject. This means integration of language skills would also involve using literary materials in teaching English. An example of a lesson where the basic language skills are integrated would start by having learners discuss a topic or respond verbally to given questions. This activity would culminate in a writing exercise where learners are asked to write what they have discussed. Alternatively, after the verbal interactions, learners could be given a passage or other related material to read. This activity could end by having the teacher give the learners a writing exercise related to the previous activities. It is important to note that integration of language skills does not mean all the skills have to be integrated in every lesson. It can involve, for example, integrating three of the four skills in one lesson (Gathumbi and Masembe 2005). Teaching and learning of Literature in schools is one of the ways a teacher can teach integration of language skills. Teaching language through literature should be pleasurable, and should also involve acquisition of knowledge and language skills. A teacher who wishes to impart knowledge and skills is likely to select teaching methods which lead to active involvement in reading literary texts. The texts selected are usually emotional and experiential, instead of those that encourage passive reception of information about texts. Activity-based, student-centered approaches are encouraged (Groenewegen, 2008; Harmer, 2007; Byrne, 1988)

All over the world, societies change in response to new innovations and knowledge gained, technological developments, globalization and to be in tandem with the educated populations. Curriculum changes in the countries are putting increased emphasis on the teaching subject knowledge, so that students will have the ability to respond to this fast changing modern environment. The aim of teaching language is, therefore, to open up its resources to the learners so that they may find the right words and sentences to convey the meaning intended. This ability is required, more so in situations where that language is the language of instruction. With all these demands, teachers are in the forefront of such change of policy, responding to new demands made of them in terms of both their knowledge and the way they teach (Dangerfield, 1991). This is the case with the requirement to integrate English language skills during their teaching of English, at the secondary school level. However, teaching techniques and activities used hardly enhance the integration in the development of English language skills in the learners.

This paper presents the findings of a study conducted to find out whether teachers were integrating the four basic language skills of listening, speaking, reading and writing, during the actual teaching, as key to learning a language. It also investigated whether teachers

were adopting teaching techniques that enhance integration and development of these skills in the classroom.

The study is important in the sense that performance in the summative national examinations (KCSE) has been going down. The Ministry of Education (2006) states that language skills should not be taught in isolation. It was imperative that research be conducted to investigate various aspects of language teaching and learning, to be able to identify the problem. This study is timely as it is an attempt to find out whether teaching in the classrooms could be contributory to the poor performance. The table below shows how performance in English in KCSE examinations has been going down for the last five years.

ENGLISH LANGUAGE MEAN GRADES FOR THE LAST 5 YEARS

YEAR	ENGLISH MEAN GRADES
2010	38.91
2009	39.26
2008	33.79
2007	39.70
2006	39.77

Source: KNEC KCSE Performance Data

METHODOLOGY

This study was based on a descriptive survey design which uses qualitative approach in data collection. However, some basic quantitative techniques such as frequency counts, percentages and means were used to analyze some of the obtained data. According to Mason (1998), use of quantification in form of basic statistical analysis in a qualitative research, should not be seen as central to the study. Creswell (1994) argues that qualitative data analysis is viewed as an alternative to quantitative data analysis.

Triangulation was used in data collection by using three research instruments namely: a questionnaire, a classroom-observation schedule and a structured interview schedule. These were used to obtain both qualitative and quantitative data. The questionnaire was administered to 20 English language teachers who did not participate in the lesson observation. The interview schedule solicited data from 10 heads of English department. The classroom observation schedule was used once during each of the regular class times, in the 10 sample schools, to record instances of uses of teaching techniques that enhance integration of language skills. The sample comprised people who are responsible for the day to day running of the classrooms, as well as ensuring the set learning objectives are attained in each sample school.

Questionnaire and interview data were analyzed descriptively as well as by using descriptive statistics like percentages and means. Observation data were obtained by getting percentages of frequency counts of instances of occurrence of identified teaching techniques that promote integration of language skills. The SPSS computer program was used to analyze the generated data, which were presented descriptively, as well as through use of basic statistics.

THE FINDINGS

Results showed that the sample of English language teachers involved in the study were professionally qualified as all of them had a Bachelor of Education degree. However, a large percentage (80%) did not provide sufficient teaching techniques that enhance integration in the development of the four English language skills. The provision and integration of listening and speaking skills in teaching, which is a natural way of developing any language, were wanting just like in reading and writing skills. Results also showed that teachers dominated and controlled their classroom as 80% used the lecture method. Almost the same number (70%) of English language teachers did not integrate the four English language skills when teaching. Although language exercises and assignments were given, which gave a chance to students to participation, they were basically designed by the teachers with no involvement of the students. When teachers were asked why they were not integrating the language skills in their teaching and the majority of them said that the classrooms were congested. The time allocated to complete the syllabus was inadequate to cover all the skills if they were integrated during teaching. One may not know how far to go in order to integrate and at the same time cover the syllabus within the required period of time. This is because the syllabus and the textbooks are not quite clear about how to tackle this issue in the classroom. Other teachers (40%) said that they were not trained how to integrate the skills during teacher training. Out of ten (10) teachers observed, only two (20%) integrated the language skills, while the majority, (80%) did not. It was, therefore, concluded that the majority of teachers do not deliberately emphasize integration of language skills when teaching. They also said they find listening and speaking skills difficult to integrate. Classroom observation data showed the majority of teachers were not consistently integrating the skills. This could be one of the factors that are hampering the development of English language skills among secondary school learners.

The negative backwash effect could also have contributed on the learners and teachers attitude towards teaching and learning listening and speaking skills. These two skills are not assessed during the final national Kenya Certificate of Secondary Education (KCSE) examination due to logistical problems. The examination is administered after four years of

study in secondary school. It is greatly valued by both teachers and students as it determines those who proceed to the university and those who don't. For this reason, teachers have, to a great extent, ignored teaching of these two skills, and placed great emphasis on the skills that will be tested. This could also be one of the probable reasons why performance is low.

CONCLUSION

Emanating from the findings discussed above, the following are the conclusions:

- a) The sampled English language teachers were academically and professionally qualified, and had long teaching experience. It was, therefore, expected they were well versed with the integration of English language skills, and they would adequately utilize appropriate teaching techniques to enhance integration of language skills during teaching. However, the majority said they were not adequately trained how to integrate the skills, as there was much content and skills development to cover within a limited period of time of one semester.
- b) The Heads of English Department were mature teachers of English in terms of age, with a bank of experience. They were expected to ensure English language teachers under their mentorship, employed appropriate teaching techniques. This was not found to be the case as they said they found it difficult to monitor the performance of their counterparts.
- c) Listening and speaking skills were found to pose challenges to teachers. They claimed the two skills were the most difficult to integrate and in most cases, they ignored them during teaching. The mode of examining learners during, and at the end of the course has also caused a negative backwash effect. Acquisition of these two skills is not assessed at the KCSE examinations, given at the end of the secondary school cycle. Consequently, teachers do not give much attention to them, causing poor performance. Learning of any language, whether formally or informally, starts with learning of these two skills.
- d) Teaching techniques that enhance integration of the language skills such as, group work, dramatization, simulation games, language games, discussions, role play, debates, controlled and uncontrolled writing, were inadequately incorporated in the teaching.

- e) English language teachers continue to use predominantly expository techniques while learner-centered methods like the ones above are not being used in the teaching.
- f) The lecture method was the most frequently used mode of teaching by the majority of teachers. This method should be used sparingly in a language classroom, only when passing on information that students do not have. It does not enhance integration of language skills in the classroom and it makes students passive listeners or passive recipients of knowledge. Teaching of any language requires utilization of all the skills through interaction between learners and between learners and teachers, to improve both receptive and productive skills.
- g) The teachers felt that the allocated time to teach English was not enough to enable them to teach it effectively. Resource materials were also inadequate. Due to these factors, they could not use the recommended techniques or improve some resources to enhance integration in the development of language skills.

Recommendations

The conclusions drawn from the findings of this study have prompted the following recommendations:

- 1) Teachers should offer students a range of activities which incorporate and promote implicit and explicit processes; these would improve development of the four language skills in the learners.
- 2) In-service training of practicing teachers should be conducted to create sound grounding in the use of English structures, as well as acquisition and utilization of language skills, to be able to communicate competently in various situations. The training on the use of these skills should be carried out using methods that promote integration of language skills.
- 3) Constant monitoring and evaluation, coupled with frequent in-service training courses, workshops and seminars should be carried out with the assistance of Quality Assurance and Standards Officers. This should become a common feature in the teaching of English language since it is the central means of ensuring the teaching techniques that enhance integration and development of language skills are effective.

- 4) Participatory teaching methods and the current trends in language teaching should be adopted by the Kenya Institute of Education (the national curriculum development center), so as to update the current English language curriculum and recommend such changes to textbook writers.
- 5) Teachers and other stakeholders in education should engage in further research to find out what other factors may be causing the poor performance in English language year after year, as demonstrated in the table above.
- 6) The Ministry of Education personnel should constantly conduct monitoring and evaluation on the delivery of content and use of teaching skills, in a larger national sample. This would help to shed light on the mode of delivery of the content in the syllabus. This would be undertaken with a view to providing strategies for addressing the challenges teachers face in delivery of the content through integration.
- 7) Methods of training English language teachers should be revisited to ensure trainees are well aware of how to teaching through integration of language skills. A high percentage of teachers said they felt challenged whenever they try to teach using the integrated approach.
- 8) Extra time allocation on the timetable with increase of demands of the teacher of English to teach and assess the oral skills. It would suffice to allocate more time to English lesson from eight to nine lessons in a week in order to give integration of skills more (especially speaking and listening) attention.

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SELF-CONCEPT, SOCIAL SUPPORT, GENDER AND FAMILY STATUS AS FACTORS OF JUVENILE DELINQUENCY AMONG SECONDARY SCHOOL STUDENTS

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Abstract

Using an ex-post facto descriptive survey research design, this study investigated self-concept, social support, gender and family status as factors of juvenile delinquency among secondary school students in a local government, in Ogun State, Nigeria. A total of 200 participants were randomly sampled for the study; 91 (45.5%) were males; 109 (54.5%) were females. 115 (57.5%) were Christians; 85 (42.5%) were Muslims. 39 (19.5%) were from single parent family; 62 (32%) were from monogamous family and 96 (48.0%) were from polygamous family. Validated scales were used for data collection and four hypotheses were tested. Three of the hypotheses were rejected because they were not statistically significant and only one was accepted. Gender ($t = -2.10, df=198, p>.05$), Social Support ($t = -2.10, df=198, p>.05$), self-concept ($t = -2.10, df=198, p>.05$). Family status ($df = 2, ms = 81.57, f = 6.14, p < .001$). It was thus concluded that family related issues are more responsible for the manifestation of juvenile delinquent behaviours and psychologists as well as counsellors should begin to focus more on this, in order to be able to reduce and possibly eradicate juvenile delinquency among secondary school students..

Keywords: juvenile, delinquency, secondary school, family status, self-concept, social support.

INTRODUCTION

The world over; there is no doubt that, rates of juvenile delinquency as well as youth crime have been on the increase (WYR, 2003). For example, in Western Europe, one of the few regions for which data are available, arrests of juvenile delinquents and under-age offenders increased by an average of around 50 per cent between the mid-1980s and the late 1990s (WYR, 2003). The countries in transition have also witnessed a dramatic rise in delinquency

rates; since 1995, juvenile crime levels in many countries in Eastern Europe and the Commonwealth of Independent States have increased by more than 30 per cent (WYR, 2003). Although statistical reports may not be readily available on juvenile delinquency in Nigeria, Onyehalu, (2006) has observed that juvenile delinquency is increasing, though it is more common in urban than the rural communities. In addition, it is not out of place to hypothesize that it has been on increase too; particularly with the new report that Nigeria ranks as number three in the world cyber-crime rankings; following behind U.S. and U.K respectively (Malakata, 2010). In addition, news reports of several unpleasant youth activities of cultism, gang violence, armed robbery, rape and drug addiction support the hypothesis of increased juvenile crime rates in Nigeria.

Delinquency is a legal term, used to describe a criminal behaviour that is carried out by a juvenile (World Book Millennium, 2000); however, its definition varies greatly among different groups and people. For example, parents may define delinquent behaviour as disobedience, fighting with siblings, destroying or damaging property in the house, stealing money from family members or threatening parents with violence. The educators on the other hand may view delinquent behaviours as those behaviours that interrupt or disturb classroom learning; violate the school code of conduct and threaten the safety of staff and students. The mental health professionals may consider delinquency to include a wide range of disruptive behaviours that may involve aggression toward others or animals, destruction of property, deceitfulness, theft and violations of curfew and school attendance. The bottom line is that, every society has norms and cultural values that guide and govern people's behaviours and when any member of such a society deviates from the societal norms, he is regarded as a deviant. In other words, anyone who behaves in a way that is different from what the society regards as normal is referred to as a deviant (kendall, 2005). Thus delinquent behaviours are those behaviours manifested by a young person (as determined by his society or the law of his place of residence) that are seen as deviating from the social norms.

Juvenile delinquency is a complex social problem that significantly impacts all members and processes of a social structure. It is defined for the purpose of this study, as a set of behaviours that are not in line with the collective practices and/or ethics of the dominant social group. Essentially, these behaviours deviate from societal norms and more specifically they violate established criminal codes and laws. Juvenile delinquency incorporates not only general criminal activity but conduct that is only unlawful for youths such as running away from home and skipping school, flouting the rules and breaking the limits set by their parents and other authority figures; rebelliousness and dangerous experimentation (Pickhardt, 2009).

It follows therefore that, an understanding of the factors that may influence juvenile delinquency will furnish the society with what is needed to deal preventively with delinquency; certainly treatment of the offender needs to be based upon an understanding of the causal mechanisms that have produced him. Hence, the justification for this study. More so, with the assertion of Singh, (2010) that adolescence is the foundation of adulthood and a properly groomed adolescent is bound to be a well-developed and organized personality who can think and act rationally in the achievement of a peaceful society, which appears to be the utmost desire of any nation. Again, if attention is not paid to the issue of juvenile delinquency early enough, once the juvenile offender reaches maturation he is likely to continue exhibiting maladaptive behaviors and increases his risk of being cycled through the criminal justice system as an adult offender

Current positivist approaches have attributed variation in crime and delinquency over time and among territories to the absence or breakdown of communal institutions (e.g. family, school, church and social groups) and communal relationships that traditionally encouraged cooperative relationships among people (Wikipedia, 2011). Researchers like Graham & Bowling (1995) have corroborated this assertion by establishing that the level of parental supervision given to a child; the way parents discipline their children; parental conflict or separation; parental abuse or neglect, and the quality of the parent-child relationship are significant variables in the determination of juvenile delinquency. Graham & Bowling (1995) argued that, juveniles that are brought up by single parents are more likely to start offending than those who live with two natural parents. This is because of vacuum of attachment that is perceived to be created with the absence of the second parent and which can lead to a child taking to deviant behaviours (Farrington, 2002; Walklate, 2003). However, if the vacuum can be taken care of and the level of parental supervision are taken into account, children in single parent families are no more likely to offend than others. Conduct disorder usually develops during childhood and manifests itself during an adolescence life (Holmes et al.:2001), and some juvenile behaviours are attributed to their diagnosable disorder. Juvenile delinquents who have recurring encounters with the criminal justice system are sometimes diagnosed with conduct disorders because they show a continuous disregard for their own and others safety and property. Once the juvenile continues to exhibit the same behavioural patterns and turns eighteen he is then at risk of being diagnosed with antisocial personality disorder and much more prone to become a serious criminal offender (DeLisi: 2005). Therefore, there are organic or biological explanations for juvenile delinquency.

In considering gender factor in relation to delinquency, Eadie and Morley, (2003) have reported that youth crime is disproportionately committed by young men. Feminist theorists and others have examined why this is the case. (Eadie & Morley: 2003) One

suggestion is that ideas of masculinity may make young men more likely to offend. Being tough, powerful, aggressive, daring and competitive may be a way young men attempt to express their masculinity. (Brown: 1998) Acting out these ideals may make young men more likely to engage in antisocial and criminal behaviour. (Walklate: 2003) Alternatively, rather than young men acting as they do because of societal pressure to conform to masculine ideals; young men may actually be naturally more aggressive, daring etc. As well as biological or psychological factors, the way young men are treated by their parents may make them more susceptible to offending. (Walklate: 2003) According to a study led by Florida State University criminologist Kevin M. Beaver, adolescent males who possess a certain type of variation in a specific gene are more likely to flock to delinquent peers. The study, which appears in the September 2008 issue of the *Journal of Genetic Psychology*, is the first to establish a statistically significant association between an affinity for antisocial peer groups and a particular variation (called the 10-repeat allele) of the dopamine transporter gene (DAT1), (Newswise, 2008).

Individual risk factors have also been identified in literature as accounting for juvenile delinquency. Researchers have established that: low intelligence (Farrington, 2002), Impulsiveness (Walkate, 2003), or the inability to delay gratification, aggression, empathy, and restlessness (Farrington, 2002) are prominent among these individual risk factors. Children with low intelligence are likely to do worse in school and this may increase the chances of offending because low educational attainment, a low attachment to school, and low educational aspirations are all risk factors for offending in themselves (Farrington, 2002). Young males are especially likely to be impulsive which could mean they disregard the long-term consequences of their actions, have a lack of self-control, and are unable to postpone immediate gratification. This may explain why they disproportionately offend. (Farrington: 2002) (Walklate: 2003) Impulsiveness is seen by some as the key aspect of a child's personality that predicts offending. (Farrington: 2002) However is not clear whether these aspects of personality are a result of "deficits in the executive functions of the brain", (Farrington, 2002) or a result of parental influences or other social factors. (Graham & Bowling, 1995)

It is interesting to note that despite the attempt in literature to explain off possible factors that can be referred to as predictors of juvenile delinquency, there seems to be a dearth of literature on the impact of variables such as self-concept, social support, gender and family status on manifest juvenile delinquency, particularly among secondary school students in Nigerian context. Yet it is strongly hypothesised that these variables would be significant factors in determining juvenile delinquency. This study is therefore conducted to investigate these variables (self-concept, social support, gender and family status) as factors of juvenile delinquency among secondary school students in a local government area of Ogun state.

This is with the view to providing baseline data that can be worked upon to proffer solution to the manifest problem.

Theoretical Foundation

For the purpose of this study, the Social Learning Theory of Albert Bandura and Strain Theory of Merton have been adopted.

- **Social Learning Theory**

The Social Learning Theory was propounded by Albert Bandura, in 1977, in which he postulated that human learning is a continuous reciprocal interaction of cognitive, behavioural, and environmental factors. Sometimes called observational learning. Social Learning Theory focuses on behaviour modelling, in which the child observes and then imitates the behaviour of adults or other children around him or her (Wiesner, Capaldi, Patterson, 2003).

In his research on social learning theory, Bandura studied how violence portrayed in mass media can have a tremendously negative impact on the behaviour of certain types of children watching violent television shows. What he noted was that some children will observe and then imitate the behaviour of the characters on the television screen. From these observations, we can conclude that juvenile delinquency could be the result of imitation of aggressive actions which could have been seen at home, within the family setting, among peers at school or in the immediate community of the student. Bandura determined that certain types of children learn to perform violent and aggressive actions by observing and then modeling their behavior after what they have seen. He referred to this as direct learning through instantaneous matching of the observed behavior to the modeled behavior (Wiesner et al, 2003). Therefore, social learning theory states that learning can occur through the simple process of observing and then imitating others' activities.

The general principles of social learning theory follows that people can learn by observing the behavior of others and the outcomes of those behaviors. In other words, an individual can vicariously learn delinquent behaviors from those in his social context, such as the parents, other siblings in the family, peers in the school and in the individual's environment. The theory also emphasizes that cognition plays a significant role in learning. The proposition is that an awareness and expectations of future reinforcements or punishments can have a major effect on the behaviors that people exhibit. In other words, if an individual perceives sufficient reinforcement based on the perceived benefit derived from the behavior manifested, there might be a continuation of the exhibition of the behavior (which is considered delinquent behavior in this context).

It has been stated that both reinforcement and punishment have indirect effects on learning although they may not be the sole or main cause of learning. For instance, it has been established that reinforcement and punishment influence the extent to which an individual exhibits a behavior that has been learned. The expectation of reinforcement influences cognitive processes that promote learning. Therefore attention plays a critical role in learning. And attention is influenced by the expectation of reinforcement. As a result of being reinforced, people form expectations about the consequences that future behaviors are likely to bring. They expect certain behaviors to bring reinforcements and others to bring punishment. It is The learner needs to be aware however, of the response reinforcements and response punishment. Reinforcement increases a response only when the learner is aware of that connection. Bandura also talked about reciprocal causation i.e. that behavior can influence both the environment and the person. In fact each of these three variables, the person, the behavior, and the environment can have an influence on each other.

- **Strain Theory**

Merton (1957) formulated a social strain theory of criminal involvement. Merton proposed that a society instils in its citizenry aspirations for upward mobility and a desire for selected goals. However, when legitimate avenues to goal attainment are blocked, anomie or strain sets in, which in turn compels the individual to violate the law in order to attain these goals. Lower-class persons are viewed by Merton as more susceptible to the ravages of anomie because they are more regularly thwarted in their efforts to participate in the economic rewards of the wider society (Broidy, 2001). Merton assumed in his theorizing that humans are conforming organisms who only violate the law when the disjunction between goals and means becomes so great that the individual believes he or she can no longer pursue socially sanctioned goals via legitimate channels. Society and certain social variables are, according to strain theorists, responsible for the majority of crime being committed in the world today. According to Merton, a society that emphasizes goals over the means to obtain these goals, and that restricts access to opportunities for legitimate advancement, is establishing the conditions for anomie and future criminality. Therefore, in a situation where a student perceives anomie, he may take to delinquent behaviour as a defence mechanism or a way of pacifying himself.

Strain theorists have long argued that once a person is removed from a situation of anomie or frustration, negative behavior will recede (Henry, Tolan, Gorman-Smith, 2001). Agnew's (1992) general strain theory offers a promising framework for understanding juvenile delinquency. A major type of strain, according to Agnew's general strain theory, consists of

experiencing unpleasant events or circumstances, including aversive situations at home, particularly arguments and violence (Broidy, 200). The theory proposes that adolescents are pressed into delinquency by negative emotional reactions that result from being situated in an aversive situation from which they cannot escape. This blockage frustrates the adolescent and may lead to desperate avoidance and/or anger-based delinquency (Broidy, 2001).

From the foregoing, there are several, numerous and varied factors that can account for or contribute delinquency among adolescents; they are often complexly interwoven in a single case. One single theory cannot explain the complex of conditions and circumstances producing delinquency. Similarly, application of one single preventive program will not significantly reduce juvenile delinquency. Therefore, juvenile delinquency preventive programs should be based upon several theoretical approaches and developed for every particular case of juvenile delinquency.

Method

The study employed the ex post facto descriptive survey research design, since the variables of interest were not deliberately manipulated by the researchers; they had already occurred and were observed as they had been.

Instruments of data collection

The instrument of data collection was a questionnaire that was divided into four sections. Section 'A' was to tap for the demographic data of the participants; section 'B' was the 10-item likert format general self-concept scale developed by ... it has an alpha reliability coefficient of .63 as established in this present study. Participants with mean score and below are regarded as having low self-concept, while those who score above the mean are regarded as having high self-concept. Section 'C' was the 11-item likert format Perceived Social Support Scale developed by Krause & Markides, (1990) the authors reported a reliability coefficient of .87 while for this present study, an alpha reliability coefficient of .84 was established. Participants who fall within the mean score and below are regarded as having low social support, while participants whose scores are above the mean are regarded as having high social support. Section 'D' was the 21-item Juvenile Delinquent Scale developed by Quay and Peterson (2006). The responses are in the true or false format with a reliability coefficient alpha of .73, as reported by the authors. For the present study, the scale has an alpha reliability coefficient of .68.

Sampling

The study adopted simple random sampling method (ballot technique) in the selection of the schools from where the participants were selected. Same sampling method was used for the selection of the two hundred (200) participants who participated in the study.

Sampling Procedure and administration of questionnaire

The list of secondary schools in the local government of interest was collected from the local education authority office. These had been listed in alphabetical order. The schools who are odd number on the list were included in the study while those who are on even number were not selected. This selection criteria had been predetermined by the ballot system where 'odd' and 'even' had been written in two different sheets of paper; folded and put together for a neutral person to pick. At the end, the paper containing 'odd' was picked; hence the decision to include only schools who are on odd serial number on the list. In all five schools were selected for participation in the study.

After the selection of the schools; the researchers contacted the schools' authorities to seek permission to carry out the study. On an agreed date, the researchers went to the schools and administered the questionnaires to them. The participants were also randomly selected and the inclusion criteria were that the participant must be willing to participate in the study and that he/she is in the senior class. Although, this is not to say that students in the junior class do not put up delinquent behaviours, however, the focus of the present study is on the senior class who have been observed to be more involved in delinquent behaviours, with grievous consequences on them, particularly in their academic performance and later in life. Thus 40 participants were randomly selected from each of the five schools.

The questionnaires were administered and collected back the same day. This was possible because the average time of responding to the questionnaire is about 10minutes and the teachers also cooperated with the researchers.

Results

This study investigated Psycho-demographic Correlates of Juvenile Delinquency among Senior Secondary School Students in Ijebu Ode Local Government Area of Ogun State. 200 participants took part in the study; 91 (45.5%) were males; 109 (54.5%) were females. 115 (57.5%) were Christians; 85 (42.5%) were Muslims. 39 (19.5%) were from single parent family; 62 (32%) were from monogamous family and 96 (48.0%) were from polygamous family.

Initial zero order correlation analysis which was conducted (to find out the relationship that exists among the variables of interest in the study) revealed that gender, family status, and perceived social support correlated significantly positively with juvenile delinquency. However, there was a negative significant relationship between self-concept and juvenile delinquency.

Table 1. Correlations Matrix

	gender of students	family status of students	Self-concept	Perceived Social Support
Juvenile delinquency	.148*	.156*	-.250**	.251**

*. Correlation is significant at the 0.05 level (1-tailed).

**. Correlation is significant at the 0.01 level (2-tailed)

It follows that the gender of an individual can influence whether the individual puts up a delinquent behaviour or otherwise, though the correlation did not say in specific terms whether males will be more delinquent than females, hence the need for a further analysis to find out if males are more delinquent than females. Family status also has significant relationship with delinquent behaviour, i.e. an individual’s family status can have a significant influence on whether he/she puts up a delinquent behaviour or not. Same goes for perceived social support. i.e. whether an individual receives social support or not can affect his behaviour and determine whether he/she will be delinquent or not. However, there was a significant negative relationship between self-concept and juvenile delinquency, which implies that the more an individual perceives himself as having low self-concept, the more the person engages in delinquent behaviour. The correlation result necessitated further analysis in order to get a more specific result that will give a better explanation of the relationship among the variables.

The t-test of independent samples that was conducted to test for gender difference in juvenile delinquent behaviour revealed that there is no significant difference between males and females manifestation of delinquent behaviors ($t = -2.10$, $df=198$, $p>.05$). This implies that the hypothesis is rejected. The result is presented in table 2 below.

Table. 2. t-test summary table showing mean difference between male and female on juvenile delinquency

	Gender	N	Mean	SD	t	df	Sig	p
Juvenile delinquency	Male	91	32.45	3.52	-2.10	198	.393	>.05
	Female	109	33.56	3.84				

Table. 3

A one way analysis of variance was conducted to test the second hypothesis that examined the influence of family status on juvenile delinquency

ANOVA

Juvenile delinquency

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	163.139	2	81.570	6.140	.003
Within Groups	2617.256	197	13.286		
Total	2780.395	199			

The result shows that family status significantly influenced juvenile delinquency among secondary school children.

Table. 4. t-test summary table showing mean difference of participants' self-concept on juvenile delinquency

	Self-concept	N	Mean	SD	t	df	sig	p
Juvenile delinquency	Low self-concept	93	33.63	3.90	2.06	198	.094	>.05
	High self-concept	107	32.55	3.53				

The t-test of independent samples that was conducted to test for the influence of self-concept on juvenile delinquent behaviour revealed that students' self-concept did not have any statistically significant influence o juvenile delinquency (t = 2.06, df=198, p>.05). This implies that the hypothesis is rejected. The result is presented in table 4 above.

Table. 5. t-test summary table showing mean difference of participant's perceived social support on juvenile delinquency

	Perceived social support	N	Mean	SD	t	df	sig	p
Juvenile delinquency	Low social support	93	32.29	3.45	-2.74	198	.16	>.05
	High social support	107	33.72	3.86				

The t-test of independent samples that was conducted to test for the influence of social support on juvenile delinquent behaviour revealed that students' social support did not have any statistically significant influence o juvenile delinquency (t = -2.74, df=198, p>.05). This implies that the hypothesis is rejected. The result is presented in table 5 above.

Discussion

The result of data analysis revealed that neither gender of students, social support nor self-concept significantly influenced juvenile delinquency among students. Although, one would have thought that these variables would have significant influence on delinquent behaviour; based on the assumption that male students are more delinquent than female, those who have low social support will manifest more delinquent behaviour than those who have and that those who have low self concept will more likely manifest delinquent behaviours. This thus shows that there are other variables apart from those mentioned above, that account for the exhibition of delinquent behaviour among students.

On the contrary, family status was found to have significant influence on delinquent behaviour among students. In other words, the family one comes from (whether single parent, monogamous or polygamous) can significantly determine whether one takes to delinquent behaviour or not.

The finding of this study, that family status has a significant influence on delinquency buttresses the views of the positivists who have attributed variation in crime and delinquency over time and among territories to the absence or breakdown of communal institutions (e.g. family, school, church and social groups) and communal relationships that traditionally encouraged cooperative relationships among people (Wikipedia, 2011). Researchers like Graham & Bowling (1995) have corroborated this assertion by establishing that the level of parental supervision given to a child; the way parents discipline their children; parental conflict or separation; parental abuse or neglect, and the quality of the parent-child relationship are significant variables in the determination of juvenile delinquency.

Graham & Bowling (1995) argued that, juveniles that are brought up by single parents are more likely to start offending than those who live with two natural parents. This is because of vacuum of attachment that is perceived to be created with the absence of the second parent and which can lead to a child taking to deviant behaviours (Farrington, 2002; Walklate, 2003). However, if the vacuum can be taken care of and the level of parental supervision are taken into account, children in single parent families are no more likely to offend than others.

It could therefore be concluded that attention be paid to the family status of students while attending to their delinquent behavioural manifestations. The problem could be from the family and not the child per se. Although, it would have been good to establish the contribution of each of the family statuses to delinquent behaviour, unfortunately, that is beyond the scope of this present study and thus it becomes one of the limitation of the

study. However, further researches could be carried out to establish the specific family status that significantly influences delinquent behaviour among students.

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EFFECTIVE TEACHING PRACTICE AS THE PROFESSIONAL FAMILIARITY WITH VARYING ABILITIES AND CLASSROOM CONTROL

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Abstract

This paper looks at the theories of education as inculcation of knowledge from the known into the unknown. To help the student teacher to develop the abilities and interests in teaching and learning. It helps the student teacher to seek to satisfy the needs of student by providing the necessary and relevant information to the student. It is intended to equip student teacher with competence in giving relevant information, giving the guidance, motivation and environment with positive interaction with students in a controlled classroom situation. Practical advice is provided on classroom procedures and on the ways of creating maximum utilization of facilities at any given classroom situation. The feedback in forms of regular tests and examinations become part and partial of teaching practice and essential component in evaluation of the learning process. Teaching practice helps in providing important feedback to the teacher in reviewing the teaching tasks. The paper is intended to describe and analyse the whole process of teaching practice and the rationale for its institution for teacher trainers. Concrete description will be made of all arrangements that must be made with the practising school or colleges; the role of subject supervisors; area supervisor and co-operating teachers in the whole programme. The duties of the student teacher in the teaching practice both in the classroom and extra curricular activities will be examined. The student teacher to identify himself with the new environment and meet the challenges of teaching practice. The rationale of teaching practice is to provide a neutral environment for the enforcement of theories of education learned in the university. It is a forum for assessment in professional ethics and skills and lesson material preparation. Thus the paper will look at all areas of teaching practice to provide information and assessment for both the student and the subject; supervision and the need for proper communication among all concerned.

Introduction

The teacher training institutions, that is, universities and colleges, usually send their students out to schools to practice teaching. If possible the posting off students should be

done at least three months in advance by the Teaching Practice Office of the institution concerned. The aim of this advance posting is to ensure the smooth running of the teaching practice as an exercise. It is, however, inevitable that, for some unforeseen reasons, both the institutions and the schools involved should be forced to make some adjustments and changes. But these changes should not be deliberate. Rather they should come as a matter of emergency. During the posting period, the institutions concerned must go out to consult and make agreements with the schools about the number of students who may be posted to those schools. These may suggest the subjects in which they may need teachers and also when they consider to be the most suitable time for teaching practice. They can also give a rough estimate of the students they are likely to take for teaching practice in a year. Consultation with the schools concerning the teaching practice is probably one of the most important steps to be taken before any other arrangements can be made.

Professional Assistance

Before posting students to different schools, the institution concerned should conduct orientation programmes and brief them carefully on what is expected of them. By this time there will be a booklet known as the teaching practice guide. The students should be briefed on the principles outlined in this student's handbook. It is then that those concerned should make everything clear to the students and answer any questions which they might ask. The Teaching Practice Office should make arrangements for a member or some members of staff to visit all schools in advance to explain to their colleagues the basic principles used in the training and assessment of students.

Next is the area supervisor. This is the person who would be in charge of a particular area where students would be posted. When the students are already posted to school, the area supervisor should make an attempt, where possible, to hold a meeting with all of them to discuss at regular intervals the progress of the teaching practice.

It is usually advisable and, indeed, recommended that once the student teacher has been posted to a school, he should make an effort to visit it to familiarize himself with its environment. During the first two days of the teaching practice period, the student is expected to meet the head of the school, the deputy head, the head of the department and the co-operating teacher. The latter is a member of staff who is responsible for advising the student teacher on anything from academic to extra-curricular activities that may be required of him. The student teacher is expected to acquaint himself with the school routine and duties. The head of the school will introduce him to the heads of departments concerned with his subjects. Therefore, with the help of the co-operating teacher, the student teacher should be given his time-table indicating the subjects he is expected to

teach and the periods when he would have to teach them. Again with the help of the co-operating teacher, the student should then begin to prepare his scheme of work on the subjects he is to teach as provided in the syllabus. The student teacher will be expected to send a copy of his time-table to the Teaching Practice Office in his institution.

The student teacher's time-table should furnish the Teaching Practice Office with full details so that arrangements to supervise the teaching practice can be made without unnecessary contradictions. The time-table should indicate the holiday dates for the school, especially events such as sports day, when classes are not conducted, and also the dates when examination takes place in the school. Where necessary, the student teacher should be very closely with the co-operating teacher to have his work load distributed equally in two subjects. All practicing students are in general expected to teach not less than 12 periods per week, but this may vary from school to school depending on the demand for teacher to tackle certain subjects. These are cases where students may be given less than 12 periods. Should there be any changes affecting the time-tables, the Teaching Practice Office can effect the change and inform those concerned accordingly. This is to avoid causing unnecessary inconveniences such as occur when a supervisor goes to a school only to find that the time-table has been changed and students are nowhere to be seen.

The student teacher is expected to observe the best professional ethics in his relationship with the head, the staff and the students. The Teaching Practice is the most important aspect of training an individual to become a professionally qualified teacher and it is during this period that the student teacher is able to go out and put into practice all the theories he has learnt. Drawing from his wealth of knowledge, the student teacher should be able to apply his learning in the school environment. Indeed, it is at this time that the student teacher, for all practical purposes, experiences what it means to be a member of a school community, to be involved in school activities and in classroom teaching. Here the student teacher is considered a teacher since he takes full control of a class or classes allocated to him and all the duties that the head of the school, the deputy head or the head of the department may deem fit to assign to him. When he is teaching, the student teacher becomes answerable to the head of his school as well as his university or college and the two institutions must co-ordinate with each other for the smooth running of the teaching practice. Both the university or college and the school consider him a full member of the teaching staff for the duration of the time he is in that particular school.

If due to some unforeseen circumstances the student teacher finds it necessary to leave the school, it is important that he seeks permission to be away from school, from the head of the school. However, if he has to be away for a few days, the area supervisor must be informed in advance even if the permission to leave the school has been granted by the

head of the school. The area supervisor would then co-ordinate how such a student teacher would be observed while teaching when he has returned to the school. In as much as the student teacher is expected to co-operate and conform with the norms, values and traditions of the school and make himself feel a part of it, he must be co-operative with his area supervisor and supervisors.

It is recommended that the student teacher should always be fully prepared in respect of the scheme of work, lesson plan and record of work for all the subjects. His notes for teaching should be written in a special lesson preparation book issued to him by the Teaching Practice Office. This book should always be ready for use and presentation to the supervisors for inspection and advice. The supervisor will normally write some comments after observing a lesson. The comments are useful and are meant to help the teacher improve his quality of teaching. Again after teaching a topic, the student teacher should write down in his records of a work comments on the adequacy of his lesson presentation. For example, the suitability of the subject materials or teaching aids and the time allocated for each lesson. He can record anything that he feels has made his lesson a success or anything that he feels he might require to improve his teaching technique. Students who may be posted to schools with double or more streams are likely to benefit most if they can arrange with the regular teachers when they can observe them teaching their classes. It is also advisable for a student teacher to observe keenly the out of class activities so that he can easily get involved in them. At the same time he should take note of important aspects of the school routine and organization. He should also familiarize himself with the teaching aids and other equipment which are available in school for teaching purposes.

The student's observations ought to be recorded in a systematic way so that when he or his supervisors wish to refer to them, they are readily available. The supervisors usually give advice to the student teacher when they have observed him teach his class or classes. Their comments are based on the student teacher's good performance as well as on his weaknesses. Where the student teacher is weak, advice on how he can improve will be given, maybe changing to a different method, approach, or technique, depending on the nature of the problem. The student teacher may be required to record some of the supervisors' observations in a special book called observation book or in a certain section of his special method notebook. If such books are not available, then the teacher may record the observations in his own way if he considers them of value to him.

Although the student teacher is provided with minimum materials for preparation of his own lesson plan and teaching aids, he should consider himself part of the school where he is doing his teaching practice. Therefore he should be able to utilize some of the material available in the school for other teachers. The school usually regards practicing teachers as

having specific teaching roles to play. It is expected to report on the student teacher's work and so to carefully monitor his activities. But at the same time the school will always make an attempt to help the student teacher in whichever way possible so that his teaching activities are not frustrated in any way. So the reports which the schools write on student teachers are of great value to the institutions from which the students come. They are usually given serious consideration in determining the students' final grades.

A part from professional and technical help, the school usually gives the teacher an opportunity to participate in the routine duties of the school such as sports, music, drama, supervision of prep, if the school is a boarding one, clubs and many other activities that are practiced in school in general. In this way the student teacher gets access not only to the syllabus of the subject he teaches but also to the whole school curriculum, including extra-curricular activities. With this knowledge then he can fit in his teaching periods, other duty periods and his time-table will be well co-ordinated. As has been mentioned earlier, all along the student teacher would be working hand in hand with his co-operating teacher who would be giving him advice and guidance during the entire period of the teaching practice. Sometimes the co-operating teachers are appointed by the head of the school as soon as the student teachers report for teaching practice.

It is always advisable that when a supervisor goes to see a student teacher in a particular school, he should first report to the head of the school. If the head is not available then he should report to the co-operating teacher. If the head is present, he will refer the supervisor to the co-operating teacher who will in turn assist him in locating the class where the student teacher is expected to teach or where he might be found. Sometimes the student teacher knows in advance from the area supervisor that a supervisor will be going to his school to observe his performance. But this is not always possible so it is the responsibility of the student teacher to make sure that he is available once he has supplied the time-table indicating the time when he would be teaching.

Sometimes the student teacher may be given a very heavy load, especially in harambee schools, so that it becomes very difficult to plan his lesson effectively. In that case, the area supervisor should be informed so that there can be meaningful consultation between the area supervisor as a representative of the institution from where the student teacher comes, and the school concerned. It should be born in mind that the success of teaching practice depends on the co-operation between the University or college of the student and the school where he is doing his teaching practice. It also depends on how well the area supervisor is able to co-ordinate the supervisors and co-operate with the schools which the supervisors visit. Finally the success of the teaching practice depends on how well the

student teacher fits into the school community so that he is not regarded as a stranger but is accepted as a full member of the teaching staff even if for just one term.

Among the practising teachers, there may be some who are experienced and who therefore can handle heavy loads with ease. Again some schools are desperately short of staff and may need more student teacher to help them. This, of course, would be a matter of consultation and agreement between the school and the area supervisors. In any case, a school which is desperately in need of teachers might even make arrangement in advance by requesting the Teaching Practice Office to send them a certain number of student teachers during the period of initial posting. One has to remember that the teaching practice is not only a period of practical experience for the teacher but also a learning period for the student teacher. Therefore the school should be in a position to avail the teacher every opportunity to acquire as much knowledge as possible in his preparation as a future professional teacher.

We have seen what is expected of the student teacher on teaching practice and what kind of help he can get from the school, the area supervisor and his institution. We should now turn our attention to the kind of professional preparation and advice which should be given to the student and how students on teaching practice are graded during the entire period of the teaching practice.

Administrative Procedure

In most institutions concerned with the training of teachers, there is a Teaching Practice Unit established within the department which deals with general and special methods of teaching. The function of a Teaching Practice Unit is to deal with all matters relating to the administration and supervision of teaching practice in general. It provides the necessary information concerning the selection of schools for practicing teachers, posting of student teachers to these schools, student replacement, up-to-date road conditions in the areas where student teachers are being posted, records of students' supervision, keeping up-to-date school activities during the period of teaching practice, matters concerning the supervision of students in general and, finally, the financial aspect of the entire period of teaching practice involving the student teachers and the lecturers who supervise them.

For administrative purposes, there is in the Unit a Chairman of the Teaching Practice, and supervisors who are divided into three categories, which are: area supervisors, subject supervisors, school supervisors also known as co-operating teachers, and the external examiners. The head of the school may also assist in supervising student teachers. All these people contribute effectively to the smooth running of the teaching practice.

When the area supervisor has been placed in charge of a certain area he is expected to stay there for the entire teaching practice period. His work is to give guidance to the student teachers and to counsel them at the same time. The area supervisor must keep close contact with the Chairman of the Teaching Practice Unit, the lecturers in charge of the subjects, and all those people who are involved in the supervision of the teaching practice in general. Thus the supervisor's duty embraces administration as well as the professional supervision of the student teachers in the area of which he is in charge. He forms a very important link between the institution, the school heads, and co-operating teachers in the schools in his area. The area supervisor co-ordinates with the educational authorities and helps to find suitable accommodations for lecturers who are expected to supervise the students in his area.

Since the area supervisor is the resident agent of the institution concerned with the teaching practice for the students in a given area, it would seem more appropriate to discuss his duties in details

The supervisor's first concern is to organize the area centre and to post students to schools. After this he also provides a sketch map of the area with the assistance of the Teaching Practice Officer or Unit. The sketch map should contain the necessary details to facilitate the smooth running of the supervision in the area. The next important duty of the area supervisor is to keep an up-to-date record for each school in his area. The record should include the name and address of the school, the name of the headteacher, the telephone number of the school if any, the number of streams, subject taught at school, and any other information relevant to the practice. The area supervisor's duty also involves organizing a seminar for student teachers at least twice a month to discuss both professional and administrative matters affecting the teaching practice in the area. Students are provided with a small quantity of material to assist them in the preparation of their lessons. Sometimes these materials run out before the end of the teaching practice and the area supervisor has to supply them. This means that the area supervisor should keep enough material at the centre to supplement what is available at school for the student on teaching practice.

At the end of the teaching practice period, the area supervisor should make an effort to meet the different heads of the schools where the students had been posted to thank them for their co-operation and assistance. He should also find out from the head of the school the general assessment of the student's teaching practice. The area supervisor should carefully note down the comments as a source of feedback for possible follow-up action to improve the teaching practice in the following year. At the end of it the head of the school

should be given an opportunity to write a confidential report on each student who practiced under him. These reports should be collected by the area supervisors personally from the writers to keep their confidentiality.

The area supervisor and subject co-ordinator should monitor every student's progress in the area. It is possible that a student may have performed very badly during the initial stages of teaching practice. The area supervisor should give him guidance, paying attention to where the student's weakness is. With much practice in his work, the student should make considerable improvement. The area supervisor should inform the department concerned with the teaching practice about the student's progress so that he may not be judged only through his first few lessons.

Along with the area supervisor there is the subject co-ordinator who is responsible for drawing up guidance on how a particular subject can be supervised. He gives hints on the most important elements which have to be taken into consideration when assessing the student in a particular subject. He recommends the names of teachers who should supervise the subject and compiles grades for the subject. When all the grades have been compiled, the subject co-ordinator is expected to arrange a meeting with the department concerned with teaching practice and if necessary invite all the lecturers who supervised the student in his subject and even the external examiner if needed be, to discuss the grades before they are submitted to the Teaching Practice Office.

To co-ordinate the teaching practice more effectively, the institution supervisors may be divided into groups of subject areas, for example Science, Languages, Arts and Special Subjects. However, lecturers coming from the department of education shall be able to supervise any subject in order to monitor the application of the educational discipline which they teach to these students.

Another category of people involved in the teaching practice exercise comprises the external examiners. These are usually appointed from other institutions. They are not members of staff of the institution from which the students come; but they are people with considerable experiences in their subjects and are expected to work closely with the Teaching Practice Office, the subject co-ordinator and the area supervisors. External examiners may also be grouped into subject areas such as Sciences, Languages, Arts and Special Subjects. They are not required to supervise all the students in a particular subject or groups of subjects. They may only have a sample recommended by the Teaching Practice Office. If necessary, the external examiners may be required to attend both departmental and examination board meetings.

The teaching practice report should be regarded as the individual supervisor's assessment of the stages of maturity attained by the student teacher in the three areas of professional importance, namely personal matter, preparation and professional competence. It may indicate some aspects of growth in the areas where development may have been average, below average or questionably high. Data for the report may be obtained from assessing lessons observed prior to the data supplied by the head of the school or co-operating teacher. The final report is sometimes based on a certain number of a student's lessons on a particular subject. In the initial stage of a teaching practice, the student's performance may not be quite adequate, but as time goes the student may gain more and more confidence in himself, in the subject taught and in relation to his class or classes. Therefore the report should be based on the minimum number of lessons observed. If there is any problem with regard to how many times the student has been supervised, it should be taken to the departmental meeting and the decision made at the meeting should immediately be conveyed to the Teaching Practice Unit

The school is considered a vital organ in assisting the student's professional development during the teaching practice. It is in a better position to assist the institution concerned with the training of teachers in three areas: personal matters concerning the student teacher, his relationship with other members of staff and even the students in the school, lesson preparation and competence in delivery and finally how he handles both the students and the subject. In personal matters the institution cannot possibly judge the subject's reliability and responsibility since the lecturers who go to schools do so only to supervise the student when he is teaching. But practical work such as attending to school duties and activities and being able to organize some of them can best be seen as he tries to adapt himself to the school environment and fit in the daily routines of the school through his relationship with the rest of the school community. Indeed, some of the schools can be so impressed by the student teacher's performance that they usually request the Teachers Service Commission to post him to them. Such requests make the institutions involved feel that they have done a good job in the preparation of these future teachers.

In the institution students are prepared through the normal channels of assessment such as tests, continuous assessment and of course, examinations. A student might pass an examination through a mere chance. However, in the teaching practice the preparation becomes even more involved and demanding on the part of the student. He is assessed not only on his classroom performance but also on the quality of the scheme of work, lesson plan and record of work. Competence is the most important factor in the teaching profession. The head of school or co-operating teacher can check the progress of the student based on the organization and coverage of the work programme over a period of time since the subject supervisor may not be in the area long enough to observe all aspects

of the student teacher's routines. The head and the co-operating teacher are also in a better position to monitor the work input and output initiative and the student's consciousness in performance relative to school activities in general apart from those manifested in the classroom teaching.

Internal assessment forms part of the most important aspect of professionalism in the teaching practice. The success of a student teacher depends, to a large extent, on the time which supervisors can devote to individual students and the degree of follow-up to ensure that there is a continuous process of improvement from one lesson to the next after the supervisor has observed the student and made suggestions. The award of grades after the supervision should, therefore, not be taken as a mathematically computed average for all grades obtained by the student in his overall performance. The grades should be seen rather as an indication of his progress and performance in relation to the point indicated to his attention by the supervisors. The student's performance as reflected by the final grades should not affect the classifications of his degree or diploma provided that he has done well enough in his teaching practice. Indeed, the grade does not necessarily decide the future performance of the teacher after his graduation from the institution but it helps to understand his developmental stage during the teaching practice.

Equally important is the co-operating teacher's assessment. When a student is posted to a school for teaching practice, it gives him an opportunity to become a full time member of that school, taking his share of all the duties of a full teacher. His personality must reflect this since it gives him an opportunity to be regularly and systematically visited, counseled and evaluated by supervisors and school authorities. Here the co-operating teacher becomes very helpful to the student by giving him advice and guidance. He is thus in a better position to give a practical teaching report at the end of each student's teaching practice in each subject through the head of the school.

Lesson Assessment.

Some student teachers have often complained that the supervisors go to schools late and start supervision in the middle of a lesson without a prior discussion with the student. Still some complain that some supervisors leave the class after a few minutes while the lesson is still in progress giving the student teacher and his pupils the impression that the lesson is not interesting. Such an act demoralizes the student teacher and deprives him of a fair assessment. It is recommended that a supervisor should reach the school at least a few minutes before the period begins so that he may get some time to talk to the practicing teacher before they go into the classroom. The supervisor should spend at least ten minutes with the practicing teacher discussing the condition of the class, the students' participation

and the general classroom atmosphere. This would give him an idea of the students' level of competence in the classroom.

The next move for the supervisor is to look at the scheme of work, the teacher's lesson plan so that he can quickly go over this with the practicing teacher before the class begins. This should help the supervisor to understand what the teacher is intending to do with his class. There are four things to look for in a lesson plan: the lesson objectives, the methods to be used while teaching, teaching aids and lesson presentation, that is, stages to be followed in presenting the lesson to the class. The supervisor should be convinced that the objectives are clearly defined or stated in terms of specific and attainable pupil behavior and the standard of performance expected from the class. The supervisor should be able to know whether the lesson plan provides the subject content and material appropriate as regards amount, quality, organization and relevance to the subject discipline needed in a learning situation. He should also be able to judge whether the teacher prepared suitable teaching aids in number, quality and relevance to effective pupil use. The supervisor should check whether the lesson plan indicates serious planning in the effective use of time, pupil activities, teacher's activities, and the subject matter to go with teaching aids to achieve instructional objectives. If all these things are not clearly indicated, then the necessary advice should be given to the practicing teacher after the class for his future improvement. But the advice should be to help the teacher not to discourage him by heaping all forms of criticism.

After the supervisor has looked at the scheme of work and the lesson plan, the student teacher can then proceed to class accompanied by the supervisor. Normally the student teacher would introduce the supervisor to the class and give him a chair to sit on at the back of the classroom with a copy of the lesson plan. The supervisor's first task is to look at the lesson development, the suitability of its organization, unity and place. He assesses whether the teacher's introductory step realistically links the new work with the students' previous experience. He should focus his attention on how the teacher captures his student's attention by motivating them to engage in the learning process. The teacher, on the other hand should make the steps of the body of the lesson involve the students in a sequence of activities meant to develop and evaluate the type of students' competence specified in the objectives. The supervisor should, therefore, assess whether the teacher is clear and articulate in his deliberation and whether or not he has confidence in himself and his students as they respond to his teaching. The concluding steps of the lesson should serve as unifying factors of the lesson in achieving the objectives in terms of performance. The supervisor should be able to observe this as well as the sustained motivation and individual differences.

The supervisor should watch out the extent to which procedures and techniques appropriate to the subject discipline are used. He should also look at the specific objectives as stated in the lesson plan and assess how well they provide the students' readiness and learning situation. He should observe how effective the teacher is in his techniques of communication, his presentation and in exposing new information to the students. This should come out clearly when the teacher uses the students' feedbacks and as he goes on to explain his subjects through the use of illustrations or demonstration. The supervisor should also look at the way the teacher gives his assignment, whether it is thoroughly worked out before class and how effectively the assignment is used to reinforce learning and whether the teacher is skilful in questioning techniques.

The teacher should be competent in the use of his teaching approach, teaching aids and materials. The chalkboard should be used exhaustively, if necessary to emphasize certain points or for drawing illustrations and sketches. The supervisor, therefore, should encourage the teacher to develop competence in his teaching practice as well as profession. It has been observed that some teachers lose contact with students when they are writing some points or illustrating something on the chalkboards and the class begins to get noisy. And some teachers write in such a way that the students can hardly read what is written on the chalkboard. It is therefore necessary for the supervisor to note the quality of the teachers' writing on the chalkboard. He should also assess how the teaching aids are presented, whether they promote communication, interest, understanding,, discussion and the students' thinking ability. Also whether the lesson materials and equipment employed in the teachers' task performance are effectively organized and used in promoting learning.

Competence in class control is equally important for the teacher. His contact with the class is also very vital. These two factors make the class pay attention to what is being taught. Therefore the supervisor's duty is to observe this aspect of the teacher and where there is a weakness, to explain it clearly to the teacher without causing him fear, for there are some supervisors who are so critical that they scare practicing teachers and make them panic when they know that such supervisors are coming to observe them teach. Therefore the supervisors should help the teacher by showing him the need to maintain contacts with his students. This way he will be able to recognize changes in the students' attending behavior and participation in classroom activities.

Finally the practicing teacher should realize that there is a high degree of expectation of the teachers' appearance in accordance with the school's norms, traditions and values. Therefore the supervisor should assess the kind of image the teacher presents to his class through his appearance, posture and mode of dressing since all these factors will contribute to the respect given to the teacher by his students as well as his colleagues in the school.

The teacher's manners, confidence, sympathy, firmness, pleasantness; all these will promote effective relationship and meaningful interaction between him and the school community.

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TUTORS' DEVELOPMENT: A CASE OF TEACHING ABOUT HIV AND AIDS EDUCATION

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In Kenya, HIV and AIDS education was integrated into the primary teacher education syllabus in 2004. However, recent studies have reported superficial teaching of HIV and AIDS education. Several authors have attributed this to the link between sex education and HIV prevention. Educators are finding it hard to communicate about HIV and AIDS due to attitudes, beliefs and cultural norms in Africa that consider discussions on sexuality as taboo. Hence the aim of the study was to explore how tutors' preparation can be improved so that they can teach about HIV and AIDS education comprehensively. Ten tutors and 98 teacher trainees took part in the study. Data was collected through semi-structured interviews, focus group discussions, group interviews, participant observation and document review. Data was analysed inductively with the aid of qualitative data analysis software HyperRESEARCH. The findings suggest that on-site collaborative in-service education that focuses on subject content as well as pedagogical content knowledge can result in a change in tutors' instructional practice. However, further research is needed on how such change in instructional practice can be sustained and institutionalised.

Introduction

This study was motivated by concerns that despite numerous seminars and workshops convened to prepare educators to teach about HIV and AIDS education, there is still selective teaching which is limited to basic scientific content knowledge (Boler, Adoss, Ibrahim, & Shaw, 2003). Discussions about the psychosocial issues that seem to fuel new HIV infection are largely ignored in most learning institutions. Yet in the absence of a biomedical cure, prevention is the only viable option and 'education might potentially be the single most powerful weapon against HIV transmission' (Kelly, 2000, p.9). Davis (2011) argues that a biosocial pedagogy that links current biomedical strategies, such as male circumcision, post-exposure prophylaxis, antiretroviral drugs, microbicides and condoms, with behavioural change is likely to mitigate the impact of HIV and AIDS.

Research has shown that HIV prevention education can help reduce the rate of infection by bringing about behavioural change among the 15-24-year-olds who are a high-risk group (Kirby, Laris, & Rolleri, 2006). Hence the right age to start providing education to prevent

HIV transmission is before 15 years of age, that is, in primary school. Moreover research shows that there are cases of sexual debut before age 15 in Kenya (National AIDS Control Council, 2009).

In Kenya, to prepare teacher trainees to teach about HIV and AIDS education in primary schools, the topic was integrated into the Kenya primary teacher education syllabus as an emerging issue (Kenya Institute of Education, 2004). However, recent studies report that there is only superficial teaching about HIV and AIDS in the pre-service teacher preparation colleges, and some of the educators interviewed claimed they have not been trained (Nzioka, Korongo, & Njiru, 2007; Farah, Kavuma, Mwingi, & Onyango, 2009). Some tutors were trained through the Primary School Action for Better Health (PSABH) cascade model adopted by the Ministry of Education to prepare in-service teachers to teach about HIV and AIDS education (Maticka-Tyndale, Wildish, & Gichuru, 2007). However, literature shows that cascade approaches are one-off events, with limited follow-up and little support of participants when they return to their workplaces, resulting in limited implementation of interventions (Peacock, 1993; Christie, Harley, & Penny, 2004; Darling-Hammond & Richardson, 2009). Literature shows that the cascade model adopted by the Ministry of Education to prepare in-service educators to teach about HIV and AIDS education was no exception in terms of these weaknesses (Nzioka et al., 2007; Farah et al., 2009; Njue, Nzioka, Ahlberg, Pertet, & Voeten, 2009; Onyango, 2009). Hence there is a need to explore alternative models of providing professional development programmes to prepare in-service educators to teach about HIV and AIDS education. To this end, the overall question which guided this research was: How can educators' preparation be improved to enable them teach about HIV and AIDS education comprehensively?

Literature shows that effective in-service education should focus on subject content as well as pedagogical content knowledge and provide opportunities within the programme for participants to practise in their own classrooms (Shulman, 1986; Guskey & Sparks, 2000; Guskey, 2002; Dunst, Trivette, & Deal, 2011). Peacock (1993) argues that 'a programme of serial in-service rather than long, one-off workshops is preferable, to allow teachers to try out ideas and bring back their experiences to enhance subsequent sessions' (p.24). According to Guskey (2002), 'Professional development activities frequently are designed to initiate change in teachers' attitudes, beliefs, and perceptions' (p.382). In essence, in-service workshops are a means towards desired change in instructional practice and not an end. This echoes Garet, Porter, Desimone, Birman, and Yoon's (2001) view that professional development that focuses on content knowledge, gives teachers opportunities for hands-on activities, and is integrated into the daily life of the institution, 'is more likely to produce enhanced knowledge and skills' (p.935). Research findings show that optimal benefits are realised when participants are actively involved in the use of the innovation during in-

service programmes that are conducted on multiple occasions lasting for more than 10 hours in total (Dunst et al., 2011). Therefore the study was envisioned as a collaborative action research between the researcher and the tutors who teach about HIV and AIDS at the college. This resonates with Lewin and Stuart's (2003) argument that, 'if innovations are to work, they need to be grounded and contextualised, and to make sense to those expected to carry them out' (p.188). To this end, the research design was based on a skill-training model that includes theory, demonstration, practice, feedback and coaching (Rolheiser & Anderson, 2004). Moreover, carrying out the exploration at the institution not only adapted the innovations to suit local conditions and resources, but also aligned the intervention with the college programmes, curriculum and policy.

Research method and design

The study followed a spiral action research model (Zuber-Skirit, 2001), beginning with a reconnaissance phase in which participants' prior experience was recorded. Starting by eliciting prior experience is particularly important as the understanding of participants' attitudes and beliefs is important in providing relevant training and support about HIV and AIDS education (Visser, 2006). This resonates with Dadds's (1997) observation that participants enter into continuous professional development with prior experiences which are 'useful resources' that can be drawn upon (p.32). Moreover, research show that educators' attitudes and beliefs result in selective teaching about HIV and AIDS in which messages are restricted to scientific content without direct references to sex or sexual relationships and psychosocial issues (Boler et al., 2003; Visser, 2006). Hence eliciting teachers' implicit knowledge and beliefs and then providing them with the opportunity to practise new innovations leads to re-conceptualisation of their roles as teachers, as well as the role of students, in knowledge construction (Koutselini, 2008). Being aware of the specific issues that inhibited the teaching about HIV and AIDS education at the college was useful in identifying ways to address the challenges. The design of the intervention is illustrated in Figure 1 which is a mosaic of the action research process (Zuber-Skerrit, 2001) and Guskey's (2002) 'model of teacher change' (p.383).

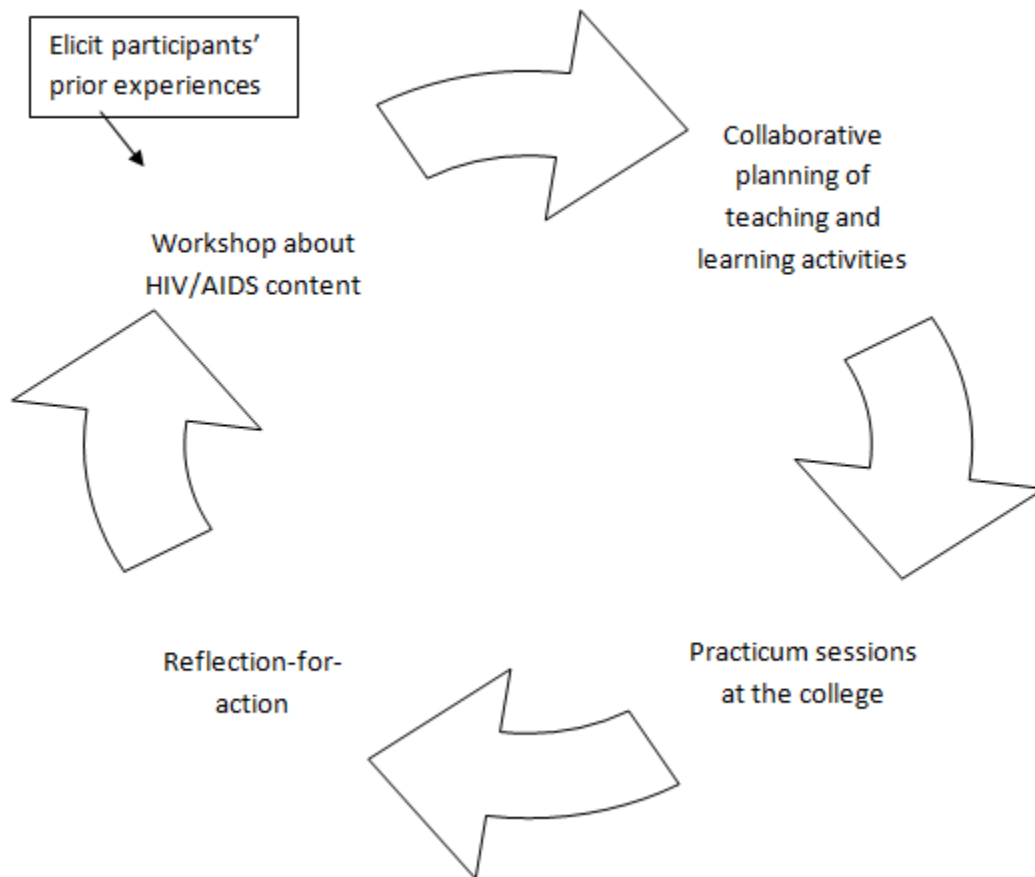


Figure 1: On-site in-service model

Preceding the initial workshop, interviews and participant observation were carried out to establish the existing practice. In-depth interviews were held with each of the 10 tutors and four group interviews were held with teacher trainees in separate gender groups of five participants each. Data obtained from the interviews and participant observations indicated the need to provide both HIV and AIDS content and pedagogical content knowledge. This is consistent with the new in-service paradigm in which the workshop session ‘deepens teachers’ knowledge of content and how to teach it to students’, while the practice session in participants’ own classrooms ‘provides opportunities for active, hands-on learning’ (Darling-Hammond & Richardson, 2009, p. 49). Experiences that tutors brought back from the classroom practice were used to provide feedback and reflection-for-action in subsequent classroom sessions (Garet et al., 2001; Alger, 2006). Several authors argue that change in instructional practice occurs when educators are given the opportunity to practise the innovations and see improvement in student learning outcomes (Garet et al., 2001; Guskey, 2002; Husu, Toom, & Patrikainen, 2008). Put differently, it is reflection on the successful experiences that changes educators’ attitudes and beliefs concerning an innovation. As on-site in-service education the intervention provided tutors with an experiential learning opportunity that took them through the process of teacher

professional development. This was a departure from the old paradigm that relies on one-shot workshops that are 'episodic and fragmented' and thus ineffective in terms of changing practice (Darling-Hammond & Richardson, 2009, p. 49). It was the tutors' concerns that were the basis on which interventions were based. The length of the study was determined by the duration it took to plan and teach about HIV and AIDS content knowledge that is integrated in the primary education syllabus (Kenya Institute of Education, 2004).

Purposive sampling was used to select the 10 tutors who were teaching about HIV and AIDS education in order to sample for information rather than representativeness (Cohen, Manion, & Morrison, 2007). The tutors were selected on the basis of their willingness to take part in the study and their enthusiasm to teach about HIV and AIDS education. This resonates with Midiema's (2006) recommendation that 'where possible educators with "desirable characteristics" ... that is, educators who are willing and able to discuss sexuality ... topics in an open manner, should be selected to teach about HIV and AIDS' (p.34). To assess the outcome of the classroom trials, stratified random sampling was used to select six teacher trainees in equal gender ratio for post-lesson group interviews. A total of 13 intervention sessions were held at the college resulting in 78 teacher trainees participating in the group interviews. All participants gave written informed consent prior to participating in the study (BERA, 2004). Prior to the fieldwork, the research proposal was approved for adherence to ethical guidelines by the Kenya National Council for Science and Technology and a research permit was issued (National Council for Science and Technology, 2009). Participants were assured that confidentiality would be observed and that their real names and that of the institution would not be used in any report from the study. Hence all the names used in this paper are pseudonyms.

Data were collected through in-depth interviews, participant observation, document reviews, focus group discussions and group interviews. Multiple methods of data collection were used to provide corroboration and triangulation (Hendricks, 2006; Cohen et al., 2007). Audio recording and field notes were used to record data which were later transcribed verbatim. An inductive analysis approach was employed to generate categories, codes and themes or meanings from the data (Miles & Huberman, 1994; Stringer, 2004). The analysis process was aided by the use of HyperRESEARCH 2.6 software (HyperRESEARCH, 2010) that enabled the link between themes and the raw data to be maintained for interpretations and verbatim quotation.

Findings

Findings suggest that if tutors are engaged in experiential teaching and learning activities about HIV and AIDS that are aligned to the curriculum and policy, then they not only

enhance their knowledge, but also find creative ways to adapt the innovations to suit their classrooms. Reconnaissance findings showed that unless tutors have answers HIV and AIDS questions that they are likely to face in the classrooms if they adopt interactive teaching methods, they will stick with the transmission mode (lecture). A comment by a tutor on her experience about HIV and AIDS education explains why, prior to the intervention, lessons were mainly delivered through lectures.

You get a feeling that you are repeating the same things they (*teacher trainees*) have been taught in primary and secondary schools. At times you feel like you want to open the class for a discussion, but fear if you are asked a question, you might give a wrong answer yet, you want to appear as an expert in your subject area (Tutor Judy).

The dynamic nature of HIV and AIDS education, in which new knowledge continuously emerges from research, means that the tutor's role as an experts needs to shift to that of facilitator who is also a learner. To this end, the use of interactive methods during workshop sessions demonstrated how to facilitate learning by engaging the tutors in teaching and learning activities similar to those they were expected to carry out at the college. For example the use of role-play, collaborative group work and discussion box provided hands-on experiences that the tutors adapted and used in their classrooms. The use of a discussion box aimed to show the tutors how to elicit and discuss sensitive issues that learners do not feel comfortable about addressing publicly (Wessels & Rabinowitz, 2005). Coincidentally, tutors' questions retrieved from the discussion box during the demonstration showed that tutors had gaps in their knowledge about HIV and AIDS issues. Some of the questions tutors asked were:

I want to know about discordant issue: one partner having HIV while the other is negative yet, they live together, they are sexually active.

The issue of insect bite: when the mosquito bites it has to vomit first and take your blood again, yet the virus cannot be passed on. Things like bedbugs, are they not able to pass on the HIV virus?

Are condoms 100 per cent effective? Some people say they have pores that HIV can pass through.

These questions illustrate that tutors too needed to be taught about HIV and AIDS content knowledge so that they can confidently pass on accurate information to teacher trainees. To this end tutors were engaged in teaching and learning activities (about HIV and AIDS knowledge, gender and vulnerability, stigma and discrimination, life skills, drugs and

substance abuse) that constitute comprehensive HIV and AIDS education (IBE-UNESCO, 2006; Midiema, 2006). It seems that, prior to the intervention, the gaps in tutors' subject content knowledge about HIV and AIDS resulted in pedagogical practices that were teacher-centred. In other words the classroom interactions were limited to brief tutor-led question and answer sessions. The tutors feared that if they opened up the classroom space for discussions, then they were unlikely to be able to handle the questions that might be asked by the teacher trainees about HIV and AIDS. However, after a series of workshops and coupled with classrooms trials that provided the tutors with hands-on experience of HIV and AIDS education, there was an observable shift in instructional practices towards interactive forms.

In terms of biosocial pedagogy for HIV education (Davis, 2011), cooperative teaching and learning was chosen to illustrate how group work could be transformed into collaborative teaching and learning by introducing 'positive interdependence; face-to-face interaction; individual and group accountability; interpersonal skills; and group processing' to maximise learners' participation (Nagel, 2008, p.363). The workshop provided the opportunity to model cooperative learning in which the tutors were engaged in teaching and learning activities similar to those they were to use at the college classrooms. 'Experiencing cooperative learning is at the core of being able to understand it and eventually transfer and apply its principle to classrooms' (Brody, 2004, p. 187). After trialling cooperative learning approaches, the tutors were surprised that they could cover more content than they would normally do during lectures.

The whole content, almost five sub-topics were all covered. To me that was good. This is because it was a lesson that could have taken maybe three lessons, that is, three weeks, given that we have one lesson per week. So it was good to have covered the work in a week, although I had to add a few minutes because it was the first time to organise group work (Tutor Paul).

Even though a lot of content was covered, the teacher trainees pointed out that the lesson was learner-centred because they were involved in the teaching and learning activities. Teacher trainees observed that the interactive methods were a contrast to the usual lecture lessons in which the tutor dictates or writes notes on the blackboard.

It was the first time we actually got involved. I would say that this lesson was more learner-centred compared to the other lessons where the teacher dictates or writes the points on the blackboard. I think I liked this lesson because we were very busy throughout the lesson. It looked like it was short, the time ended so fast (Richard, a teacher trainee).

The experiential learning provided tutors with an opportunity not only to update their content and pedagogical knowledge, but also to develop the skills in how to infuse and integrate HIV and AIDS education into the curriculum. A comment made by a tutor during a focus group discussion illustrates tutors' experiences.

You know when integration and infusion about HIV and AIDS came into the PTE (*Primary Teachers Education*) curriculum, very little was done to sensitise the teaching staff on how the integration and infusion was to be done. It was done more theoretical than practical. But now you see here we have kind of done it practically and seen how it works and also seen the challenges that go with it (Tutor Geoffrey).

The opportunity given to the tutors during the intervention to practise and receive feedback on their teaching resulted in cumulative learning. Tutors reported progress that they were making during post-lesson individual interviews, which were in essence reflection-on-action sessions. A tutor's response to what went well in her lesson shows evidence of the progress she was making in class as a result of reflecting on and implementing the changes in subsequent lessons.

Today I used the same groups that were formed last time. So I saved time. I also organised the materials before the lesson so it was just distributing. Last time I did not use the group leaders, I was the one distributing the materials. Today I used the group leaders, they came for the materials so it was faster than what I did the other lesson. I could say I was better prepared this time and the students also knew how the lesson would go (Tutor Judy).

Experiences that tutors brought back from classroom trials also included evidence of learning outcomes. Tutors' reports included learners' observable progress in such aspects as communications skills. The tutors' comments show how the interactive methods were progressively becoming part of the instructional routine.

When learners come to class they know they are going to work in groups and they have a mind set that they are going to be very active, they are open-minded, I would say very brave now and I would say it is even improving their communication skills. The level of expression has improved each day, especially during group activities, which have become a forum for exchanging ideas (Geoffrey, a tutor).

It seems that the learners' expectations that the lessons were going to be interactive provided the impetus that made the tutors continue using interactive methods to teach about HIV and AIDS education. This finding echoes Darling-Hammond and Richardson's

(2009) observation that 'professional development that focuses on student learning and helps teachers develop the pedagogical skills to teach specific kinds of content has strong positive effects on practice' (p.49). When comparing lessons observed at the college right from the reconnaissance to the practicum phase, there is evidence that tutors benefited as a result of the collaborative action with the researcher. After each lesson, tutors would reflect-on-action to identify 'what went well and what did not go well' (Alger, 2006, p. 297). This was then followed by a discussion on what could be done to improve subsequent lessons, in other words, the tutors were engaged in reflection-for-action (Eraut, 1995). Since tutors taught in more than one class at the college, the changes made in the lesson plans were implemented in the next class. This recursive process resulted in cumulative learning as illustrated, by tutor Paul's comments about teacher trainees' participation:

The previous presentations were not very effective in the sense that sometimes it was only the presenter who was actually doing everything and the other members were just seated as if they did not participate in that issue during task time. This last lesson ... I told them that I will choose any of the members to present. It looks like this made all of them participate in the discussion. All of them were prepared because the questions that followed the presentations were properly handled by the group members.

It can be argued that the tutors were more conscious of what was taking place during the lessons because they were not only keen to see how interactive teaching could be carried out effectively to enhance learning outcomes, but they were aware that they had to provide an account of what transpired during the lesson. This shows that follow-up and support during the implementation phase of an innovation are essential for it to be adapted to suit the context.

At the end of the six-month (two teaching terms) intervention, it seems that the tutors were not only confident about teaching about HIV and AIDS in their own classrooms but were in a position to share their knowledge with colleagues who did not take part in the study. A comment by a tutor during a discussion on the way forward illustrates how participating tutors had started working with their colleagues to improve the teaching about HIV and AIDS at the college.

In my department, there are two other colleagues who did not take part in this project. I am very happy to report that one of the colleagues who did not take part in this study has actually embraced it. I guided her on how to do the first lesson, which covers the first four objectives about HIV and AIDS. She found it very easy and very interesting. And with proper guidance from the two of us who have gone through this study, I am very sure we will bring the other member on board soon (Tutor Judy).

This shows that tutors had confidence that interactive methods that they had learned during the study were effective in teaching about HIV and AIDS education. The success of the interventions was corroborated by comments from teacher trainees:

The lesson was quite interesting and I really enjoyed the method that was used. I could suggest that the same should be applied to many of the subjects that we are learning (Lel, a teacher trainee).

Teacher trainees claimed that they would be able to use similar methods to teach about HIV and AIDS in their future classrooms. A longitudinal study could be conducted that follows teacher trainees to find out how they are teaching about HIV and AIDS at primary schools.

Discussion

The findings shows that it is feasible to prepare educators to teach about HIV and AIDS education using the existing infrastructure of teacher training institutions in Kenya. The effectiveness of this on-site in-service model can be attributed to the fact that the participants had regular feedback on their teaching and support that enabled them to deal with challenges during the implementation phase (Knapp, 2003). The serial nature of the workshops provided cumulative opportunities for professional learning that is not possible in a one-off workshop in which innovations are introduced and modelled, and participants are expected to implement the programme when they return to their various institutions (Knapp, 2003; Darling-Hammond & Richardson, 2009). In contrast, modelling of interactive methods, such as cooperative teaching and learning strategies, and providing opportunities for the tutors to practise in their own classrooms were important in the transformation of tutors' instructional practice (Snow-Renner & Lauer, 2005). It was the tutors' classroom experiences of teaching about HIV and AIDS education that determined the themes addressed in the workshops and focus group discussions. In essence the workshops provided the forum in which tailor-made support was provided to tutors by addressing issues brought back from classroom trials. The classroom trials and workshops provided the tutors with 'rigorous cumulative opportunities for professional learning over time' (Knapp, 2003, p. 120). It is the opportunity to practise and bring back the experiences for further learning that made the on-site model effective. Other researchers have shown that 'the key features of in-service training associated with positive learner benefits included active practitioner involvement in the learning opportunities which occurred on multiple occasions over time'(Dunst et al., 2011, p.182). Looking at tutors comments on the progress they were making based on changes they were making in lessons taught to improve subsequent lessons, there is no doubt that change in instructional practice occurs in incremental steps.

The results of the practicum phase indicate that in order for participants to implement an innovation, professional development programmes should provide opportunities for practice in the classrooms so that participants can reflect on their experience and receive feedback about their teaching. To Guskey (2002), professional development activities are therefore meant to initiate change in teachers' attitudes, beliefs, and perceptions that takes place after experiencing success in their own classrooms. This echoes Garet et al.'s (2001) argument that professional development that focuses on content knowledge, gives teachers opportunities for hands-on activities, and is integrated into the daily life of the institution, 'is more likely to produce enhanced knowledge and skills' (p.935). Similar findings were reported by Snow-Renner and Lauer (2005), who stated that experiential learning in which teachers take part in similar teaching and learning activities that they will use in the classroom brings about change in their instructional practice. The change in practice occurs when the teachers are given the opportunity to practise the innovations and are given 'feedback on their teaching' (Garet et al., 2001, p. 920). Change in teachers' attitudes and beliefs occurs after they have seen evidence of improvements in student learning outcomes (Guskey, 2002; Dunst et al., 2011). It is the successful classroom experiences that convince the participants that the innovation can work in their context. The findings suggest that effective teacher preparation to teach about HIV and AIDS education should cover both subject content as well as pedagogical content knowledge, 'as opposed to exclusive emphasis on one or the other' (Craig, Kraft, & du Plessis, 1998, p. 109). Enhancing subject content knowledge enables teachers to design appropriate learning activities that address learners' difficulties. On the other hand, focusing on pedagogical content knowledge enables teachers to understand how learners learn specific subjects so that teachers can select activities that learners can relate to their everyday experiences.

The advantage of an on-site professional development is the opportunity it affords for collaborative planning among the participants. Literature shows that 'teachers who work together are more likely to have the opportunity to discuss concepts, skills, and problems that arise during their professional development experiences' (Garet et al., 2001, p. 922). In this study, the tutors discussed and adapted the teaching and learning materials about HIV and AIDS education that were provided to suit their instructional context. Literature shows that in effective professional developments programmes, participants work together to develop instructional materials, explore how to teach the material, and share information to strengthen each other's subject and pedagogical knowledge (Darling-Hammond & Richardson, 2009; Dunst et al., 2011). It can be argued that it was the opportunities to practise the innovations and receive feedback and support that yielded the desired changes in the observed tutors' instructional practice. The support provided was based on the needs identified by the tutors during the reflection phase. As Ottesen, (2007) puts it, it is 'through

collaborative reflection on certain aspects of the activity' that 'horizons of alternative actions are made transparent' to the presenter (p.34). Reflection-for-action was key to the progressive improvement in tutors' instructional practice. Given that the tutors were colleagues who knew each other well, the interaction during workshops and focus group discussions enhanced reflection-for-action that yielded more options for further classroom trials. Several authors argue that reflection needs to happen in interaction with other people who can offer support and extend one's thinking by providing more options (Alger, 2006; Ottesen, 2007; Husu et al., 2008). In summary, the findings show that sustainable support is necessary during the implementation phase to provide a forum in which participants can address challenges and find alternative ways to adapt the innovation to suit their context.

Implications and conclusion

The findings of the study indicate that in order for educators to change their instructional practice, they need in-service programmes that focus both on subject content, as well as pedagogical content knowledge. The fact that, during the workshops, both HIV and AIDS content knowledge and how to teach the subject, were integrated in the hands-on activities, enabled the tutors to adapt the teaching and learning activities to suit their own classrooms. Hence updating educators' content and pedagogical knowledge through experiential teaching and learning activities similar to the ones used in the classrooms not only demonstrates how the subject should be taught, but also increases the chances of adapting the innovation to suit the local context. Having up-to-date information about HIV and AIDS education increases educators' efficacy that enables them pass on the skills and knowledge to learners.

Regular opportunities to carry out reflective dialogues with the researcher provided tutors with a forum for reflection-on-action. Tutors pointed out key incidences in different phases of the lessons to illustrate progress in the use of interactive methods to teach about HIV and AIDS education. In essence, change in practice occurred progressively as tutors used the innovations in the classrooms and reflected on 'what went well and what did not go well' (Alger, 2006, p. 297). The changes made in the lessons plans for subsequent trials resulted in cumulative learning. Reflection sessions were pivotal to the process of change observed in the tutors' practice. The purpose of reflection-for-action was to affect actions-in-progress by suggesting possible solutions to the identified obstacles (Eraut, 1995; Alger, 2006; Husu et al., 2008). This resonates with Guskey's (2002) argument that 'if the use of new practices is to be sustained and changes are to endure, the individuals involved need to receive regular feedback on the effects of their efforts' (p. 387). Involving the tutors in the whole process from identification of the intervention actions and planning through to the

implementation phase enabled the tutors to come up with their own solutions. 'The argument goes that by thinking carefully about what is taking place in a given situation, teachers are better able to identify the options available' (Husu et al., 2008, p. 38). The success of the study indicates that innovations can be adapted by participants to improve their own situation if they are provided with sustained support throughout the process. In other words, change in instructional practice is a process that occurs in incremental phases and not an event that can be achieved during a one-shot workshop (Guskey & Sparks, 2000; Darling-Hammond & Richardson, 2009). Therefore sustained change in the teaching about HIV and AIDS education at teacher training colleges is likely to take place if the coordinators, both in the ministry and in the colleges were to provide continuous professional development, resources and support for tutors. There is a need to explore how the existing infrastructure put in place to mitigate the impact of HIV and AIDS through education can be responsive to educators' needs.

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VOCATIONALIZATION OF EDUCATION IN KENYA: THE CLASSROOM PRACTICE AND THE LEARNERS' RESPONSIBILITIES FOR CHANGE IN THE 21ST CENTURY

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Abstract

The essence of education is to prepare an individual for lifelong experiences after schooling. Education as offered in schools today is expected to give the teacher a chance to impart knowledge and skills in the learner, and for the learner to be informed and be able to put into practice what has been gained in the course of time. The Kenyan curriculum and goals of education are clearly stipulated if followed to the latter. Basically, the classroom practice by both the teachers and the learners exhibit an academic rather than a dual system that is expected to meet the needs of both the individual and those of the communities which form subsets of the society at large. It is upon this premise that education of a given country must prepare its individuals in schools so as to meet the goals of education at any one given time of a country's history. This paper looks at the perspective of vocationalization of education in Kenyan at this century. The history of education ever since independence in 1963 by focusing on the Ominde commission through the Koech report of 1999 have been emphatic that education must meet the national goals of education as stipulated in the curriculum. But what is edging the practice that has not revolutionalized the socio-economic, cultural and political development of Kenya? Differentiated Instruction is a teaching theory based on the premise that instructional approaches should vary and be adapted in relation to individual and diverse students in classroom aimed at achieving diversified learning and common practices in the career. The challenges herein are: where have we gone wrong as a nation, what is the practice in the classroom, when can the nation be out of this dilemma, who is to blame for the status quo and finally what is the way forward? By addressing these questions, the education system will be responsive to the changes in time and Kenya will be on the path to successful recovery.

1.1 Background to the Study

Traditionally, the vocationalization of secondary education has been seen as an effective measure for developing human resources world over. In society today, education has developed on both academic and vocational dimensions, except in cases where a nation is

biased towards one form of training at the expense of the other. Although, developing both academic and skilled form of education is regarded as being a major component applicable for both developed and developing countries, the politics of vocationalization of secondary education have determined that it has developed differently in two contexts depending on the nature of society and the goals embodied in the rationale for technology education of a given nation or society. As argued by McLean and Kamau (1999), the policy shift in developing countries during the 1990s was consistent with the changing priorities, from pre-vocational courses to strengthening general education, as formulated by the World Bank (1991). As for Lauglo (2005), vocationalization is seen as an appropriate initiative for developed countries, with well-functioning and well-resourced secondary school systems that enroll the great majority of young people to study.

Vocationalization of educations usually means the introduction of practical and/or vocational subjects, teaching and learning that offers the learners an opportunity for fieldwork or visit to the industry for practical exposure/practicum, providing vocational guidance and a more applied way of teaching general education subjects (Psacharopoulos and Loxley 1985; Hoppers 1996). This can only be practical in an organized system of training where, for example, the institutions for teacher training prepare teachers to adequately carry out the mantle of practical teaching targeted at the philosophy of vocationalization of secondary education. By teaching and providing vocational skills to the learners, it is hoped that students would more easily find work when they leave school and become more productive and trainable. Studies carried out in both developed and developing countries have shown that economic goals were and very particularly one of the main motives of introducing pre-vocational education, practical subjects and a curriculum more oriented to work (Ondigi, 1996; Ondigi, 1998; Lauglo, 2005; MacLean and Kamau, 1999).

1.2 Why emphasize on vocationalization of education?

Vocationalization of education will have different rationales, depending on the main policy goals of a given country as stipulated in its education policies. There are several categories of goals of vocationalization as suggested in this paper for such goals include: personal development goals, socio-political goals, economic and cultural goals. These goals of vocationalization are important in preparing the learner for a world of work:

1.2.1 Personal Development Goals

Existing beliefs and basic theories of general education point to the idea of a well-rounded education system that can educate “the whole person” in a manner that education should

develop and nurture in the learner moral, aesthetic, physical, and practical capacities, not just cognitive knowledge as organized in academic disciplines. Equally important is the assertion that practical subjects should have the additional justification that they allow students to learn from more active “doing” than what is typical in academic subjects (Sizer, 2001, Twoli & Maundu, 1994; Tunbridge, 1995). This practice in teaching of practical skills and familiarization with the “world of work” guarantees the learners hands-on experiences that are highly required in the world of work today. The personal development goals are therefore legitimate parts of the general education and should be introduced at ‘age-appropriate’ stage in the learner’s progression through the education system as embraced in the Kenyan 8-4-4 system of education, not necessarily only in the last educational leg before labour market entry as witnessed in most systems. According to Bloom’s taxonomy of learning, the three domains of learning: Psychomotor, cognitive and affective are necessary in preparing the learners vocationally. Essentially, education about the “world of work” is valued because it imparts knowledge and skills about an important part of learners’ lives, and purports to enable the young people to make better informed choices about their future once out of school. Thus, a system of education must nurture personal development skills, but the question is: Where has the Kenyan system of education gone wrong?

1.2.2 Socio-political Goals

There is need for a diversified school curriculum structure that can be seen as a means to greater equality of opportunities because it would purportedly cater to a wider range of talents and prepare for a wider range of future activities of the learner, than do purely academic curricula. Educational reforms world over are based on this rationale view of vocationalization aimed at improving education in teaching and learning institutions. The reforms ought to envisage policies on education that also favoured the inclusion of practical and vocational subjects as a means to break down social class barriers and inculcate respect for manual labour that will perpetuate the socio-political agenda of a nation that thrives on its educational goals. The history of colonial education in Kenya still haunts the existing reforms of education since independence that continues to perpetuate a class-system structure intended to ensure that the future educated elite would retain identification with ordinary working people and build national solidarity through influence as witnessed in most world systems including Kenya. A vocationalized system of education that can break the socio-political elite class will stand the challenges of time to ensure equity, equality and efficiency of services to all citizens in society (Sifuna, 1992; Swainson, 1993). The authors of this paper wonder: Can it be achieved given the trend of events in the education systems of this world and more particularly in Kenya? If the socio-political goals are not achieved, then the majority will be marginalized and remain at the mercy of the elite in society.

1.2.3 Economic and Cultural Goals

In the world of educational reforms today, the issue at the heart of policy debate on vocationalization of education has unequivocally been on economic relevance and existing cultures among the people of a given nation. By teaching content and relating it to the national goals of education and offering vocational skills, the hope has been that students would more easily find work when they leave school, and become more productive and trainable in society. The talk today in the labour market is a declared goal in the preparation of school-leavers for self-employment and self-reliance long after schooling. Indeed, education through vocationalization, must and should prepare school-leavers for a transition of school-to work to avoid the likelihood of massive unemployment that generates the prevalence of antisocial behaviour among the youth and creating a culture of political uncertainty in most nations of the world that results to anarchy.

According to Coombe (1988), economic goals were the main motives behind vocationalization policies of education in Commonwealth countries whereby Kenya is a member. The goals included provision of skilled and semi-skilled manpower, reduction of wasted resources caused by weak articulation between education and the labour market, technological literacy, and generally facilitating economic growth and national development. Thus, the curricula and syllabuses have been framed by educationists, personal development goals have been more evident, but these goals have not politically driven the policy interest in vocationalization or defined the issues in the policy debate concerning vocationalization of education. It is interesting to ask whether vocationalized secondary education is more 'economically relevant' than purely general education, and whether it is affordable in implementing upon recommendations by the commission reviewers? This remains a challenge bedeviling most educational systems, more particularly the 8-4-4 system in Kenya.

1.3 The Educational Reforms in Kenya Since Independence

The policy on economic relevance has been the thrust behind the educational reforms in Kenya that has seen the country enact about five educational reforms among which include: The Ominde Commission of 1964; The Gachathi Commission of 1976 referred to as *National Committee on Educational Objectives and Policies* (NCEOP); The Kamunge report of 1981; The Mackay report of 1984 referred to as *The Report of the Presidential Working Party on the Second University in Kenya* and The Koech report of 1999 commonly referred to as *Totally Integrated Quality Education and Training* (TIQUET); Report of the Commission of Inquiry into the Education System (Kenya, 1999). According to Mwiria (2002), the policy documents cited above point to six ambitious broad aims for vocationalization, namely:

- Provision of increased training opportunities for the rising numbers of school-leavers with a view to preparing them for self-reliance and self-employment through the promotion of practical skills and attitudes;
- Promotion of education and training that responds to Kenya's overall economic development and in specific sectors such as agriculture, industry and commerce;
- Development of vocational entrepreneurial skills as the basis for further individual development;
- Improvement of the production of skilled artisans, technicians and technologists for both the formal and informal sectors;
- Exposure of students to scientific and technological trends, skills and ideas and promotion of life-long skills that enable learners to better adjust to their work and domestic worlds through the inculcation of competencies that promote creativity, communication, cooperation, innovativeness and problem-solving abilities; and
- Preparation of students for further training in post-secondary middle -level training institutions as well as the university.

The Koech report marked an important watershed in the Kenyan system of education by strongly recommending that: education with the additional responsibility of teaching must ensure:

. . . a core of generic skills that would aid the graduate to better communicate, work in teams with less supervision, use information technology to access new ways of doing things, promote entrepreneurship education that has become invaluable to those in paid employment or in self -employment...and the ability to be creative, innovative as well as an intrinsic initiative for problem-solving... (Kenya,1999).

The educational reforms as instituted urge our Kenyan education system at all levels to:

- Be clear about the outcomes we seek to establish in society.
- Collaborate to redesign structures and processes for effectiveness, efficiency, and flexibility in our daily operations.
- Continually monitor and measure our performance against agreed global standards.
- Hold our education system accountable for progress and results in every step of the way our country grows and develop.

Today, the instituted educational reforms have not brought about robust changes expected for the education system remains academic and examination- oriented in nature rather than being vocational by practice. A dual system of education as in Canada, USA and Germany can guarantee both academic and hands-on experiences to our graduates that when they

complete schooling, they are able to realize the national goals of education (Ngome, 1992; Mwiria, 2002). Technologizing education through vocational training will offer some positives that are likely to bring change to society. Just as technology is at the core of virtually every aspect of our daily lives and work, we must leverage it to provide engaging and powerful learning experiences, content, and resources and assessments that measure students' achievement in more complete, authentic, and meaningful ways. Technology-based learning and assessment systems will be pivotal in improving student learning and generating data that can be used to continuously improve the education system at all levels. Technology will help us undertake collaborative teaching strategies combined with professional learning that better prepare and enhance educators' competencies and expertise over the course of their careers (Ondigi, 2009). By instituting existing educational reforms, Kenya can learn from other kinds of enterprises that have used vocational education and technology to improve outcomes while increasing productivity.

1.4 Issues of Concern in the Kenyan Education System

As a nation, Kenya needs to rethink its education system if the country is to address the socio-economic, cultural and political inadequacies that have persisted over time. The nation should work on the belief that education is the key to socio-economic growth, development and prosperity and to Kenya's ability to compete in the global economy (<http://www.cdac.in/html/pdf/Session1.1.pdf>; Muya, 1993). Ideally, this change in thinking is the path to good jobs and higher earning power for citizens to realize the effects of educational reforms and change. It is necessary for our education system to rationally and democratically revolutionize the thinking and innovativeness of school-leavers to put knowledge and skills to work long after schooling. Vocationalization of education should work to foster the cross-border, and cross-cultural collaboration required to solve the most challenging problems of our time that include poverty, underemployment/unemployment and slow pace of socio-economic, political and cultural development (<http://ericir.syr.edu/plweb-cgi/obtain.pl>). Why have the educational reforms in Kenya not revolutionized the society to expected levels of change?

Essentially, education can bring about the expected changes if the system is to recast and forecast the expected changes. This situation is only possible if a nation must embrace innovation, prompt implementation, regular evaluation, and continuous improvement. Therefore, the educational programmes and projects that work must be brought to scale so that every system of schooling has the opportunity to take advantage of that success. The pertinent question to ask is: Has the Kenyan system been responsive to the labour market demands? If not then, the Kenyan system of education must establish regulations, policies, actions, and the grand investments that must be strategic and coherent. In essence, is

vocationalization the answer to the challenges facing the education platforms in Kenya or where has the system gone wrong? These yet remain to be challenging issues today.

1.5 Justification of this Study

Whereas it is possible that vocationalization can bring about change in society, the question is whether this goal is realistic and under what circumstance can the expectations be realized? The authors of this paper feel that this can be achieved where the efforts are geared towards comprehensive educational policy reforms that are focused on the stated objectives. However, there are several advantages of vocationalization of education which include among others:

- a) Vocational courses that can produce personnel with necessary drive and dash to give a lead to society in the matter of self-employment and commitment to development.
- b) Society might benefit by an enlarged supply of technical manpower and leadership at grassroot level.
- c) Vocationalization can help to accelerate the economic growth by producing the right type of personnel for initial level of absorption.

1.6 The Policy on Vocationalization of Kenyan Education

According to Akyaempong (2002), vocationalization policy has broad objectives which can add value and meaning to an existing system of education and these include:

- a) Exposing pupils at the Basic Education level to a range of practical activities in the vocational field in order to make the learners familiar with, and stimulate their interest in, vocational subjects and so give them equal opportunity to choose their future careers in either the technical or general field.
- b) Equipping students who have completed Basic Education with those occupational skills that will enable them to enter into gainful employment in industry and commerce.
- c) Equipping students with the relevant productive and entrepreneurial skills that will prepare them for self-employment in the communities, society or labour markets.
- d) Providing trained human resources in science, technology and commerce, matching supply of skilled labour with demand.
- e) Providing personnel with the technical knowledge and vocational skills necessary for agricultural, industrial and commercial and economic development while at the same time paying attention to environmental issues.

- f) To give training and impart the necessary knowledge and skills to trained manpower leading to the provision of operatives, artisans, craftsmen, technicians, and other middle -level technical personnel.
- g) To enable the youth to have an intelligent understanding of the increasing complexity of science and technology through systematic exposure to modern technology.
- h) Encouraging the increased participation of women in education, training, and employment in the technical field.
- i) Providing a sound foundation for further education for those students who may wish to continue with their education later in the context of life-long education (Baiden, 1996, p.93).

1.7 Pedagogical Practices That Will Provide Change the Vocationalization of Education

In classroom practice, the teacher has the opportunity to transform the learner into an all-round person that operates in the society with ease (Kibera, 1993; Kerre, 1991). The pedagogy used must in part be about the production of identities which in essence the curriculum is modeled after the institutional culture that is enormously successful in preparing students for low skilled, service work in a society that has little to offer in the way of meaningful employment for the vast majority of its graduates. Institutions of teaching/training and learning should therefore, provide some insights into how education should be reformed to meet the expectations of the learners and society they are bound to serve (Ellis & Worthington 1994; Omulando, 1988). The pedagogy used should base its operations on the problem-solution based approach which is built on the premise that first it is to establish the existing problem, learn about it and consider other possible alternatives to the problem; second, outline the best cause of action to the problem by identifying a team to look at the best alternative methods to the problem; third, outline the solution approach to the problem for implementation; fourth, work closely on the problem and where necessary improve on the shortcomings, and finally monitor and evaluate the procedures of operations that work best for each case under review. The authors of this paper acknowledge that this process will offer the best solution to existing problems rather than accumulating knowledge for the sake of being knowledgeable. Apparently, without the education system offering meaningful socio-economic, cultural and political changes, then a nation will neither grow nor develop but rather the status quo will persist unless vocationalization of education is given a chance as in Europe, America and Asia.

The issues of quality education are best understood through teaching and training of individuals in the institutions of learning. The question of classroom practice should have to recognize that the problems of meeting the goals of education and expectations of all

individuals in the society must be achieved through accountability, transparency and cost-effectiveness of doing one's duty, that is, time management of resources and the blight of the individual and society. The problems of education and its objectives must be addressed in the realms of values and politics of the day while engaging critically the most fundamental beliefs citizens have as a nation regarding the meaning and purpose of education and its relationship to democracy, socio-economic, political and cultural development. Education must address the very woos of the society and make the individual satisfied.

The existing conditions and experiences show that institutional corporate cultures are a threat to faculty and students given the way programmes and the daily operations of these institutions are conducted. Universities world-over are increasingly modeling themselves after corporations and therefore, it becomes crucial to understand how the principles of corporate culture intersect with the meaning and purpose of the university, the role of knowledge production for the twenty-first century, and the social practices inscribed within teacher-student relationships. Apparently, the operations are not encouraging as universities have become "markets of knowledge " and therefore, there is more at stake in university reforms than the realities and harsh principles of cost cutting.

One consequence of the prevailing policies in universities is an attempt to curtail academic freedom and tenure of staff which results in resignation from within and fear among the staff. Institutions of higher learning have become business oriented and therefore, have to focus on the priorities of developing infrastructure and not the individual as exemplified in some universities in Kenya. Despite the increase in enrolment of students in these universities, there are sparingly no efforts in recruiting staff to meet the increases in student enrolment which compounds the problem of effective teaching/training through vocalization. The student –teacher ratio in one of the seven Kenyan universities is about 1: 43, but this does not apply to all schools, for example, the school of education. The downsizing and deskilling of faculty is also exacerbated by the attempts on the part of many universities to expand into the profitable markets of distance education as exhibited (http://rcswww.urz.tu-resden.de/~ast/Alumni/Beitraege_Vientiane/Artikel_Lois_Wendrock.pdf).

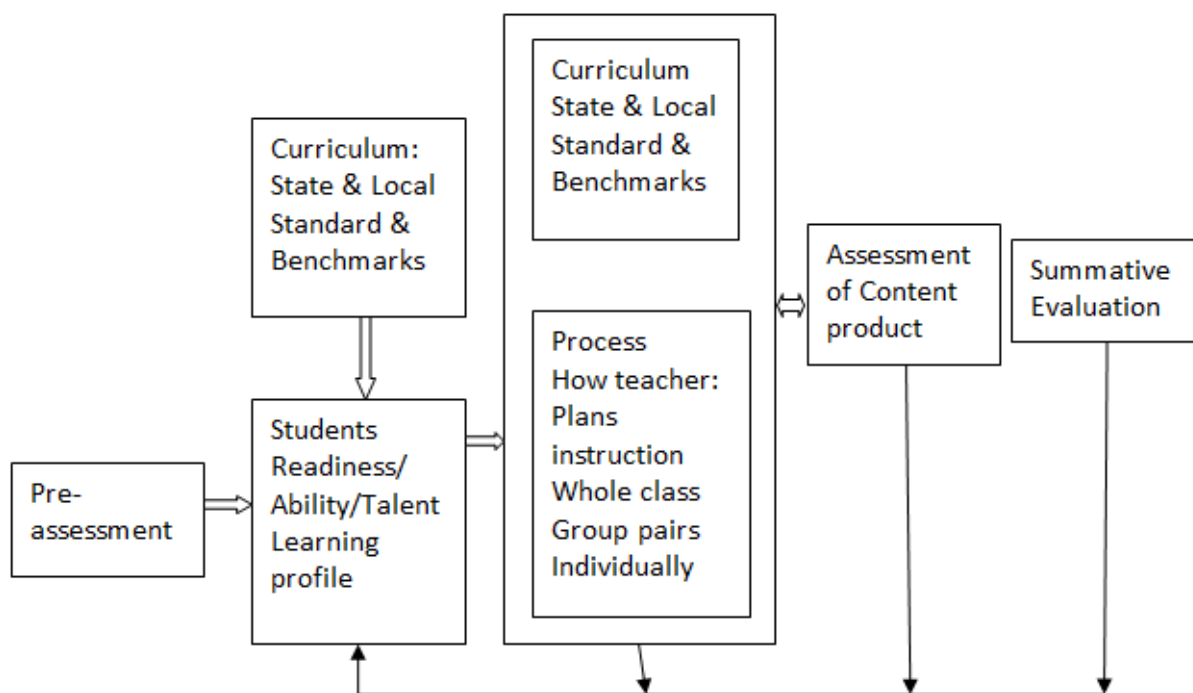
1.8 Classroom Teaching; Learning practices and the Learners' Responsibilities

The use of differentiate instruction is to recognize students varying background knowledge, readiness, language, preferences in learning, interests, and to react responsively by providing education that meets the interest of the learners and desires of society (Guild & Garger, 1998; Willis & Mann, 2000). The units covered must fit the objectives of the curriculum and contain content that offers knowledge that is relevant to the career

development of the individual and the very needs of the society (Lauglo & Maclean2000; Mazrui, 1994; Muya, 1993). Differentiated instruction is a process to approach teaching and learning for students of differing abilities in the same class but on diversified skills. The intent of differentiating instruction is to maximize each student’s growth and individual success by meeting each student where he or she is, and assisting in the learning process for the market skills (Oaksford & Jones 2001; National Educational Technology Plan, 2010; Tomlinson, 1995 & 2000).

According to the authors of this paper, several key elements guide differentiation in the education environment that influences the teaching and learning of students in the classroom. Tomlinson (2001) identifies three elements of the curriculum that can be differentiated: Content, Process, and Products as seen in figure 1 below:

Figure1: Showing learning circles and decision factors used in implementing differentiation instruction



Adapted from Oakford L. & Jones L (.2001)

According to figure 1, teachers need to develop ideas around differentiating instruction based on:

[i] Content: It is important for both the teacher and the learner to be aware of the content to cover and the teaching and learning resources to be used in the process. Several elements and materials are used to support instructional content including: acts, concepts,

generalizations or principles, attitudes, and skills. The variation seen in a differentiated classroom is most frequently the manner in which students gain access to important learning. Teachers are expected to use varied pedagogic strategies that will enable the learners realize the goals of education. This is only possible if the teacher prepares for the lesson by emphasizing on Bloom's taxonomy of teaching and learning domains.

The pedagogic strategies used in the classroom should be focused on aligning tasks and objectives to learning goals. Designers of differentiated instruction determine as essential the alignment of tasks with instructional goals and objectives. Goals are most frequently assessed by many high-stakes tests at the state level and frequently administered standardized measures. Objectives are frequently written in incremental steps resulting in a continuum of skills-building tasks. An objectives-driven menu makes it easier to find the next instructional step for learners entering at varying levels.

While in the classroom, instruction should be concept-focused and principle-driven with an effort to realize the expected vocational skills. Teachers must focus on the concepts, principles and skills that students should learn. The content of instruction should address the same concepts with all students but be adjusted by degree of complexity for the diversity of learners in the classroom to gain meaningful knowledge and skills.

[ii] The process should use flexible grouping approach for the strategies of flexible grouping are essential in making the learners design their own learning. Learners are expected to interact and work together as they develop knowledge of new content and likely skills to be learned. Teachers may conduct whole-class introductory discussions of content, big ideas followed by small group or pair work necessary in perfecting skills. Student groups can be coached from within or by the teacher to complete assigned tasks as the grouping of students is not meant to be fixed. Based on the content, project, and on-going evaluations, grouping and regrouping must be a dynamic process as one of the foundations of differentiated instruction.

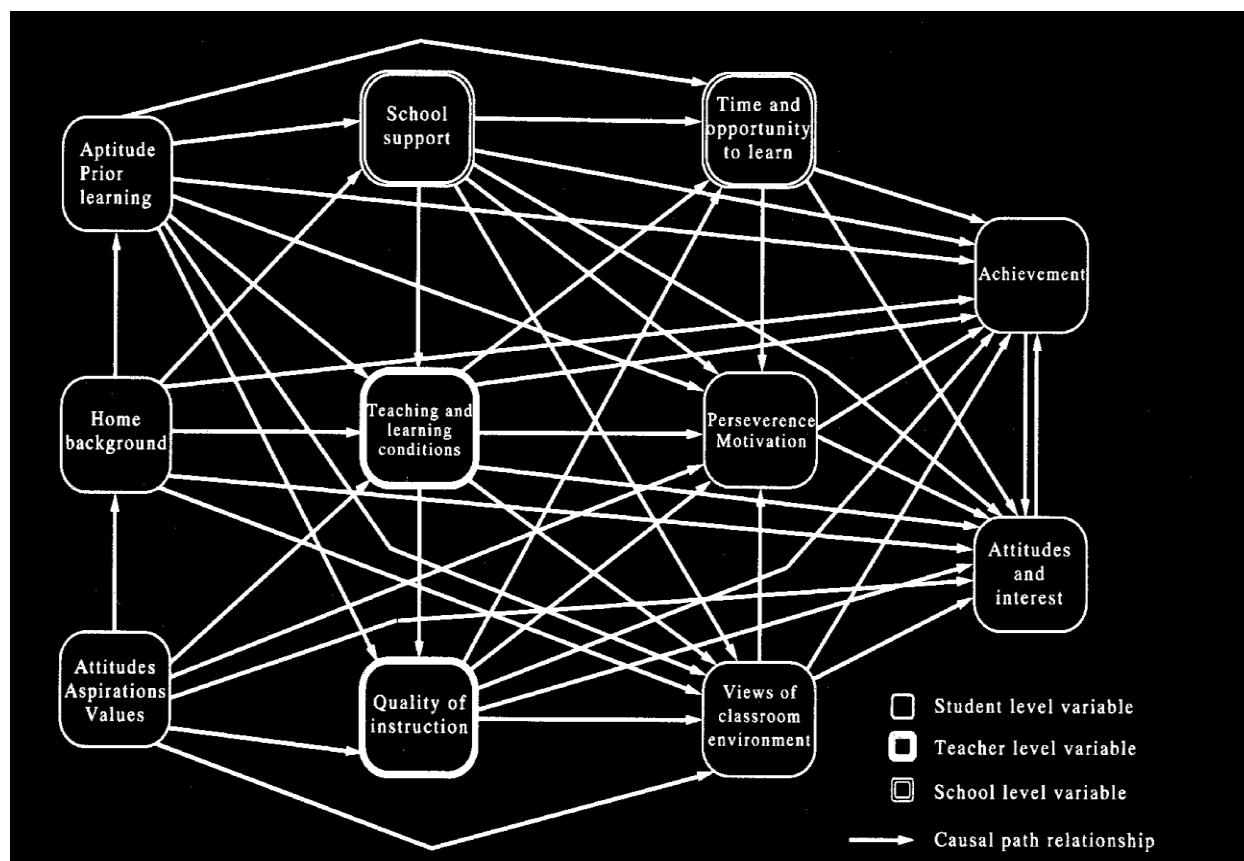
This approach needs a well-organized classroom management that can benefit students and teachers. Teachers must consider organization and instructional delivery strategies to effectively operate in the classroom using differentiated instruction (Tomlinson, 2001). The learners have a responsibility of designing their future given the accumulated knowledge and gained skills. The learning process must be critically planned, endured during the course of study and perfected by engaging in practical learning at all stages of the training. The learners have a responsibility to give back to the community and society at large for they have a role to play in nation building as articulated in the goals of education of any given nation. The future of the nation depends on the blight of the learners.

1.9 Challenges Facing the Training of Teacher Trainees in the Kenyan Universities

The challenge to our education system is to leverage the teaching and learning of content and modern technology to create engaging, relevant, and personalized learning experiences for all learners that mirror the students' daily lives and the realities of their future to society (Ondigi, 2009; Kerre, 1990). In contrast to traditional classroom instruction that has been the norm over time, there is apparent need that requires our education system to put students at the center and empower them to take control of their own learning by providing flexibility on several dimensions. This opportunity will give the learners a chance to have hand-on experiences and realities in life that concretize their skills so as to meet the desired career goals. Thus, the existing system of education should endeavour to provide work tailored to individual goals, needs, interests, and prior experience of each learner. Today, the system of education is expected to advocate for a curriculum based on vocationalization of education that will support student learning in areas that are of real concern or particular interest to them, for personalized learning adds to its relevance, inspiring higher levels of motivation and achievement. The biggest challenge is how can this ambition be achieved under the prevailing circumstances in our training institutions?

Essentially, educational reforms ought to focus on the practices that guarantee training in hands-on experiences besides knowledge acquisition. Figure 2 model below identifies some of the variables and sketches of the relationships influencing student performance that guarantees vocationalization of education.

Figure 2: A simplified model of student performance



Source: Adopted from Keeves and Adams (1994)

The success of an education system as shown in figure 2 depends on the interrelationships between and among the concepts of teacher quality, policies designed to enhance them, the context of schooling, and the dynamics of teaching and learning which are highly complex and dependent upon time available, prevailing circumstances and attitude of all those involved in the realization of the expected desires and goals. As for the schools to provide opportunity to learn, they must operate regularly and provide the required infrastructure to give students a chance to learn and be able to put knowledge into practice. Essentially, teachers must be prepared and care about what students learns, and they should also be competent to teach the curriculum that is broad, blended and progressive for society is changing every day. Otherwise, education and training must vividly seek and specify those inputs which determine academic achievement and knowledge skills which translate directly into increased productivity of labour or those that can enable learners' acquisition of further formal education that is vocational in nature.

Therefore, the process of vocationalization of education is not possible without concerted efforts that specifically address the learning environment as stipulated in figure 2, but it is not only limited to: aptitude prior learning, home background, attitude aspirations values, school support, teaching and learning conditions, quality instruction, time and opportunity to learn, perseverance motivation and views of classroom environment, all of which lead to

career achievement in life. The school characteristics of a quality institution are important in the process of vocationalization and these must include:

- Teaching methodologies designed to encourage independent thinking among learners;
- Capable motivated, and well-trained teachers who can provide the required guidance;
- Appropriate and well-designed curriculum that can withstand the tests of time;
- Effective teaching and learning equipment and materials including, but not limited to, textbooks, laboratories, workshops, tools and machinery;
- A safe and well-maintained teaching and learning environment;
- A valid and reliable examination system that tests both academic and practical skills;
- Effective school leadership that operates on systems approach including instructional supervision;
- Ample direct instructional time for the completion of the syllabi;
- Adequate financing; and effective organizational structure and support (World, 1997, 92).

An education system can only be responsive to changes in society and add value to the learners when it in-cooperates the objectives of basic technology that include developing skills and knowledge for:

- (i) Designing, problem-solving, decision-making, researching and the application of information, in order to carry out practical and useful tasks in the home and community;
- (ii) Using and operating the different tools and equipment safely and efficiently and
- (iii) Understanding personal, physical, mental, and emotional growth.

Lauglo and Maclean (2000) argue that a system of education, theory of pedagogy, or national education policy that does not promote the institutional role in nurturing learners' self-esteem fails to carry out one of its primary functions. The institutions of learning should therefore build on the management roles that foster new relationships between school and community and redefining the organization of schooling and educational policy that enhances practical learning of vocational nature. Therefore, vocationalization of education refers to a curriculum structure in which students devote a share of their class time to vocational or practical subjects that enhance their future prospects for higher education.

1.10 The Way Forward in Providing Quality Education for the 21st Century and Societal Transformation.

The world is changing rapidly and has become a global village due to rapid expansion of technology. The education system of any given country must be responsive to meet the labour demands as school-leavers look for jobs all over the world. The globalised economy creates opportunities, challenges and unpredictability to the learners. The great challenges of sustainability and the shifting demographics of global population requires new thinking, and collective responsibility of action to overcome labour challenges through an organized education system that is responsive to change (World Bank, 1991; Hoppers,1996; Psacharopoulos & Loxley,1985). Apparently, there is dimensional need to increase our understanding of human intelligence and behaviour so as to know more about how we can prepare learners effectively, for the value of learning throughout life requires a vocationalized education system. In essence, young people nowadays bring with them to class the expectation not just to sit and listen, but to participate, to interact, and to shape their future through an education system that guarantees opportunities.

Ever since independence in 1963, Kenya has seen and realized improved standards in education, the quality of teachers at all levels is getting better though not significantly, and investment in infrastructure, IT and resources are growing though the concerted efforts have not realized the expected international levels. However, in our changing context, the old models of education born of the colonial era has not realized significant change and therefore, there is a need for an overhaul that reflects the desires of the nation, the needs of the community and commitment of the citizens to adaptive change. If we want to help our young children to be in charge of their own destiny and leaders of tomorrow who can thrive in the 21st century, then we need not just to adapt, but to transform our education system to meet our expectations. Therefore, the Kenyan policy on education should be enforced on the set out principles that we believe should inform future development of education for young people, which include learning of all kinds, whether formal, informal or non-formal, and whether offered by schools, colleges, universities, training organizations or elsewhere that is based on the principles of vocationalization.

In the vocationalization of education, the primary purpose of the stipulated educational policies must awaken a love of learning in the young people, and give them the ability and desire to carry on learning throughout life that meets the ultimate goals of education. The authors of this paper propose that the Government of Kenya and other educational stakeholders need to recognize that education has many aims among which include:

i] Nurturing innovativeness, creativity and capacity for independent and critical thought.

ii] Embracing teaching and learning through hands-on processes that guarantee young people formal education equipped with the confidence, aptitude and skills they need for life and for work.

iii] Helping young people to be holistic in their career goals, to develop and maintain their own emotional, physical and mental wellbeing.

iv] Teacher at all times being creative and professionally involved in the design of curricula and learning environments, and should be supported and developed to fulfill that role.

v] Educational policy must offer a partnership in which learners have a valuable role to play in contributing to the design of their own learning, and in shaping the way their learning environment operates in order to put into practice the knowledge and skills gained through schooling or in a non-formal setting. This is necessary in ensuring that learners do not acquire knowledge theoretically without hands-on experience.

vi] The learning environment must promote a symbiotic environment in which the education of young people should be a partnership of the government, schools, parents and the wider community in a local area so as to benefit all. Education is meant to develop all parties in all aspects possible but not the individual alone.

vii] Any changes anticipated and initiated must enhance a climate where schools should be inclusive, enhanced creative communities which build tolerance, respect and empathy in young people for the good of society. If communities stand to be condemning, then society will never advance or positively impact growth and development.

viii] Experience has it that education should engage the learner with exciting, relevant content and opportunities for learning through experience and by doing.

ix] Evidently, the curriculum in schools and other institutions of learning should balance academic and practical knowledge so that every learner can access high quality academic and vocational opportunities that present a school-leaver with opportunities in the global market.

x] The educational success of learners should not depend on their background as this will create social classes, but schools, communities and families must work together to close gaps in attainment. The current educational practice in Kenya provides a fertile ground for class education that will result in social class segregation in the distance future and very limited hands-on experiences.

xi] Learners are endowed with different talents and can only prove their potential if given an opportunity. Thus learners need to be supported to enjoy success no matter where their talents lie. Therefore, learners should be given an opportunity to exploit their best talents and potential but not coerced to undertake programmes that are well paying like medicine, engineering and business studies. Open Vocational Education places emphasis on vocational education, which equips the learners with skills of productive work and prepares productive workers to actively participate in the development of the society (<http://www.cdac.in/html/pdf/Session1.1.pdf>).

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THE GENESIS AND EFFECTIVE PROVISION OF AFFORDABLE EDUCATION AT KENYATTA UNIVERSITY THROUGH SELF- SPONSORED PROGRAMMES

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INTRODUCTION

The mission of Kenyatta University from the inception was mainly teaching, research and service to the society. However, due to reduced funding from the government to University programmes worldwide, a fourth role namely; commercialization of some university programmes for purposes of generating additional revenue was added.

The British universities during Margaret Thatcher's regime, for example, were encouraged to use their resources and market their programmes to attract foreign students to meet some of their needs. Professors and lecturers who developed courses, which were attractive to foreign students were promoted and retained. Those who were unable to generate funds were retired. Universities in North America on the other hand turned their attention to consultancy with industries. The industries in Europe and America went further to request universities to help them with research to improve their commodities. In the process, the universities of the west developed the concept of entrepreneurial and adaptive university which became a significant development from the traditional model.

It follows therefore, that to become entrepreneurial and adaptive, there must be a need for perceived and thought philosophical position in which community service becomes a desirable and an integratable part of the university mission. If entrepreneurship is well done, it may become essential to the institutional survival and an important base for industrial growth as well as university financial strength.

Kenyatta University has a reservoir of expertise in the development and transmission of knowledge, which could be used to help enhance the much needed finance base for operation and survival in the challenging global market. It could market its education programmes throughout the region just as British and United States have done with their programmes.

Whatever approach is taken in marketing popular and specialized programmes, the university can only succeed in generating money when it is able to ensure that there is no

tension between the new programmes and the regular activities such as teaching, accommodation, space and administration. Both self-sponsored and regular students should be treated fairly and equally. All programmes should be harmonized to minimize tension. The harmonization may involve effective, internal and external incentives directed towards the promotion and delivery of entrepreneurial and notable goods and services.

To achieve the goal and purpose of meaningful entrepreneurship, there is need to distinguish the difference between income-generating activities and those academic liberal programmes. There should be appropriate organization and structure between the conventional academic programmes and those of income-generating.

The income-generating activities should be allowed to operate as decentralized, profit making ventures and not as conventional professional bureaucracies. Anybody dealing with income-generating should be aware of the challenges and competition in both public and private universities as well as the private sector. Whatever business the university ventures into, it must however, be within and limited to its mission.

THE NEED FOR INCOME-GENERATING

Over the years, there has been a decline in the funding of university programmes throughout the world. Kenyatta University is no exception as it has also experienced constant reduction of funds from Government. According to one of the Committees on Higher Education (CHE) 1998, the unit cost per student was KSh. 750/=. This unit cost was much less than what was actually spent on a student per year. It could not sustain the student for a year because of the increasing cost of educational materials and accommodation services coupled with staff requirements therefore becoming difficult to sustain university operations on the approved estimates. Kenyatta University needed to take drastic measures to improve income-generating activities to act as a base for more funds.

The government, on the other hand had indicated its intention to reduce education budget from 40% to about 37% and this could be reduced further. Public universities were therefore being requested to explore ways and means of funding some of their programmes with funds generated from other sources. There was need for public university to participate in cost sharing with the government.

The need to diversification was emphasized when the Ministry for Education addressed the Vice Chancellor on 22nd June 1994 and said that universities are at a turning point in development and hence they should adopt business like financial management style. He

further called on Vice Chancellor to look into other ways of generating income by introducing new programmes, which could attract more students to bring income.

Kenyatta University lecturers have been undertaking assignment in various private and public universities where their services I teaching have been required. Others have engaged in private consultancies and even formed consultancy companies in their private capacities. A number of lecturers also have sourced for research funds from organizations such as Rockefeller, Ford Foundation, UNICEF, etc., but these have not brought much money to the university, yet they use the name of the university to give added value. This was so because there was lack of policy on income generating activities at the University.

There was therefore dire need for a critical review of the management of income-generating at Kenyatta University. The accounting procedures were to be critically looked into. The person in charge of income-generating activities was required to prepare an annual budget projection to be approved by Senate and Council showing income and expenditure. Remuneration packages likewise were to be approved by Senate and Council and payable at competitive market rates. All these were only possible when policies to govern income-generation in the University were in place.

SCHOOL BASED PROGRAMMES

School Based, Parallel, Model II or ADP Programmes started in Kenyatta University when Professor G.S. Eshiwani, the then Vice Chancellor appointed a Senate Committee chaired by Professor H.O. Ayot with the mandate to look at the possibility of introducing programmes for serving teachers to come to the University during holidays to pursue higher education.

In 1997 graduation ceremony professor Eshiwani announced the intention of Kenyatta University to start self-sponsored programmes. The suggestion was welcomed by the then Chancellor President Daniel Arap Moi. Following the announcement the othe Vice Chancellors who attended the ceremony moved with speed and started their programmes. Nairobi University started parallel degree programmes which became known later as Module II, Moi University started privately sponsored programmes, JKUAT started alternative degree programmes and Kenyatta came up with school based programmes which later on changed to institutional Based Programme as it became obvious that not all students were teachers are in schools. A good number of students came from research institutions, private sector and industries and other education institutions (e.g. K.I.E., K.I.A, and TSC). These categories of students were given leave by their employers to attend the courses during the holidays.

School Based Programme at Kenyatta University was started after careful consideration and wide consultation with institutions abroad, which run such programmes such as University of London, Bristol University, University of Surrey and Warwick University in Britain. The programme caters for teachers with P1 and Diploma certificates. In regular teaching 36 contact hours are required for one unit and a maximum of 12 units a year. For institutional Programmes, each unit was to cover 28 contact hours and a further 14 hours were converted into assignments and practicals. All students were required to attend residential sessions at the University during school holidays of August, December and April. The student's progress is followed through institutional based guidance under quality assurance visits on 18 hours per session i.e. 72 hours per academic year. A student was expected to take 12 units per year, but could be allowed to take more units in consultation with the Chairman of the Department concerned.

A student who misses more than $\frac{1}{4}$ of the lectures given for unit would be barred from sitting examinations for that unit. A student, who misses any of the quality assurance meetings, would have his/her assignment marked out of 20 or less instead of 25 depending on the number missed.

In practice, School Based students had more contact hours than the required thirty six (36). In the timetable students had 9 hours a week for each unit. The week is 6 days including Saturday thus 9 hours x 4 weeks + 18 hours quality assurance visits = 54 contact hours per unit.

Examination for School Based was constituted of 50% of final examination and 50% for continuous assessments (CATS), assignments and practicals.

Students with Diploma in Education were given credit waiver for those courses, which they have attained scores of C and above. In any case, accredited unit did not exceed 19. These credit waivers were restricted to students from Diploma Colleges such as Kenya Science Teachers College, Kagumo Teachers, Kenya Technical Teachers College and former Siriba and Moi Teachers Colleges. Programmes of these colleges were properly evaluated by the senate and found to be equivalent to $1\frac{1}{2}$ years of the University work although British, American and Australian Universities gave an equivalent of two years. However the grades of accepted transfer courses (or earned credits outside the University) are not included in the computation of Kenyatta university grade point average.

The diploma holders were required to complete the last 30 units at Kenyatta University. Because candidates are allowed to take off whenever there is a problem, which could be financial, sickness or family commitment. Grade Point Average (GPA) was preferred in this

programme. GPA system was to allow them to pick up from where the candidate took off. The system allowed examination of the student's academic standing as a whole.

In addition to undergraduate degree programmes the university explained to other Post graduate programmes (PGDE, M.ED, MSC, MBA, MA) under the Institutional Based mode of study.

The first six hundred (600) graduates of this programme came out in October 2001 and were posted in secondary schools and other institutions. Some have been promoted to principal level and some have been deployed in administrative positions. Since then, over 4,000 students have graduated under the programme. It is time that the University conducted a tracer study to compare them with other graduates for their effectiveness.

OTHER SELF-SPONSORED PROGRAMMES

Kenya University did not admit self-sponsored students under the regular mode of study until Professor Standa took over from Professor Eshiwani as the Vice Chancellor. Having introduced and conducted a successful privately sponsored programme as a Director at Moi University he appointed a Committee chaired by Professor H.O. Ayot with the following terms of reference;

- Review policy governing the various Income Generating Activities (IGAs) at the universities.
- Develop policy to regulate the operations of the income-generating activities and the distribution of generated funds.
- Develop policy on service providers.
- Explore information on income-generating from other universities, both within and from Eastern African Universities.
- Recommend necessary changes in the structure of administration, for effective management.
- Prepare a report with recommendations to Senate.

After extensive deliberations on the stated terms of reference the Committee submitted its recommendation to a University Joint Management Seminar in Mombasa held on 15th – 19th June 2003. The Committee's recommendation to start self-sponsored programmes for regular students was accepted and Prof. H.O. Ayot was appointed its first Director.

Kenya University did not want to have tension, which had been experienced by University of Nairobi between the regular and parallel students and hence the Vice Chancellor

appointed another Committee to look into ways of getting other facilities to accommodate the increased number of students. Prof. H.O. Ayot chaired the committee with mandate of sourcing for other facilities. The Committee identified Ruiru High School and St. Annes Academy as additional facilities. This initially caused a lot of misunderstanding among some of the deans of schools. However the Vice Chancellor and Management Board gave the negotiating Committee the necessary support for the purchase of the two facilities. This was also supported by the Council and Government.

The new Ruiru Campus established six (6) well-equipped laboratories namely Chemistry, Physics, Biological, Biochemistry and two Computer laboratories. The University also completed the first phase of the campus library. The library was developed in three phases as the number of students increase. The second phase was to be completed in the 2005/2006 academic year. When completed the campus would have a modern campus library.

Kenyatta University Parklands campus was meant to run popular Business programmes which were market driven such as Bachelor of Commerce, Bachelor of Human Resource Development, Master of Business Administration, Diploma in Business Management, Diploma in Human Resource Development, Master in Entrepreneurship and Certificate in Crime Prevention.

Initially the University was planning to introduce new market driven courses such as Social Work, law and bachelor of Forensic Science. There was a great demand in Nairobi for evening classes and the University wanted to meet the needs of these people who are working by introducing such courses, as Diploma, Bachelor and master Levels. The campus had facilities, which could be used effectively to benefit Kenyans who needed higher education.

In terms of facilities, Parklands campus had a small but modern library with modern books mainly in Business. However, with the growing number of students library facilities were to be expanded. There are enough classrooms for at least 200 students in one sitting. There is a well-developed computer laboratory, which is necessary for Business oriented programmes.

Having no accommodation, the University provided necessary advice for students who required accommodation around the campus. The University however, runs a small efficient restaurant for students and staff. There are indoor games and other facilities for students clubs. A well-known Security Firm guards the campus. Arrangements were made for

network connectivity, which was to connect the campus library with the main University Library.

What was unique about Kenyatta University self-sponsored programmes was that we could give residential accommodation to all students studying at Ruiru campus. Students at Parklands campus were accommodated in privately owned hostels in Parklands and Elgon Court near Kenyatta University. Having two campuses purely for self-sponsored students that mean that we could send students away for lack of quorum. Where we had few students we integrated them with other students on the main campus.

For teaching purposes both government and self-sponsored students were taught by the same lecturers. All students used both main and other campuses libraries.

Students counseling was very important and there were Assistant Deans for each of the campuses and wardens in every dormitory. There were some problems in adjusting in the two new campuses because there were no elder brothers to advise the new ones but as the time went on they were settling down.

ENROLMENT

Since the University opened its doors to admit students who meet the minimum university entry requirement of C+, the population of self-sponsored students has continued to grow steadily. The current enrolment to various degree and diploma programmes is over ten (10) thousand (table 1)

GENERAL OBSERVATION

There have been suggestions that National Universities should have areas of excellence. This is an idea, which was developed during medieval universities but disregarded with emerging universities. Oxford, Cambridge and University of London were supposed to specialize in certain areas, which were considered to be their areas of excellence. Those areas of excellence were associated to personalities and once those personalities moved or retired the universities were no longer considered competent in that area.

Kenyan Universities should not emulate medieval universities by over concentrating in one area. These ideas of area of excellence may not allow competition. National universities should be allowed to develop, as they want. For example there is no full-fledged university in the world, which I know, which does not have education courses. Full-fledged universities

have Arts, Science, Education, Law, Medicine and Engineering programmes, less than that the university would be called a college.

Academic freedom means that a University is allowed to develop its own potentially at its Senate wishes to do so. This much talked about idea of confining National Universities to areas of excellence is counter-productive and should not be recommended. Let each university grow at its own pace. The attempt of CHE to control University programmes should be resisted at all cost. The University Senate should produce courses as they see fit.

Finally when diversity is allowed there are a few things, which must confer with international standards. For example, the number of contact hours that the units or years needed for various university programmes (e.g.) Ph.D, Masters, Undergraduate degree, Diploma and Certificate. Glances of University of London, Harvard University and Oxford Universities have the following.

1. Extramural courses could run from 1 to 3 courses leading into a Faculty or departmental certificate.
2. University certificate run from 12-14 units leading to University Certificate.
3. University Diploma run from 24-26 units leading to University diploma whose courses could be transferred to degree programme.
4. University degree runs from 48-52 units depending on the Faculty of school.

Extra mural courses are offered to people who would like to improve their competence in an area. It has no entry requirement and cannot be used for entry at a University.

University certificate usually have entrance requirement. In Kenyan situation entry to a University programme from certificate course is a minimum of C- at KCSE but after taking 12 units of teaching programme and successfully passing at minimum grade of credit two (2), the candidate may be allowed to join the University for a Diploma course. Minimum entry requirement for Diploma is C (plain) at KCSE. Diploma holders can join relevant degree programmes with a possibility of credit transfers.

There is a common practice in universities in denying teachers and other professionals a chance to further studies through continuing education arguing that they did not do well in KCSE which they did many years back. Kenyans should be allowed to progress from certificate, diploma to degree level. Anybody with Bachelor's degree with outstanding experience in his/her area of work should be allowed to do a higher degree in his/her area of excellence, Even if they had a weak grade upon graduation.

University system should be open both for direct school leavers and those who later realize their potentially through Certificate and Diploma upgrading. One should not be judged only through Kenya Certificate of Secondary Education. Many countries now consider KCSE, experience and other qualifications for university entrance and Kenya should do the same. Though self-sponsored programmes the university has realized much more needed funds to run various operations in their recurrent budget (table 1). Development at Kenyatta University after 2005 could be a good example which needs a separate study to show how University can generate its own funds and become self sustained.

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EFFECTS OF MENTORING AND INCULCATING LIFE SKILLS TO UNIVERSITY STUDENTS: A CASE STUDY OF DAYSTAR UNIVERSITY, PRE-UNIVERSITY PROGRAMME

Roseline Olumbe and Dr. Martha, W. Kiarie

Abstract

Daystar University was established in 1974 in Kenya and was later chartered in 1994 by the Kenyan government.¹ The University's mission is "... to develop managers, professionals, researchers and scholars to be effective, Christian servant-leaders through the integration of Christian faith and holistic learning for the transformation of church and society in Africa and the world."² In line with her mission, the institution admits only born-again students to her various programs. Most of her graduates are in different job-markets transforming the society within which they exist. The institution runs various programs at the Pre-University, diploma, undergraduate, masters and doctoral level.

This paper will be limited to the Pre-University program at Daystar University. Action research was used to establish the efficacy of mentoring and imparting lifeskills to school leavers enrolled in a two-semester bridging program. The aim of the program is help students bridge their grades and also to adjust to university life. During the survey, it was noted that mentoring and Life Skills education helped the students boost their self-esteem, improve their leadership skills, cope with university life and achieve academic excellence. The researcher therefore believes that mentoring and teaching of Life Skills is very important in the teaching-learning process. As a result, it is her recommendation that all institutions of higher learning need to lay down structures and offer mentoring to their students. In addition, these institutions need to streamline Life Skills education into their curricula.

INTRODUCTION:

Daystar University is a chartered Christian institution of higher learning whose mission is to train Christian servant leaders for the transformation of the church and society. Daystar University admits students who scored a C plain in KCSE or its equivalent into the Pre-University program. During their studies, the students are subjected to an intense academic program as well as exposed to variety co-curricular activities to broaden their exposure.

¹<http://www.daystar.ac.ke/aboutdaystaruniversity/mission/>

²ibid.

Mentoring is key component of the program which seems to be effective in developing successful students. According to Lunsford, "Mentoring programs exist in all sorts of organizations. They are widely found in large corporations (Allen, Eby, Poteet, Lentz, & Lima, 2004; Underhill, 2006), in nonprofit agencies (Bozeman & Feeney, 2008), and in elementary and secondary schools (Rhodes, 2002). They are also prevalent in colleges and universities (Crisp & Cruz, 2009)"³Therefore, it is evident that most institutions value the place of mentoring. It is important to document these mentoring relationships so as to establish their value in any institution. The main focus here is to establish the importance of these mentoring relationships in institutions of higher learning. Mentorship is a two-way street.⁴There exists a mentor and mentee or mentor and protégé. Each of these has a role to play in this relationship. For any of such a relationship to be successful, each of the parties has to play his/her role successfully. Lunsford, quoting other authors says, "... the mentor is a role model who opens doors, provides insights, guidance, and emotional support, and otherwise brings benefits to the mentee"⁵. Although this is generally true, it is also true that the mentee contributes significantly to the success or failure of a mentoring relationship. Mentoring, in which a caring adult provides support to a youth via a one-to-one relationship, may be an ideal vehicle to allow college students engaged in service-learning to expand their awareness of complex social problems.⁶

THE CONTEXT

The Pre-University department was started in 1994 and has continued to grow over the years. In Daystar University, this is a two-semester program that admits K.C.S.E graduates who attained a C plain, 4 credits or 2 principals. The primary role is to inculcate knowledge, skills and attitudes, which will enable the learners to cope with the undergraduate program.⁷ The program is hosted within the School of Science Engineering and Health. These students have proved over time to be successful in their academics and their co-curricular activities. The researcher, who is the current Coordinator of the program, has made observations concerning the improved academic performance of these students. It is her view that these students seem to perform well due to the mentoring they receive from the program and the Lifeskills lesson taught to them.

The rationale for mentoring is that supportive adults can serve as mentors and can help students avoid high-risk activities and make more successful transitions to adulthood.⁸

3 Lunsford, 2011: 474

4 Padilla, 2000

5 Callahan & Kyburg, 2005; Hébert & McBee, 2007; Sekowski & Siekanska, 2008

6 Parks, 2000

7 Quality Assurance Self-Assessment Report for the Pre-University Program April 2011, Pg. 4

8 Sipe, 1996; Tierney and Grossman, 2000; Rhodes, 2002

Theoretically, school-based programs also allow mentors and students to focus on academic-related activities...⁹ However, based on prior research findings, programs have been shown to vary widely with regards to the amount of time spent on academics versus social activities.¹⁰ Bernstein, quoting Herrera and others acknowledges that “Over the past several years, school-based mentoring programs have become an increasingly popular way to provide students with mentors.¹¹ Mentoring students should therefore be noted as an important component in a learning institution. Through this process, students are helped to succeed academically and cope socially.

Kram quoted in Lunsford says mentors provide two kinds of support in organizational settings: psychosocial and career. Psychosocial support refers to activities like role modeling, acceptance, counseling, and friendship. Career support refers to activities such as sponsorship, coaching, protection, and challenging assignments.¹² On the other hand, teaching of Life Skills “...entails the acquisition of abilities for adaptive and positive behavior that enable individuals to deal effectively with the demands and challenges of everyday life.”¹³ In this sense when teaching Life Skills to students the overall aim is to equip them with “...psychosocial competencies that would help him/her make informed decisions, solve problems, think creatively and critically, communicate effectively, build healthy relationships, empathize with those in need and manage his/her life in a healthy and productive manner.”¹⁴ Essentially the students who join our Pre-University program benefit a lot from this lesson since they are empowered and we witness a comprehensive behavior change in a majority of the students. Some of the students join the institution when they express low self-image, low academic performance in their first semester and low self-esteem. However, with time, this changes and they are able to improve their self-identity, academic performance, express high self-esteem and become effective leaders within the Daystar community. For the students who join our program, they experience the following benefits:

1. Holistic Education – The Pre-university program at Daystar molds students to be good servant-leaders by taking care of the academic, spiritual, and moral character of its students.
2. Credit Transfer – Up to nine credit-hours are transferred to the undergraduate program on admission, thus enabling a student to finish the degree program within a shorter period.

9Portwood and Ayers, 2005

10 Herrera, Sipe, and McClanahan, 2000; Herrera, Grossman, Kauh, Feldman, and McMaken, 2007

11 Bernstein quoting Herrera et al., 2007).

12 Lunsford, 2011, 477

13 Life Skills Manual 2007, ii

14 *ibid*, ii

3. Admissibility in Daystar University – Students who have gone through the Pre-university program successfully are admitted into the degree program of their choice in Daystar University.
4. Admissibility in other institutions in Kenya – The Pre-university graduates from Daystar University are also admitted into other private universities and can also join parallel programs of the public universities.
5. Admissibility in international universities – Daystar pre-university graduates are admissible to overseas universities especially in countries such as USA, Britain, Australia among others.¹⁵

The Pre-university program comprises of two semesters. Each semester is considered to be a term. The terms are taught alternately throughout the year. The student may start with either term regardless of the courses being offered during his/her time of entry to the program. The total program requires 24 credit hours for completion. The courses offered include: Algebra, Christian Religious Education, Communication and Study Skills, English Language, Physical Science, LifeSkills, Basic Computer Knowledge, English Literature, Bioscience, Old Testament Introduction and Survey, Geometry and Trigonometry.

From its inception, counseling was included as one of the lessons students undertook. It was hoped that during this lesson, which was a zero-credit hour, the student's problems and needs would be addressed. However, majority of the students missed the class and disliked the lesson. From 2007, a different approach was employed, and this entailed the coordinator of the program and the academic advisor taking an active responsibility in conducting the counseling sessions. The topics addressed were re-designed and the approach to teaching of the lesson changed.¹⁶ This led to an increased participation from the students, though the trend could not be sustained due to the amount of time required from the coordinator. In 2008, a proposal was written to enhance level of mentoring to these students.¹⁷ In the proposal, the counseling lessons were maintained and the chaplaincy department expected to conduct the lessons in a more interesting way. Furthermore, all the faculty teaching in the department were expected to take an active role in offering mentorship hence taking up a team to mentor and meet with them weekly. However, this did not achieve much since not all the faculty were interested in the plan. In 2009, some of the faculty who were interested in the mentoring program, were allocated a class each to offer support and mentoring, however, the coordinator of the program was to oversee the whole mentoring process and ensure the continuity of the mentorship. This

15 Daystar University Catalogue 2007-2011 pg. 132

16 Pre-University archives

17 Ibid, 2008

was more successful and the chaplaincy took up an active role in conducting the counseling lessons.

Student’s View about the Pre-University Program

During a quality assurance self-assessment survey carried out in 2010, it was noted that the students liked the program. However, some of the students were dissatisfied with the fact that they had to undergo counseling. In their view, the term ‘counseling’ branded them as the worst students in the institution who needed help.¹⁸ As a result of such comments, the lesson was rebranded in 2011 as “Life Skills” and the whole course restructured. Currently, the course is reflected on the students’ transcript as a zero-credit course. This has so far received positive response and good attendance of the lesson by the students.

It is evident that most of our students do appreciate the experience they undergo while in the program. In an interview with some of the students the following were some of the comments. *“Pre-University is the best thing that ever happened to me”, “All Daystar students should be subjected to a similar program?”; “Pre-university has changed who I am what I think about myself.”*

In a survey conducted in 2010 for self-evaluation of the program, the students (both current and alumni) were asked to give their views about the program. Their responses were received and tabulated as shown in the table 1 and table 2 below.

Table 1: Students view of program

1. Items	2. Mean	3. Explanation
4. Sufficient advice	5. 3.07	6. 7. 8. 9. 10. 11. 12. 0 - No answer 13. 1-very unsatisfied 14. 2-unsatisfied 15. 3-satisfied 16. 4-very satisfied 17.
18. Contact Staff	19. 2.84	
20. Professional advice	21. 2.72	
22. enthusiastic staff	23. 3.00	
24. Assessment	25. 2.98	
26. Feedback	27. 2.72	
28. Classifying	29. 2.97	
30. Time table	31. 3.38	
32. effective communication	33. 3.41	
34. well organized	35. 3.31	

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36. library resources	37. 3.38	
38. IT resources	39. 2.62	
40. proceed to undergraduate	41. 3.44	
42. transferable skills	43. 3.33	
44. Christian faith	45. 3.52	
46. Expectations	47. 3.08	
48. acquiring knowledge	49. 3.21	
50. Workload	51. 3.16	
52. Satisfied	53. 3.10	

Table 2: Alumni view of the program

54. Items	55. Mean	56. Explanation
57. Sufficient advice	58. 3.17	59.
71. Contact Staff	72. 2.94	60.
73. Professional advice	74. 2.70	61.
75. enthusiastic staff	76. 3.10	62.
77. Assessment	78. 2.78	63.
79. Feedback	80. 2.82	64.
81. Classifying	82. 2.90	65. 0 - No answer
83. Time table	84. 3.48	66. 1-very unsatisfied
85. effective communication	86. 3.45	67. 2-unsatisfied
87. well organized	88. 3.34	68. 3-satisfied
89. library resources	90. 3.28	69. 4-very satisfied
91. IT resources	92. 2.42	70.
93. proceed to undergraduate	94. 3.64	
95. transferable skills	96. 3.23	
97. Christian faith	98. 3.62	
99. Expectations	100. 2.91	
101. acquiring knowledge	102. 3.30	
103. Workload	104. 2.06	
105. Satisfied	106. 3.20	

From table 1 and 2 above, it is evident that the students are positive about the program. Both the current students and the alumni rated highly their level of satisfaction of the pre-university program. Additionally, it is worth noting that, the students rated highly the fact they received sufficient advise, had enthusiastic staff, transferable skills, acquired knowledge and their Christian faith was nurtured. It is therefore worthwhile to offer a holistic program to students so that when they graduate, they can express satisfaction at all levels. Moreover, we are living in a society where all-rounded people are being sought. Employers are interested in multi-tasked people; therefore institutions of higher learning should be able to produce such kind of graduates.

When the students were asked to give any comments about the Pre-University program, some of their responses included: *“Pre-University was a good experience...”* *“Pre-University should go on as long as it helps students achieve their goals to become what they have desired for a long time.”* *‘Pre-University is a program that has helped many achieve their goals and targets in life’* *“Pre-university was the best class I ever had since it has taught me a lot”* *“Pre-University ain’t that bad prepares you more to do with the undergraduate...”* *‘Pre-university should continue since it builds you emotionally, morally, physically and spiritually.’* *“Pre-University has helped me personally, because I have learnt new things that will help me in future. It has changed my life for the better”* *“I have no regrets whatsoever for applying for the pre-university program. It has helped me grow spiritually, mentally and emotionally...”* *“Pre-University helps one unlock their potential in life”* *“Pre-University is a recommendable class. I suggest some lessons like counseling and Lifeskills lesson to be introduced in undergraduate.”*The researcher attributes the success of these students to valuable time of mentoring and inculcation of Lifeskills into their curriculum.

METHODOLOGY

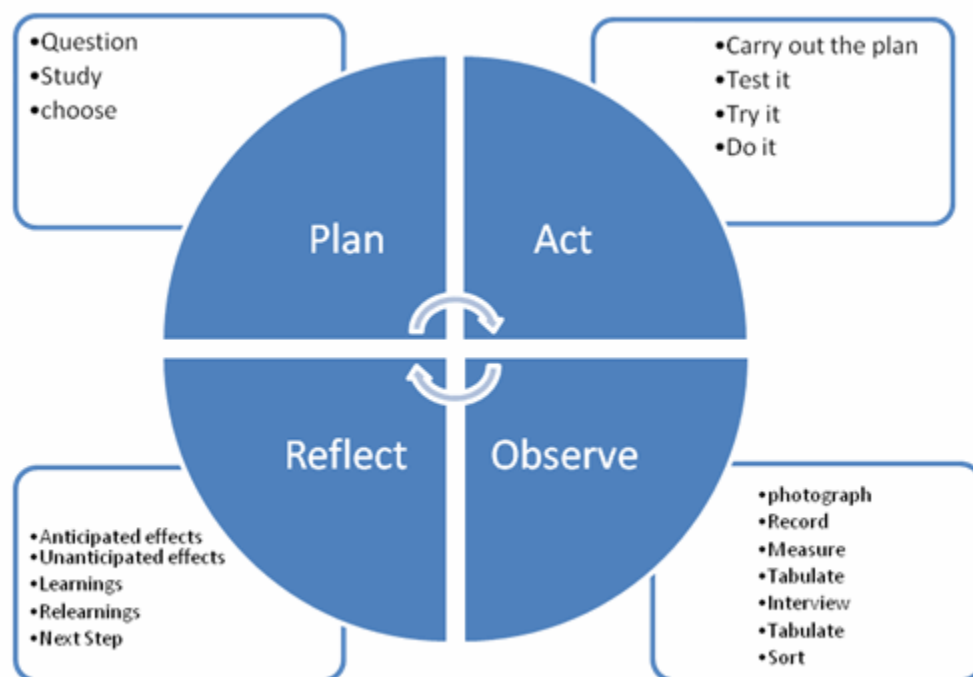
The researcher employed action research which was found most suitable for this kind of study. “Action research is a “process of deep inquiry into one's practices in service of moving towards an envisioned future, aligned with values.”¹⁹It is a systematic, reflective study of one’s actions and the effects of these actions in a workplace context. Additionally, it is a systematic inquiry that focuses on a relevant problem in teaching or teaming for the purpose of enacting meaningful change to address that problem.²⁰In essence, this type of research helps one to go through a process of reflecting on issues as they seek they enact them. Action researchers seek evidence from multiple sources to help them analyze reactions to the action taken. They recognize their own view as subjective, and seek to develop their understanding of the events from multiple perspectives. The researcher uses

¹⁹Riel 2010

²⁰ Educational leadership journal p.40

data collected to characterize the forces in ways that can be shared with practitioners. This leads to a reflective phase in which the designer formulates new plans for action during the next cycle.²¹

This kind of research “... is more than “fixing things” or finding solutions to school and classroom concerns or problems. It invites self-assessment (“what does this teach me about myself?”) and organizational analysis (“what are we doing or not doing that is contributing to the situation?”). The action researcher examines the essential components of a situation, develops a plan that seeks improvement, gathers and uses data impartially, makes meaning from the experience, and shares the finding in the public.”²²The research occurs in four stages and is both cyclical and iterative.²³The stages are as shown in the diagram below.



(Adapted from “The Guide to Action Research” by Flemming, D. S)

RESEARCH QUESTION

In this research, the overall question was “How can we lay down a strategy to help the pre-university students attain high self-esteem and excel in their studies?” This was further followed by questions which were reflected upon in each cycle. During the first cycle, the question under study was “If we included counseling session in the class, in what ways will this enhance students’self-esteem and academic excellence?” In the second cycle, the

²¹Riel 2010

²²Flemming, 2000, 11

²³Ibid., 11

question was “If we created more time for mentoring students, in what ways will it enhance students esteem and academic performance?” The final question in the last cycle was “If we rebranded the counseling lesson, how will this enhance more student participation and increase the students’ self-worth?” This final question is still under study and reflection though students seem to have taken the change positively.

DISCUSSION AND DATA ANALYSIS

Effects of the Mentoring

Mentoring and teaching Lifeskills to students is of great benefit and brings about remarkable change in the life of the students. From the survey carried out, the researcher established that mentoring and Lifeskills promotes the following values to students: Improved academic performance, improved self-esteem, attain coping skills, gain leadership skills, and focussed study time. These values are discussed below.

1.0: Improved Academic performance

Mentoring has been linked to positive emotional, behavioral, and academic outcomes for mentees.²⁴In a survey conducted in 2010 by the department, it was noted that most of the students qualified to the undergraduate program. See table. 3

Table 3: Percentage of students that qualified for admission to undergraduate²⁵

	Number of students who qualified	Number of students who did not qualify
2008 January (Total 61)	47 (77%)	14 (23%)
2008 August (Total 80)	72 (90.0%)	8(10.0%)
2009 January (Total 123)	108 (87.8%)	15(12.2%)
2009 August (Total 89)	76(85.4%)	13(14.6%)
Average	75.75(85.05)	12.5(14.95)

From table 3 it is evident that student performance improved over a period of time. In January 2008, only 77% of the students made it to the undergraduate program compared to August 2008 where 90% qualified to the undergraduate. It stands out that in the succeeding semesters the students maintained an improved pass-mark hence increasing the number of students qualifying to the undergraduate program compared to those who did not qualify.

²⁴DuBois et al. 2002b

²⁵ Quality Assurance Self-Assessment Report, April, 2011 (p. 25)

According to the documents in the University archives, the percentage pass rate between 2005 and 2007 had been 75%. However, an active mentoring program was launched in the year 2008. This increased the average percentage pass-rate to 85.05%. This shows that when students receive active support and mentoring, they are likely to improve in their academic performance.

Furthermore, it was noted that Pre-University students performed very well in all subjects with most of them scoring a C+ and above (Figure 1). Performance in the two Bible course (Old Testament Survey and Christian Religious Education) and Biosciences was excellent compared to COM 092: Communication Skills and PHY 092: Physical Science (Figure 2). This trend was expected because Bible courses and Biological sciences are traditionally considered to be easy while Physical Science is challenging because of its abstract nature. It was interesting to note that performance in Mathematics courses (Trigonometry, Geometry and Algebra) was fairly good. Considering the fact that most Pre-University students perform dismally in mathematics at O level, the marked improvement was a sign of change in attitude and appropriate teaching methods (Figure 1 and 2).²⁶ Additionally, this success is attributed to excellent mentoring program in the department.

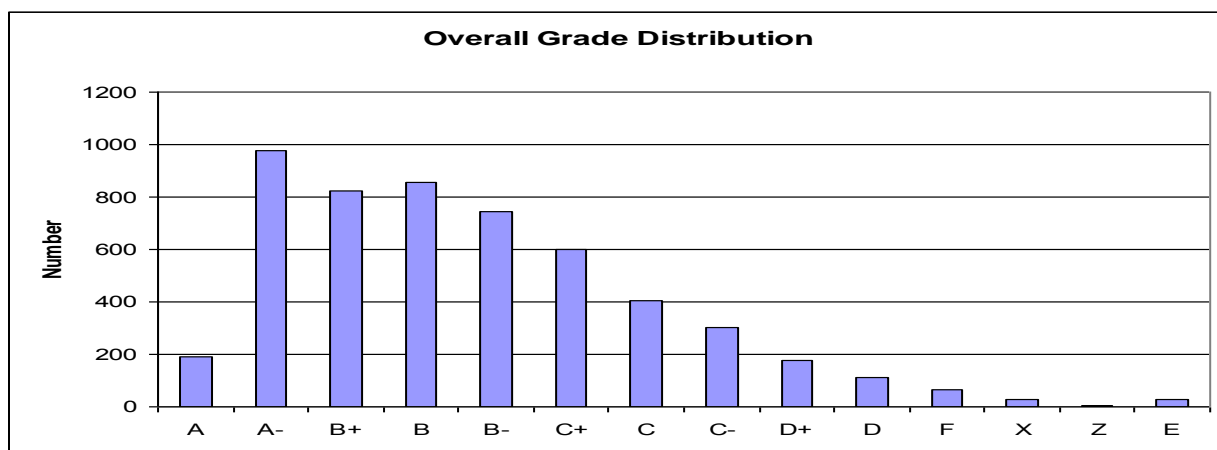


Figure 1: Overall grade distribution for Pre- University students (2007-2009)

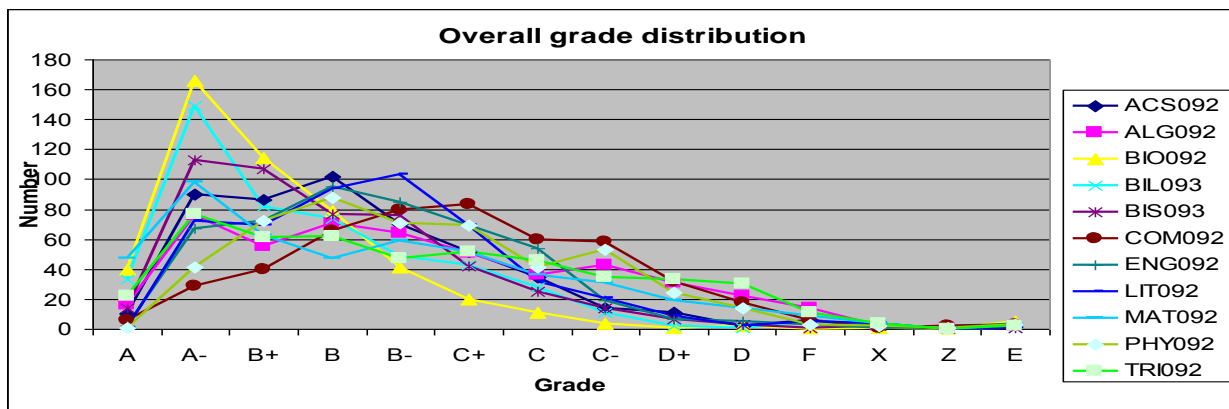


Figure 2: Overall grade distribution per subject for Pre-University students (2007-2009)

2:0 Improved Self Esteem and Reduced Identity Crisis

When students were asked the benefit of the counseling and Lifeskills class, some of their comments were. *“...it helped me understand me better and accept myself”, “Lifeskills tried to improve our self-confidence and self-respect”; ‘It was a great benefit because it helped me love and appreciate myself. Have high self-esteem’; “the class helped a lot since it helped me to know how to be self-worth...” “It helped build one’s positive self-esteem...” ...helped me increase my self-esteem in life and become more confident in myself” “self-appreciation and also changing our attitudes towards life...” “...counseling also made me be confident with myself more... I got to know my potential through that and what kind of person I am.”* Self-esteem is very important element in the learning process for students. Low self-esteem, in some cases leads to poor performance and lack of self-acceptance. Therefore students who are helped to navigate through this process of esteem, end up gaining self-love and this in turn affects their performance positively. It is clear from the comments above that the students appreciated the Life Skills lesson which seems to have contributed significantly to their high self-esteem. It is therefore needless to say that high self-esteem has the capacity to reduce identity crisis in an individual.

3:0: Attain Coping Skills

Most of the students who come to the Pre-University program are fresh from high school and therefore are not used to the privileges enjoyed in the University context. Some of these privileges include managing own time with minimal supervision, use of phone, involvement in a variety of co-curricular activities, interacting with students of the other gender freely among others. Without clear guidance, a number of the students are not able to cope well and therefore end up making wrong choices which affect them significantly in the future. When students were asked, “How did Pre-University prepare you for the undergraduate program?” Some of the responses receive included: *“Pre-university gave me*

confidence and helped me widen my scope of understanding various concepts in other subjects”, “It acted as an open gate for undergraduate”, “pre-university helps people by preparing them for the undergraduate program that they would like to pursue...” “It enabled me realize the challenges that life can bring and therefore being ready to overcome them whenever they come” “It helped me to persevere and work hard. It encouraged me on how life should be taken with seriousness...” “It gave me a background of what to expect as join the University...” “It was so tough so I got to prepare myself for what was to come later.” “It made the mode of transition to the undergraduate program easier i.e. you know what to expect.” “It was an eye-opener to what I would find in the undergraduate prepared me in all ways i.e. reading hard and being punctual” “...Pre-University therefore set a pace for my other levels of education” “It made me become open minded and adapt to my environment” “It made be aware of how university life is and how to cope with it.” “...helped me to get acquainted with campus life, fellow students, know how to work various projects, various books of studies and also to get to know various lecturers.”

Based on the students’ perceptions above, it is evident this program does help students clarify about their future career and also how well to cope within the University. Their ability to handle the rigors of the undergraduate program is a result of having undergone through the Pre-University program.

4:0: Gain Leadership Skills

It has been observed over a period of time that most of the students who go through the Pre-University program are involved in leadership activities during their undergraduate studies. When asked if they hold any leadership position, 16 out of 40 respondents, that is, 40% of the respondents said yes. Their leadership positions ranged from class representatives, secretaries of clubs, chairpersons of clubs, chairperson of the students government, and leadership in the Daystar University Christian fellowship among others. During an interview with one of the student leaders, he had this to say, *“I give credit to the Pre-University department who prepared to be the leader I am today.”* It can therefore be said that a successful leader is one who has received appropriate training and mentorship. The opportunities given to students to lead and amount of exposure did help most of these students to become better leaders.

5:0: Focused Study Time

It has been observed over a period of time that most of the students are not able to handle their study time well. As a result a good portion of students are placed on academic probation during their second semester. However, with committed time to counsel and

advise the students, there is usually an improved performance in their grades during the second semester. See table 4.

Table4. Students placed on Probation after their first semester

107.	108. No. of students on Probation
109. January 2009	110. 7
111. June 2009	112. 20
113. August 2009	114. 8
115. June 2010	116. 34
117. August 2010	118. 16
119. January 2011	120. 14

For some of the students who had undergone probation, when asked how the department helped them, they had the following to say, *“I received a lot of help from the University department, from the coordinator, lecturers and Life Skills class”, “The Pre-Uni department helped me in that I was advised on how to read and on following the advise, I passed” ‘My lecturer helped me with study equipment and I added my effort” “I was encouraged and helped to set achievable goals that I really did my best to attain them” “I got encouragement and support to push on and work hard because they believed in me.” “Encouragement, motivation to work harder to raise my GPA...”* It is evident that failure in the first semester had to do with students’ disorientation in a new environment and lack of sufficient advise. However, this was reversed when counseling and mentorship were offered to students. Therefore, mentoring helps to guide and shape a student be able to plan his/her study time well.

Conclusions

The researcher observed that when students who had not performed very well in their previous levels of study were given a second chance that was filled with close supervision, their academic performance improved and their leadership skills were sharpened. In addition, some of the students were helped to understand that they are people of worth and value. With this changed perspective of self, the students were able to reveal their full potential which had been unutilized.

Recommendations

1. Institutions of higher learning should incorporate mentoring students and streamlining Lifeskills education in the curriculum because it helps them to excel and unleash their potential

2. All institutions of higher learning should seek to motivate their staff towards spending time with the students so as to offer both moral and career support
3. The institutions of higher learning should invest in their faculty and send them for conferences and workshops where they can be equipped with mentoring skills to enable them invest in their learners
4. Students should be encouraged to spend time with people who impart value into their lives rather than those who destroy their image.
5. A similar approach should be employed in a secular institution to establish the outcomes

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RUNNING HEAD: HELPING THE WEEPING, WORRIED AND WEARY: PSYCHOLOGICAL FIRST AID FOR STUDENTS

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Introduction

Studying the impact of mental or psychological trauma is a relatively recent phenomenon within mental health communities. At the turn of the twentieth century, Freud initiated psychological inquiry into the effects of trauma on women when he “uncovered” sexual trauma while studying patients diagnosed with hysteria. In the early 1900’s, medical doctors and psychiatrists explored “shell shock” experienced by soldiers during and after World War I. However, extensive, formal study of psychological trauma did not truly take shape in the US until the 1980’s with the establishment of the Post-Traumatic Stress Disorder (PTSD) diagnosis. Levine (2001) states that “Trauma is perhaps the most avoided, ignored, belittled, denied, misunderstood and untreated cause of human suffering.” Further, empirical research related to the impact of psychological trauma on children and adolescents has only been in existence for the last couple of decades. Unfortunately, the myth that children were “too young” to remember or be impacted by traumatic events, due to underdeveloped cognitive, language and memory abilities, led many parents, educators and mental health professionals to believe that children were psychologically “insulated” from traumatic events. At most, children would not be *as* affected as adults.

In the last two decades, the American Counseling Association, American Psychological Association, the American Psychiatric Association and the National Association for Social Workers have embraced specific trauma research that relates to treating children and adolescents, while recognizing that symptoms and complications from psychological trauma manifest differently for children than that of adults. A commonly held belief is that most children and adolescents are able to recover psychologically within a few weeks of a traumatic event. This is especially true when children and adolescents have access to compassionate, patient, caring adults who understand that children and teens need time to

make sense of a traumatic event, grieve any associated losses, understand what happened and integrate the experience into their sense of self and understanding of the world. Orton (1997) writes, *“What impact these crises have on individual children’s development will depend on their perceptions of events, their individual personality characteristics, and the strength of their coping skills. Children who have been weakened by many other crises and whose development has been slowed or halted in the past will need more time and more support to get back on track (p. 82).*

Signs, Symptoms and Diagnoses Related to Trauma

For some school aged children or adolescents, daily functioning is still impacted long after the traumatic event has occurred. The signs and symptoms of psychological trauma vary depending upon a child’s age or stage of development. For example, when infants or toddlers have been exposed to a traumatic event(s), it is common for them to cry frequently, be fussy, develop new fears or avoidance behaviors, withdraw or shut down, have exaggerated emotional responses, hyper-arousal, regress to earlier stages of development and normal developmental milestones such as walking or speaking may be delayed. Children between the ages of six and twelve will frequently experience disturbances in sleep, nightmares (sometimes without specific or recognizable content), may recreate and relive the story through play, artwork or telling the or a related story, demonstrate inconsistent, disorganized, agitated behavior, develop new somatic complaints, develop new fears, demonstrate excessive anxiety, worry and hyper-arousal, develop personal omens around the event, engage in avoidance behaviors, have a sense of hopelessness and their learning may be disrupted.

Finally, adolescents may experience sleep disturbances, withdrawn or disinterested behavior, depression or anxiety, somatic complaints, acting out behaviors, thrill seeking (e.g. drugs and alcohol, promiscuity, other risky behaviors, etc.), self-injurious behavior, change in important relationships and difficulty with focus and concentration at school or in other activities (National Institute of Mental Health, 2006). It is important to note that children who exhibit symptoms of trauma, and are not provided with attention, support, care and an opportunity to process what has happened, may develop a psychological disorder related to experiencing the trauma.

When children are unable to return to their pre-trauma, normal daily functioning, a psychological diagnosis of Acute Stress Disorder (ASD) or Post Traumatic Stress Disorder (PTSD) may result. ASD is defined by: a) a person is exposed to a traumatic event, b) while experiencing the distressing event, the individual suffers from dissociative symptoms, c) the traumatic event is re-experienced through reoccurring thoughts, images, flashbacks, etc., d)

there is marked avoidance of stimuli that are associated with the traumatic event, e) there is marked anxiety or increased arousal, f) the disturbance causes clinically significant distress which interferes with functioning, g) the disturbance lasts for a minimum of two days and a maximum of 4 weeks and occurs within 4 weeks of the traumatic event and h) the disturbance is not due to a substance or general medical condition (APA, 2000). The diagnostic criteria for PTSD are quite similar to ASD; however, the duration of the disturbance (or the symptoms outlined) is more than one month. The diagnostic criteria for PTSD are: a) a person is exposed to a traumatic event, b) the traumatic event is persistently re-experienced through a variety of means (e.g. distressing memories, dreams, etc.), c) there is persistent avoidance of stimuli that is associated with the trauma, d) there is persistent increased arousal that was not present before the trauma, e) and the duration of the disturbance lasts for more than one month. PTSD is considered acute if the duration is less than three months and chronic if the duration is three months or more (American Psychiatric Association, 2000). When a PTSD diagnosis is being considered for a child, clinicians must take into account that many young children use play as their primary means of communicating and reflecting on their experiences. Therefore, children may engage in repetitive play with themes from the traumatic event which may be the equivalent of an adult having disturbing memories of an event. Children may also re-enact traumatic events and may experience some or all of the emotions that coincide with the event.

Kracke and Cohen (2009) state that, "*Exposure to violence has become viewed as a public health issue because of its negative impact on the short term health and long term health and well-being of children and communities* (p. 149). Children and adolescents do not experience symptoms of trauma in a vacuum. School environments are also impacted by the traumatic events of their students. Teachers or professional educators of children and adolescents understand that school aged students, who are victims of traumatic events, often struggle to focus on instruction or academic content, engage with their peers in a socially responsive manner and feel comfortable and safe in the school environment. Students bring their social and emotional needs to school and it is often the classroom teacher who must intervene and provide support, particularly if a teacher has been charged with a teacher-counselor role within the school. Unfortunately, many teacher education programs do not provide specific training in how to relate to and work with children and adolescents who are suffering from recent, traumatic events.

Psychological First Aid

The purpose of this paper is to discuss how teachers may engage in psychological first aid practices to assist their students who have recently experienced traumatic events. Psychological first aid is defined as offering immediate, compassionate support after a

traumatic event which helps children and adolescents identify coping strategies or healthy, adaptive coping methods for dealing with the crisis (National Child Traumatic Stress Network and National Center for Post-Traumatic Stress Disorder, 2006). Psychological first aid for children and adolescents refers to the specific steps that adults can take to help children deal with their own flight, fight or freeze response to a crisis or traumatic event. Strategies associated with psychological first aid can be used by teachers to effectively reach and respond to students who have recently experienced or are currently experiencing a crisis or traumatic event. Further, early intervention may also prevent children from experiencing complex, long terms symptoms as a result of the trauma (Briere and Scott, 2006). Social support from caring adults is instrumental to initiating a child or adolescent's natural grieving/coping skills; yet, some teachers are uncomfortable in how to respond to the weeping, worried or weary student. The intent of this paper is to encourage teachers to do what they can to help traumatized students receive the support and care that they need so that these students may be able to function at school and refocus on academic content or material.

In many communities, schools are viewed as hubs of social interaction, information and at times, support. Sandoval, Scott and Padilla (2009) believe that schools can be ideal locations for children and adolescence to receive psychological first aid after experiencing a crisis or traumatic event. Psychological first aid is comprised of eight specific steps: *Making contact, Providing safety, Stabilizing affect, Addressing needs and concerns, Provide practical assistance, Facilitate connections with social supports, Facilitating coping, Create linkages with needed collaborative services and Referral*. Each component of psychological first aid will be discussed within the context of teaching or how a classroom teacher may implement the specific strategies with a student.

Making contact refers to building a trusting relationship with a child and establishing contact so that the child feels that someone is available and that the adult will listen, validate, support and care for them. For teachers who have established strong relationships with their students, making contact may also mean noticing subtle or pronounced behavioral changes in a student and making time for one on one contact with the child to listen. It is important that teachers establish contact but do not force a child or adolescent to tell the teacher "what happened" or "what is wrong". Children and adolescents may be asked if they would like to talk about the event or crisis, but should not feel forced to tell "the story" if they are unable or unready to do so. Some children may simple want to discuss how they feel, how their body feels or what they are worried about rather than telling intimate details of a traumatic event. Teachers should allow students to determine the course of the conversation.

Providing safety involves specific verbalizations or behaviors by the teacher that encourage a child to feel safe at school. This may include specific statements, such as, “*You are safe here with me*” or “*I will do my best to keep you safe here at school*”. Specific safety behaviors may include allowing a student to hold a special stuffed animal, sit in the teacher’s chair or near the teacher, sit near a friend in the classroom or sit in special place in the room with comfortable pillows and blankets. Adolescents may feel a greater sense of safety by talking with the teacher in private, sitting with a group of friends or near a best friend. Expressive arts can also be used to help develop a sense of safety. For example, children and adolescents may draw or paint pictures of a “safe space” or write a poem about a safe place or safe person. Children who do not feel safe at school will not be able to sustain their attention, function optimally or retain academic content or information.

The third component of Psychological First Aid, *stabilizing affect*, refers to helping to stabilize a student who is expressing strong emotions related to the traumatic event. Anger, sadness, fear and confusion are common affective states that may occur after a child has witnessed a traumatic event. Despite the structure of the school environment and the school day, students may experience extreme emotional states at school and may need assistance with returning to a more homeostatic emotional state. Assisting a child in this manner often involves finding a private space to sit with the child or adolescent, calmly accepting the emotion being displayed, and if the child is listening, reflecting back to the child what is happening in the moment. For example, a teacher may state, “*I can see that you are very angry and frustrated right now and you are not sure what to do*” or “*You are so sad right now and crying very hard*”. Simple reflections such as these help children feel validated and help them make sense of their extreme emotions. Additional strategies for stabilizing affect may include naming the behavior that the child is displaying as a result of the emotion (“*You are pounding your fists on the table because you are mad*”) and reminding the child that they are not alone while facing the problem (“*I am here with you and I care about you. I am going to listen to you*”).

Addressing needs or concerns refers to asking questions about what the child needs in the immediate moment or what concerns the child has at that time. Students who have just experienced a strong emotional outpouring may ask to use the bathroom, for a drink of water or to have a few minutes in private before going back to class. Some students may want to go home and be with family members to feel connected to and sheltered by their families. Traumatic events frequently invoke a yearning for attachment and closeness with caregivers. Other students may pose existential questions to the teacher in attempt to understand death, grieving or the “why” of man-made crises or natural disasters. Teachers should calmly respond to student needs and concerns to the best of their ability and admit

when they do not know how to respond. Children and adolescents will still benefit by being able to state their needs and concerns and have a compassionate adult listen to them.

Facilitating coping is an important step in psychological first aid because it reminds students of how they are coping with the traumatic or stressful event as well as gives them time and space with an adult to identify other strategies that they can engage in to cope with their thoughts and feelings. To begin, the teacher may want to praise the very basic steps the student has taken up until that time. For example, teachers may state that a student is brave and strong for attending school despite the crisis or teachers may praise a student's wisdom for asking for support or letting an adult help him or her. Additionally, if the student is calmer at this point, the teacher can ask what the student would like to do to begin to feel better. Students may name coping skills that have worked for them in the past when they are upset and teachers should validate these instincts. A teacher may say, "*You just told me that during the last time that you were really scared, you talked to your mom and dad and cried. But afterward, you felt better*". Students may decide that they want to talk to trusted adults in their family or community about how they are feeling and what they worry about. Students may also reveal that they would like to draw a picture, read a book, and play with or sit with their friends. All are examples of children or teens "reminding themselves" of their innate coping skills and the different actions that they can take to cope. Students who are psychologically stuck or unable to name coping skills may benefit by having the teacher gently brain storm with the child or suggest specific coping strategies.

Finally, the last two steps in Psychological First Aid involve *Linking with collaborative services* and *Referral* to other professionals for follow up. Because of the nature of these steps parents of the student should be contacted if the teacher has not already done so. Linking with collaborative services and referrals simply means providing parents or caregivers with information about community resources which may help the student and/or family deal with the crisis or traumatic event. For example, information about services or agencies which provide food, clothing, shelter, water or which address basic needs should be shared with the parents. If those basic needs are not an issue, the teacher may then want to help the parents consider how to ensure a sense of safety, comfort and support at home. Again this may include linking families with outside services (e.g. a church leader, counselor, etc.) to provide additional intervention. This may be particularly true when the parents are too impacted by the traumatic event to be the sole source of support for the child.

Conclusion

The school environment is impacted by the social and emotional needs of its students. The psychological and emotional impact of trauma on children and adolescents will impair a

student's ability to function in a school environment in a variety of ways. The steps of psychological first aid can assist teachers with providing a sense of safety, support, stability, nurturance and reassurance through practical counseling strategies. Students who receive psychological first aid are often able to begin self-regulating their own responses to crisis or traumatic events.

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PURPOSE AND STRUCTURE OF TESTS IN SECONDARY SCHOOL CHEMISTRY: THE TEACHERS' RESPONSE.

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Abstract

Much time and resources are invested in frequent testing of students at secondary school level. This is done with an understanding that testing brings improved learning and therefore better performance. This perceived link between testing and performance seems to be the driving force in the testing process. This is much so in the subjects which have traditionally been perceived as difficult and these include mathematics and sciences. This paper discusses some aspects of testing in secondary schools and particularly focuses on one of the science subject which is chemistry. The impetus to focus on chemistry is drawn from consistence posting of poor results at the end of the course in the national examinations. It was envisaged that some views from the teachers would reveal possible weaknesses and strengths that could be shared with other partners with the aim of bringing higher gains in the performance of chemistry and possibly other science subjects. The data discussed in this paper was generated from a survey study which was conducted among a cluster of teachers of secondary schools near Nairobi in Kenya. A total of thirty four (34) teachers from fifteen (15) schools were involved in the study which used mainly questionnaires, interviews and document analysis to collect data. The results indicate that teachers of chemistry take testing as an important process that can bring improvement in learning. Teachers also recognize that only quality tests and proper administration can bring desired effects. Frequency in testing stood out as a feature which emphasized the notion that 'frequency in testing is proportional to improvement in learning'. Theory test papers were dominant and tested a range of content in the science domains. Chemistry teachers also recognized that skills are important and these were accommodated by practical tests especially in higher classes. Results from tests can be very important to a chemistry teacher or any other teacher in providing 'feedback for improved instruction'. Results can also be used to compare with other subjects in the school, local schools in the same subjects and can also be used for prediction in the National Examinations. Despite government's emphasis on improved performance in science, it has no firm guiding policy on test management in schools.

Introduction

Science education takes an important position in the education system of most countries including a developing country like Kenya. The recognition that science can exert a dominant influence on the life of individual as well as on the technological development of a nation has led to emphasis on the learning of science including chemistry (Gili 2010). This calls for improved teaching and learning of chemistry because the learners need to acquire knowledge and skills important for personal and professional development.

Despite the importance of chemistry in bringing development and the efforts of researchers and educators to improve on its teaching and learning, chemistry performance at the end of course examinations in Kenya and many other developing countries has been consistently poor. Among the factors that have been identified as possible causes of poor performance in chemistry are poor methods of instruction (Efumbi 2002, Kamau 2004, Inzahuli 2007 and Mutuku 2009). It is possible to improve instructional methods by using some feedback processes during learning. Feedback informs the teacher if the learners have acquired the skills and knowledge intended during instruction which may indicate the ability of the method used to attain learning objectives. Feedback can be acquired through assessment which can be done through testing. Testing can be part of the learning process as a feedback intended to motivate the learner to perform better (Sumner 1991). School based tests are useful in improving teaching and learning because they provide desired information to direct students learning (Chiapetta 2010). Studies show that teachers valued internally developed assessments because they allow them to make decisions that keep instruction moving. This is because teachers can make changes immediately to meet the needs of their students (Young and Kim, 2007).

The past few years has seen regional assessment test data move towards providing information for success in national examination. Individual countries like Kenya have their philosophical systems of education and politicians are placing an increasing emphasis on how their local schools perform in comparison to the rest of the region. Whether such regional indicators have a direct and immediate effect on performance is unclear. However most regions will always prefer to be in the upper quartile rather than below which may indicate that they are below their stated objectives. Competition in performance in developing countries is furious and any indicator is given a critical interpretation. Indeed there has been a close correlation between the performance from school tests and the national examination. Based on this observed relationship, school tests are viewed as a fairly accurate indicator of the final grade at end of secondary education.

In view of the central role of tests in improvement of learning and their frequent use in schools in Kenya, there was need to carry out a study to reveal possible weaknesses and

strengths of tests with a view of improving performance in chemistry and other science subjects.

The study was guided by the following questions,

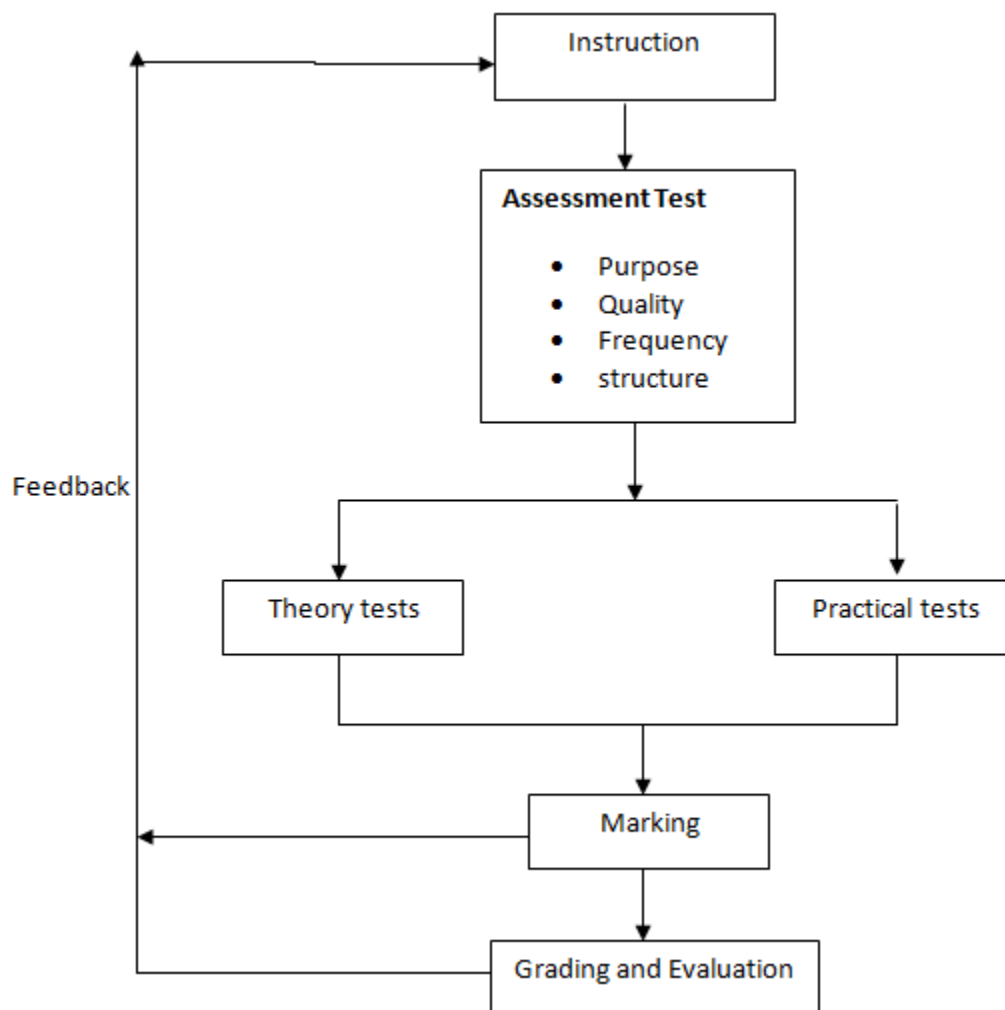
- What is the purpose of school based tests in chemistry learning?
- How frequently do teachers test their students in chemistry?
- What domains of chemistry learning do teachers test in schools?
- How is the process of setting, administering, marking, grading and providing feedback on tests carried out in schools?
- What policies govern assessment test programs in schools?

The study aimed at discussing some views from the teachers about various aspects of tests that would reveal possible weaknesses and strengths of chemistry testing in schools. The outcome of the study is therefore expected to stimulate the stakeholders to improve on areas of weaknesses with the aim of bringing higher gains in the performance of chemistry and possibly other science subjects. The findings of this study may guide teacher trainers in equipping pre-service teacher trainees with appropriate skills they can use upon qualification. The findings are also expected to help curriculum developers and policy makers to recognize the need for development of a national policy on chemistry school based testing and consider including teacher-based assessment scores in the national end of course results.

Conceptual framework

This study focuses on tests used by chemistry teachers in secondary schools. The process of learning chemistry starts with instruction through interaction between the teacher and the learner in the classroom or the laboratory. This is followed by assessment by use of tests to determine whether the set objectives have been achieved. In Chemistry learning, assessment test can be theory or practical based. The tests are then marked, graded and feedback to the learners given. This process is as shown in figure 1. The marking and grading stages are critical as these are the stages in which teachers reflect and relate learners' responses and instruction.

Figure 1. Conceptual model of the study



Source: Author, 2010

The effectiveness of the test in assessment highly depends on the quality of the test, test objectives, frequency of testing, and structure of the test. The achievement of the objective of a test can be determined only after it has been marked and graded. Grades are indicators of performance and high grades show that objectives have been achieved. It is important to provide feedback by revising the test with the learners with the aim of reinforcing good work and clearing misconceptions. This helps the learners realize the areas of weaknesses and put in more effort in learning. It also provides motivation to learners. Those learners who perform well put in more academic learning time, leading to better performance.

Methodology

The study employed a descriptive survey design and was conducted in secondary schools in Kajiado North District. This is a district neighbouring Nairobi the capital city of Kenya, on the South West side and about twenty kilometres from the city centre. The study focused on the total population of forty three (43) secondary schools in Kajiado North District. The population was stratified according to the school types. This gave three main strata: boys' schools, girls' schools and mixed schools. A total of thirty four (34) teachers from randomly selected schools out of the population were used for the study.

Questionnaires were completed by chemistry teachers in the sampled schools. They were used to collect data on the purpose of chemistry tests, methods used by teachers in testing, the frequency of testing, preparation, administration, marking and feedback on tests and the teachers views on how school based assessment tests could be used to improve learning hence performance in chemistry. Interviews with Heads of Science Department (H.O.D) in the sampled schools were conducted. These gave the researcher a chance in cross-referencing with the other instruments. The H.O.Ds in the sampled schools were requested to give the researcher two test papers formally used to test learners in chemistry. These were preferably a theory and practical paper. A total of eighteen (18) practical test papers and forty (40) theory test papers were analysed. These provided information on the domains (content) of chemistry learning commonly tested, the test format for theory test paper and skills tested in the practical papers.

Results

a. Purpose of school based testing in Chemistry

Using the questionnaire, teachers were asked to give reasons for assessing their students in chemistry. Table.1 shows a summary of reasons the teachers gave for testing learners in chemistry. It shows mean scores based on a five point Likert scale. A score of three (3) was viewed as the mean score. A score above three was viewed as an agreement with the stated reason while a score below three was viewed as a disagreement with the given reason. The scores are grouped according to school type; boys', girls' and mixed schools.

Table 1. Teachers reasons for school based Chemistry assessment in secondary schools.

		Boys' Schools		Girls' Schools		Mixed Schools		Overall Sample	
		\bar{x}	%	\bar{x}	%	\bar{x}	%	\bar{x}	%
a.	Assessment is done to determine learners' readiness to learn a topic.	3.14	62.8	2.80	56.0	3.12	63.3	3.02	60.4
b.	Assessment is done to determine learners'	4.57	91.4	4.20	84.0	4.76	95.2	4.51	90.2

	understanding a given content.								
c.	Assessment is done to measure students' achievement	4.71	94.3	4.80	96.0	4.06	81.2	4.52	90.5
d.	Assessment is done to provide feedback to the learners on their progress.	4.43	88.6	5.00	100.0	4.59	91.8	4.67	93.5
e	Assessment is meant to motivate learners.	4.14	82.8	4.30	86.0	4.35	87.0	4.26	85.2
f.	Assessment is done to judge the effectiveness of a teaching method.	4.00	80.0	3.20	64.0	3.71	74.0	3.64	72.7
g.	Assessment is done to determine learners' creativity and social characteristics	2.57	51.4	2.60	52.0	2.88	57.6	2.68	53.6
h.	Assessment is done to measure student's academic progress.	4.71	94.2	4.80	96.0	4.05	81.0	4.52	90.4

N=34

Many teachers (93.5%) seem to attach a lot of importance on feedback to learners as a key role of testing in chemistry. The least in preference for assessment is (g) which is assessing creativity and social characteristics of the learners.

The reasons for testing were classified into three categories depending on when assessment is done. According to (Chiapetta 2010, Liversidge 2009 and Kempa 1986, reasons for assessment can be grouped into assessment before instruction is done (diagnostic assessment), assessment during instruction (formative assessment) and assessment after instructional process (summative assesment). The results 2 show the percentages of reasons for assessment based on when the assessment was done.

Table 2 Reasons of assessment based on time of assessment

Type of assessment	%
Diagnostic	57.7
Formative	76.5
Summative	81.1

N=34

The high percentage (81.1%) for preference of summative testing indicates that the teachers mainly view assessment as a measure of learning outcome. The low percentage of

preference to assessment at diagnostic level could be because the teachers may not have considered assessment before the instructional process necessary. It is however necessary for the teacher to determine the entry behaviour and prior knowledge of the learners. Information obtained from diagnostic assessment guides the teacher in formulating the instructional method for a particular group of learners (Bennet 2003, Chiapetta 2010 and Stenhouse 1981). This leads to more appropriate instructional methods and thus improved performance of the learner. It also facilitates use of process model of science learning and constructivism. It is important that teachers test learners at all the three levels as emphasized by Kwaka (2003, p71) when he stated;

Teachers who put more emphasis on assessment before, during and after instructional process lead to better results of their students.

It is, therefore, possible that the low levels of diagnostic assessment in chemistry affects the learning process and could be one cause of poor performance in chemistry.

b. Assessment Methods used by Chemistry Teachers

Teachers incorporate multiple assessment types into their instruction. The frequency with which they used each method of testing may however differ. Table 3 gives the number and percentage of teachers who used a given method either once, twice, thrice or more than three times per term.

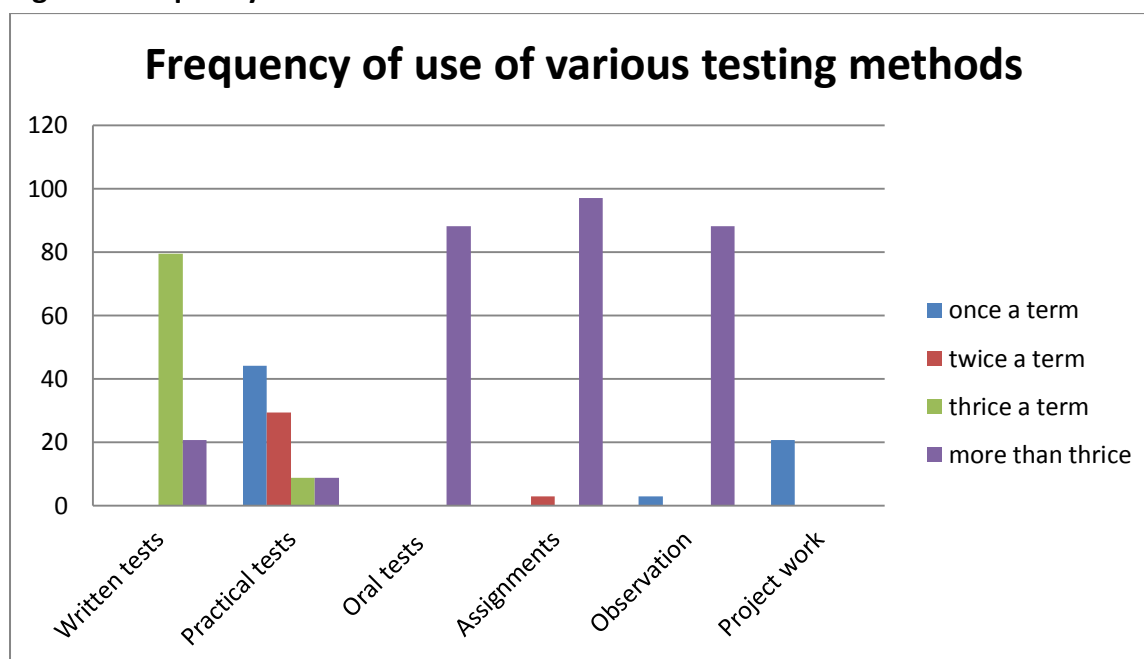
Table 3 Frequency of use of various assessment methods

Method	Once a term		Twice a term		Thrice a term		More than thrice		Total %
	No	%	No	%	No	%	No	%	
i. Written tests	0	—	0	—	27	79.4	7	20.6	100.0
ii. Practical tests	15	44.2	10	29.4	3	8.8	3	8.8	91.2
iii. Oral tests/ questions	0	0	0	0	0	—	30	88.2	88.2
iv. Home work/ assignments	0	0	1	2.9	0	-	33	97.1	100.0
v. Student observation	1	2.9	0	0	0	-	30	88.2	91.2
vi. Project work	7	20.6	5	14.7	2	5.9	0	—	41.2

N=34

Teachers commonly use written tests, practical tests, student observation and homework/assignment. Most teachers used oral questions, homework and student observation more than thrice a term. Although all teachers used written tests, only 20.6% used them more than thrice a term. A fairly high percentage (79.4%) of the respondents used written tests only thrice a term. Respondents indicated that they hardly use project work to assess students. Figure1 represents the frequency with which various assessment methods are used in schools.

Figure 1 Frequency of use of various assessment methods



It is apparent that the most frequently used method of testing was homework/ assignments with 97.1% of the respondents indicating that they used it more than thrice a term. This could be because teachers believe that assignments have the immediate impact on learning. Assignments help in better retention of factual knowledge, increased understanding, better critical thinking and greater discipline and self direction of students because of the immediate relationship to prior learning (Noll, 2005).

Despite the ability of practical tests and project work in improving acquisition and development of manipulative and process skills, many teachers did not use them frequently. This could be attributed to their demand on time and resources. This was attested by one H.O.D (Science) who said;

It is easy to set and administer written tests but our laboratory is not well equipped and we have no laboratory technician, it is difficult for the teacher to organise for practical tests more than twice a term.

[H.O.D (Science) Secondary School A]

c. Domains of Chemistry emphasized in Tests

Forty (40) theory papers and eighteen (18) practical papers previously used by teachers to test their students in chemistry within the last two years were analysed. The total marks for all the theory papers analysed were 2,315 while total marks for practical papers analysed were 480. The number of questions in the theory and the practical test papers testing various aspects of chemistry content were coded. Total marks for items testing each aspect of chemistry learning out of the total marks for the papers analysed are presented in table 4.

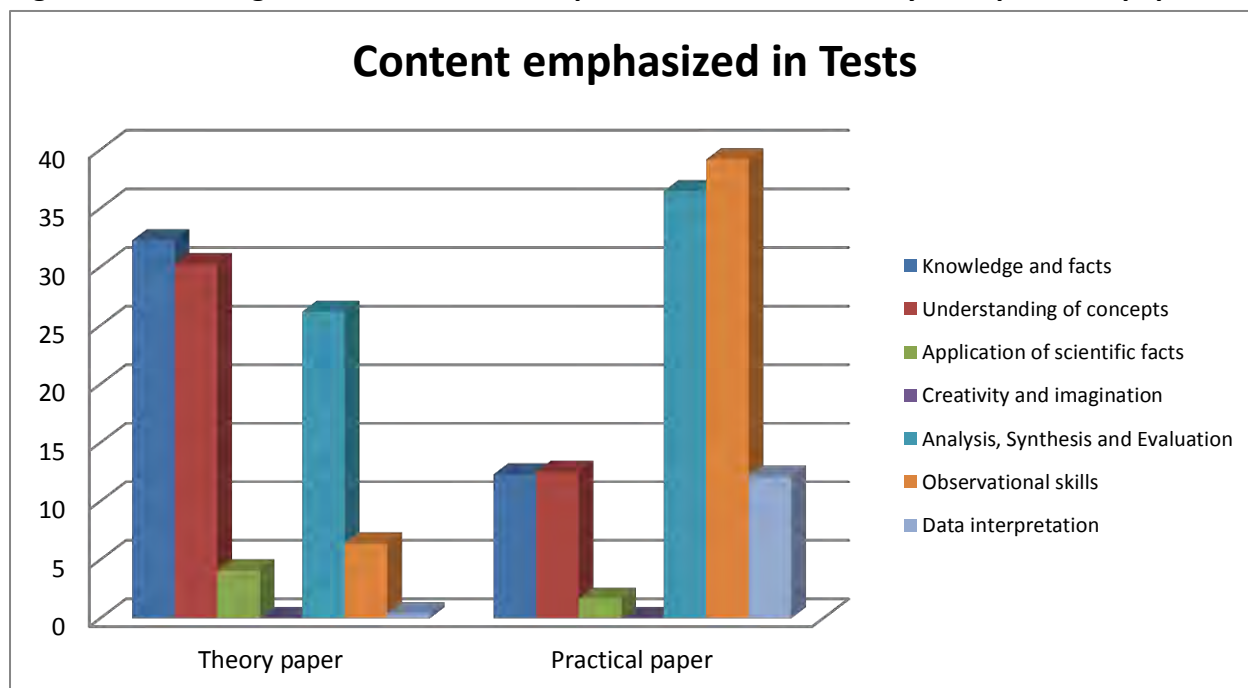
Table 4 Content/skills assessed in theory and practical tests

	Aspect Tested	Theory paper Tally (Marks)		Practical paper Tally (Marks)	
		Total	%	Total	%
1	Knowledge and facts	747	32.27	59	12.29
2	Understanding of concepts	700	30.23	60	12.5
3	Application of scientific facts	115	4.09	8	1.67
4	Creativity and imagination	4	0.002	0	0
5	Analysis, Synthesis and Evaluation	606	26.18	175	36.45
6	Observational skills	148	6.39	188	39.17
7	Data interpretation	10	0.43	58	12.08
		N=2315		N=480	

The results show that most of the test items in theory test papers focused on learners' acquisition of knowledge and facts (32.3%), understanding of concepts (30.2%) and analysis, synthesis and evaluation (26.2%). All these are areas of cognitive domain of science learning. It can therefore be noted that 88.5% of items in theory test papers that teachers use emphasize the cognitive domain. The least tested item by theory test is creativity and imagination (0.002%).

Practical tests mainly focused on observational skills (39.2%) which are in the process science domain. Analysis, synthesis and evaluation were also fairly tested (36.5%) in the practical paper. Testing of application of scientific facts is very low (1.67%) and no item in the practical test paper was found to test creativity. The percentage of items for each aspect tested in the theory and practical papers are represented in figure 2.

Figure 2 Percentage of items for each aspect tested in the theory and practical papers



These results show that a lot of emphasis is put on lower level cognitive domain in the theory papers. This generally agrees with a study conducted by the Cleveland public schools (Fleming and Chambers, 1983, as cited in Stiggins, 1985, p.72) which examined over three hundred (300) teacher-made tests and found that there was need for teachers to measure skills beyond recall of facts.

When the theory test papers were analysed to find the test format used, they were found to mainly contain short answer and structured questions. Chemistry teachers did not use objective type of questions in their tests because they may not demonstrate the learner’s ability in chemistry. They encourage guessing and measure memorization rather than understanding (Twoli, 2006). Short answer questions ensure a wide range of items are used in the test thus increasing test validity.

The practical test papers were also analysed with an aim of identifying the skills emphasized in chemistry practical tests. The marks allocated for test items testing each skill were computed (table 5)

Table 5. Type of skills assessed in practical test papers

Skill emphasized by the questions	Tally (marks)	
	Total	%
Observation	195	40.6
Interpreting data	51	10.6

Recording data	99	20.7
Inferring	90	18.8
Manipulative skills	156	32.5
Mathematical skills	137	28.5
Non-linear skills	14	2.9

N=480

The results (table 5) show that the most tested skills in practical tests are the observational and manipulative skills. They however indicate a balance in the testing of the basic process skills and manipulative skills. This implies that practical tests adequately assess the process domain of science learning. The two types of tests (theory and practical) may not sufficiently test application, attitude and creative domains of science learning. This suggests the need for other methods of assessment to attain a more balanced assessment which involves all or nearly all domains of science learning (Chiapetta, 2010). In Kenya, alternative methods of assessment are not so much used. Only the convectional methods are used which could be due to lack of testing skills by teachers. The teacher made tests tend to follow the Kenya National Examination Council (KNEC) format as if in preparation of the end of course examination.

d. Procedures in School-Based Chemistry Testing

Teachers involved in the study were asked to indicate who sets, moderates, makes the marking scheme and marks the tests they use in their schools. Their responses were as indicated in table 6

Table 6. Setting, moderating, marking scheme and marking tests

		Subject Teacher		Team of Teachers		Head of Department		External person	
		No	%	No	%	No	%	No	%
a.	Setting Tests	27	67.1	4	28.6	0	0	2	14.3
b.	Moderating Tests	30	85.7	0	0	2	14.3	0	0
c.	Making Marking Scheme	13	57.1	5	28.6	2	14.3	0	0
d.	Marking Tests	32	95.4	0	0	0	0	0	0

N=34

Most respondents indicated that tests are mostly set and marked by the Chemistry subject teacher. They therefore may differ greatly from class to class; often subjecting their quality is to debate. Stiggins (1985) also noted that constructing a good teacher made test is very time consuming and difficult. It is, therefore, worth noting that assessment results from one

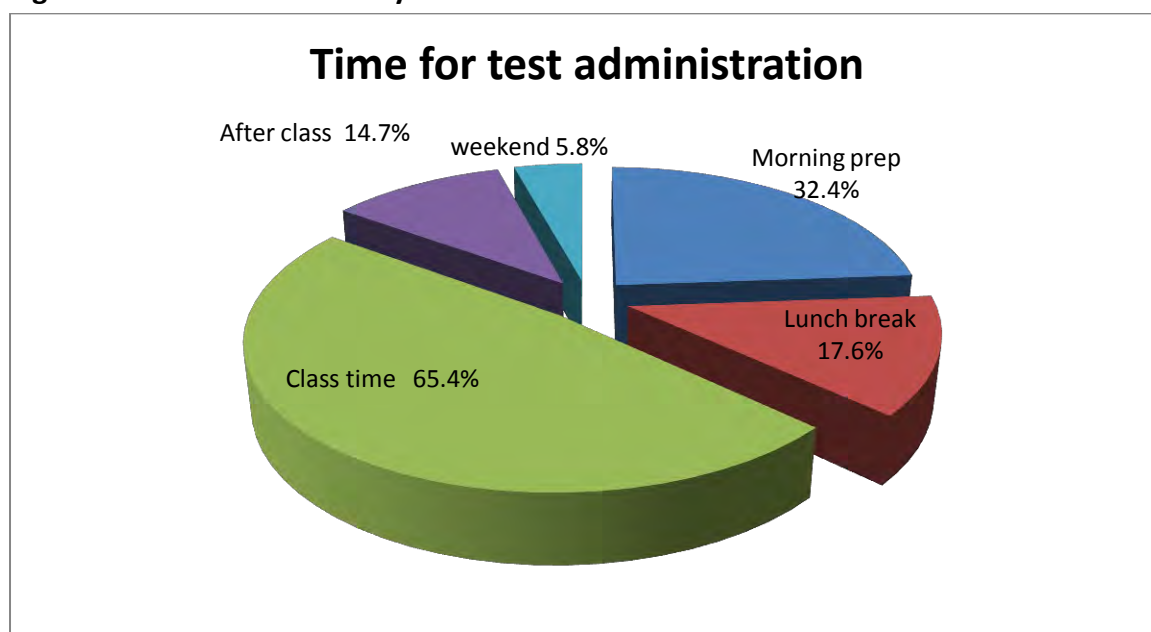
teacher have higher chances of bias. This indicates need for team moderation. Daugherty (1995) noted that group moderation allows examiners to clarify in discussion both the objectives of the syllabus and the value of judgements from the results.

There is a new trend of setting tests which is developing in Kenya and may be in a few other developing countries. With the emergence of processing information using computers, independent enterprises are springing up with commercial objective of producing tests for sale. There is no quality lable on such products but a number of teachers do adapt or adopt these tests. this may be aggravated by the fact that there are no standardised school based tests such as NSTA in USA or APU in UK.

Time for test administration

The teachers were presented with options of time when they administer written tests in their schools. The results are presented in figure 3.

Figure 3 Time when chemistry written tests are administered



Most of the schools (65.4%) give written tests during class time. This means that a lot of teaching time is used in testing. It is also important to have as much uniformity in terms of physical environment as possible during test administration. Class time provides that uniformity.

e. Grading of chemistry school based tests

Grading of test results help define performance. Various systems of grading have been used in schools. Most teachers indicated that they use a combination of marks and grades to

describe student's performance. The heads of department in an interview carried out by researcher made it clear that end of term tests were always described in terms of a combination of marks and grades. Grades only were used in assessment of project work. Most HODs observed that use of comments with neither marks nor grades could only be used to describe performance in oral questions which are common during classroom instruction. Assignments and homework were commonly awarded marks out of a predetermined total.

Conclusion

Teachers of chemistry in secondary schools recognize the role of school based tests and administer them to serve various purposes. The main one being to measure and provide feedback to learners on their academic progress, this ensures the learners' understanding of the content taught as part of preparation for the national examination. In the process, teachers get to evaluate their instructional methods with the view of responding more effectively to learners' weaknesses.

Tests were usually administered for formative and summative reasons but rarely were they used for diagnostic purposes. Since chemistry learning is affected by prior knowledge of the learners and societal changes, it is of great importance for the teachers to carry out diagnostic assessment of learners. Teachers used written tests, practical tests, oral tests, assignments, student observation and project work to assess learners. The most frequently used methods are oral questions and assignments which are mainly used in every lesson as part of formative evaluation. They are useful in determining student's understanding of taught content, evaluating teaching effectiveness and motivating the learners.

From the chemistry test papers analysed, it was found that the lower levels cognitive domain which are knowledge and comprehension are the most tested areas in the theory test paper. The practical tests emphasized manipulative and process skills, with the process skill of observation being the most dominant. Theory tests consisted of short answer questions or structured type of questions. Quality of tests is important in bringing desired effects and this explains why most teachers ensured the moderation of tests before administration. Unlike the practice of teachers moderating their own tests, team moderation could lead to better use of school-based tests (QSA, 2010). Achievement in written tests was communicated as a combination of grades and marks which is the most effective way of describing the learner's performance. Multiple mark system is more informative because it shows student progress towards achievement of set goals (Terwilliger, 1971).

Tests were mainly administered during class time thus consuming lots of learning time. This timing however, indicated the seriousness with which the tests are taken. The procedures regarding setting, moderating, administering, preparing marking scheme and marking the tests usually followed school made policies. There were, however, need for national policies to govern school based testing to ensure uniformity/ standardization. Daugherty (1995) noted that with national policies in place school based tests should be a fundamental element in the judgment of the learner's achievement at the end of the course. Chemistry teachers need to be sensitized on the importance of diagnostic form of testing which would be useful in directing instruction during learning. This can be done in seminars, workshops and in-service trainings. Pre-service and in-service teacher training should be utilized to equip teachers with a variety of assessment methods and enable teachers to develop ways of assessing all the domains of science learning. Project work should be emphasized in chemistry assessment.

Quality tests would provide feedback which is put in effective instruction. This would improve conceptualization which involves acquisition of knowledge and skills important for development of quality chemist. Chemists working in diverse applied fields such as food chemistry, environmental chemistry, and industrial chemistry can all play a part in sustainable development. Chemistry, as a central science, is quoted by Engida (2011) as the cornerstone for sustainable development, not only in Africa but also worldwide. For chemistry learning to contribute significantly and meaningfully to sustainable development curriculum developers should devise a system in which acquisition of knowledge and practical skills are systemically assessed. This could involve performance assessment of practical skills as well as including school based assessment in determination of the learners' end of course grade. Curriculum developers should consider revising Chemistry curriculum to provide enough time for teachers to conduct quality assessments including those requiring much time such as practical tests and project work. The curriculum should also provide guidelines on the testing of domains such as attitude and creativity. National policies that govern school based assessment should be developed. This would ensure that learners acquire sufficient skills and knowledge necessary for societal change.

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CONTEXT-BASED PRIMARY TEACHER TRAINING MODEL: THE WAY FORWARD FOR KENYA.

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Abstract

Teacher quality is a continuing interest to most teacher education reform discourses in many countries. Armour and Booth (1999), Feiman-Nemser (2001) and Hoban (2005) argue that most teacher education graduates in many countries often feel inadequate in their preparation for classroom teaching. In Kenya, the Sessional paper No. 1 of 2005, the Kenya Education Sector Support Programme document of 2005-2010 and Wanzare (2002) cite low quality primary teacher education as a major impediment to education reforms. This is attributed to the traditional content-based pedagogical primary teacher education model that lacks adequate learner involvement, presents a fragmented view of learning and has little connection between theory and practice. This study sought to establish whether context-based learning through focus group discussions on teaching and classroom practice improves teachers' teaching effectiveness and aimed at developing a suitable pre-service primary teacher education model for Kenya. A Quasi-Experimental research design in form of a pre-test/post-test longitudinal panel control group was used. It involved a stratified random sample of 80 first year pre-service teachers from Meru and Egoji colleges (40 for experimental and 40 for control groups). The experimental group was sub-divided into groups of ten of equal gender proportions that held discussions under the facilitation of the researcher once per week during teaching practice sessions. A classroom observation schedule, a focus group discussion schedule and a reflective diary were used to collect data. The findings obtained through the use of a t-test for independent means revealed that there were significant differences between the two groups on instructional systems planning, teacher-student interactions, students' motivation and use of instructional resources except on teachers' classroom management.

Introduction

The quality of primary school teachers is low in many African countries due to the structurally fragmented and conceptually impoverished traditional training models used in their training as noted by Feiman-Nemser (2001), Wanzare (2002) and Dembele and Miaro-II (2003). A report by UNESCO (2005) supports this observation by indicating that majority of

primary-school teachers in developing countries lack adequate training and content knowledge that is attributed to traditional concurrent content-based pedagogical model and approach to teacher education that lacks adequate learner involvement, has no effective relationship between theory and practice and does not help teachers be creative in their teaching. The model is concurrent because all the components namely; teaching content, pedagogical knowledge and skills, and teaching skills are integrated. It is content-based and pedagogical since it emphasizes on knowledge and skills acquisition with little room for learner participation (Thomas, 1997). According to the MoEST report (2003), the current pre – service primary teacher education model in Kenya comprises three components namely; college classroom learning (Pedagogy and teaching subjects), micro – teaching and teaching practice.

However, as noted by Dembele and Miaro - 11 (2003), MoEST report (2003) and Akuno (1997) this model leads to low quality primary education. Since there is a very strong relationship between teaching methods and the quality of learning in classrooms as indicated by Cambourne and Kiggins (2004), Hopkins (2001), Scheerens (2000) and Carter (2000) there is need to improve on pre-service primary teacher education through use of more effective training models such as the context-based model.

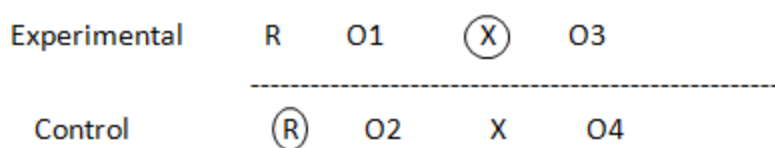
Context-based learning is a process where learning is driven by the real world context, culture and tools in the learning environment as defined by Merriam and Caffarella (1999) and Jonassen, Peck, and Wilson (1999). Context-based learning is based on constructivist theory arguments that knowledge cannot be simply transmitted from the teacher to the learner since learners do not have the same experiences as the instructor (Choi & Johnson, 2005). Therefore, learners' interpretation of the experiences would be different from the instructor's. In this context learners must take responsibility for their own learning. Choi and Johnson (2005), Cheany and Ingebritsen (2005), Kang'ethe, Nafukho and Mutema (2002) indicate that context-based learning models improve learners' critical thinking, performance and increases their motivation to learn. Studies done by Tiwari, Wong and Lai (2005), Choi and Johnson (2005) and Cambourne and Kiggins (2004) and Kang'ethe, Nafukho and Mutema (2002) argue that there has been little progress in developing valid and context - based learning programmes in teacher education in many countries in the world including Kenya. The studies cited were not conclusive and recommend further studies in the area. This study sought to find out whether context-based learning model through use of focus discussion groups improves pre – service teachers' teaching effectiveness and to formulate a suitable pre-service primary teacher training model for Kenya.

The study was guided by the following null hypotheses: **Ho₁**; There is no significant difference in teacher-learner classroom interactions between pre-service teachers trained

through the context-based learning model and those trained through the traditional learning model; **Ho₂**; There is no significant difference in teacher's motivation of learners between pre-service teachers trained through the context-based learning model and those trained through the traditional learning model; **Ho₃**; There is no significant difference in teacher instructional system planning between pre-service teachers trained through the context-based learning model and those trained through the traditional learning model; **Ho₄**; There is no significant difference in teacher's use of instructional resources in the classroom between pre-service teachers trained through the context-based learning model and those trained through the traditional learning model; **Ho₅**: There is no significant difference in teachers' classroom management and control skills between pre-service teachers trained through the context-based learning model and those trained through the traditional learning model.

Methodology

The study adopted a quasi - experimental design that involved a pre – test / post – test longitudinal panel control group. Borg, Damien and Gall (2003) and Fraenkel and Wallen (2009) argue that it is not possible to fully control all the variables in a social studies experimental research and thus the use of a quasi – experimental design.



Where R = Randomization for both experimental and control groups ; X = Treatment for the experimental group; X = No treatment; O1 = Pre-test (observation) for the experimental group; O2 = Pre-test (observation) for the control group; O3 = Post-test (observation) for the experimental group and O4 = Post-test (observation) for the control group

The sample comprised a total of eighty (80) stratified randomly sampled (based on gender) pre-service teachers from Meru and Egoji teachers colleges for the experimental group and control group respectively. Each group comprised of forty (40) members based on equal gender proportions. The two colleges are from Meru Central District, Eastern Province of Kenya. The same sampling technique was used to select 10 pre-service teachers per focus group for the experimental sample.

The researcher facilitated a total of seven focus group discussions once per week for each of the ten (10) groups. The research instruments used in this study were divided into two parts; a) Data collection research instruments which comprised of a developed pre – test (pre-observation) and post – test (post-observation) in form of a classroom observation

schedule on teacher actual classroom teaching and treatment research instruments which included a focus discussion group schedule for guiding the facilitator working with the focus groups and a reflective teaching diary for pre-service teachers to record their day's reflections on their teaching and classroom behaviour practices. Reliability and validity of the research instruments were evaluated through piloting of the instruments at Kigari primary teachers college. The Reliability (r_{tt}) of the observation schedule was tested through the split – half method which yielded a reliability (r_{tt}) level of .8727. The content validity of the classroom observation schedule, the focus discussion group schedule and the reflective teaching diary were evaluated through expert evaluation and scrutiny by experienced college tutors and primary teacher education university lecturers.

Pre – tests and post – tests in form of classroom observations were done by one trained observer and the researcher. A total of two pre – test and two post-test observations for each pre-service teacher were made and the mean of the two observations for each learner constituted the pre-test and post test results respectively. The meetings of focus discussion groups (FDGs) started immediately after the pre-tests. Each meeting of the FDG was held once per week for one hour. Pre-service teachers were required to fill in the reflective practice diaries every day after their lessons. Information obtained from the diaries was used during the focus discussion group meetings. Data obtained was analyzed by use of descriptive statistics in form of frequencies means, gain scores and standard deviations while inferential statistics used were in form of a t-test for independent means at a set significance level of ($p < .05$) through the use of the Statistical Package for Social Sciences (SPSS 11.0)

Results and Interpretations

Descriptive Pre-test Classroom Observation Results

The essence of pre-test data analysis was to determine whether the experimental and control groups were initially significantly different from each other on the dependent variables under study. The mean scores for each specific dependent variable and the standard deviation for each pre-service teacher were calculated. The results obtained are indicated in table 1.1.

Table 1.1 Pre-Test Descriptive Observation Results.

Dependent Variable	Learner's ID	Mean 100	Gain Score	SD	SD Error of the Mean
Instructional System Planning	Experimental(n=40)	47.49		8.73	1.38
	Control(n=40)	47.37	0.12	9.04	1.42

Teacher-learner Interactions	Experimental(n=40)	47.04		10.71	1.69
	Control(n=40)	47.91	-0.87	12.05	1.90
Dependent Variable	Learner's ID	Mean 100	Gain Score	SD	SD Error of the Mean
Learners' motivation and Interest	Experimental(n=40)	52.97		9.63	1.52
	Control(n=40)	53.20	-0.23	10.03	1.58
Use of Instructional Resources	Experimental(n=40)	33.45		14.16	2.24
	Control(n=40)	28.58	4.67	12.86	2.03
Classroom Management and Control	Experimental(n=40)	49.12		7.99	1.26
	Control(n=40)	49.82	-0.70	7.59	1.20

Table 1.1 shows that there were minimal differences in mean scores between the experimental and control groups as indicated by the gain scores of each dependent variable except for the use of resources which had a gain score of (4.67) with an experimental group mean score of (M = 33.45, SD = 14.16) against a control group mean score of (M = 28.58, SD = 12.86).

Pre-Test Classroom Observation t-Test Results

The results of an independent sample t-test are as recorded in Table 1.2.

Table 1.2 Pre-test Independent Sample t-test Values

Dependent Variable		Laverne's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig.(2-tailed)
Instructional System Planning.	Equal Variances assumed	.106	.746	.060	78	.1193
Teacher-learner Interactions	Equal Variances assumed	1.011	.318	.049	78	.1258
Learners' motivation & interest.	Equal Variances assumed	.828	.366	-.107	78	-.2348
Use of Instructional Resources	Equal Variances assumed	2.032	.158	1.611	78	4.8758
Classroom	Equal Variances	.458	.501	-.389	78	-.6793

Management & Control.	assumed					
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It is clear from table 1.2 that, the two groups did not differ significantly in all the dependent variables under study namely; Instructional system planning ($t(78) = .060, p < .05$), teacher-learner interactions ($t(78) = .049, p < .05$), learners' motivation and interest ($t(78) = -.107, p < .05$) and classroom management ($t(78) = -.389, p < .05$). This is further supported by the difference in gain scores obtained for the use of instructional resources as recorded in Table 1.1.

Post-test Classroom Observation Results

Following focus discussion group treatment administered to the experimental group a post-test classroom observation was made to determine whether there were significant differences on all the dependent variables between the two groups. The results obtained are indicated in Table 1.3.

Table 1.3 Post-test Means and Standard Deviations for the Experimental and Control Groups per Dependent Variable and the Total Pre-service Teachers' Score.

Dependent Variable	Learner's ID	Mean	Gain Scores	SD	SD Error of the Mean
Instructional System Planning	Experimental(n=40)	68.98		7.75	1.22
	Control(n=40)	60.02	8.96	7.28	1.15
Teacher-learner Interactions	Experimental(n=40)	66.99		10.81	1.71
	Control(n=40)	61.53	5.46	9.02	1.43
Learners' motivation and Interest	Experimental(n=40)	71.51		10.19	1.61
	Control(n=40)	66.83	4.68	7.43	1.17
Use of Instructional Resources	Experimental(n=40)	53.47		15.26	2.41
	Control(n=40)	44.62	8.85	12.85	2.03
Classroom Management and Control	Experimental(n=40)	67.95		11.25	1.78
	Control(n=40)	65.53	2.42	7.33	1.16

Table 1.3, shows that instructional system planning had the highest gain score of (8.96) with an experimental mean score of (M = 68.98, SD = 7.75) and a control group mean score of (M = 60.02, SD = 7.28) for the experimental and control groups respectively. Classroom management and control had the lowest gain score of (2.42) with an experimental group mean of (M = 67.95, SD = 11.25) and a control group mean of (M = 65.53, SD = 7.33). These results indicate that there were substantial differences in the experimental and control

groups mean scores each of the dependent variables under study except for classroom management and control.

Post-test Classroom Observation t-test Results

A post-test independent t-test was calculated to find out whether the experimental and control groups were significantly different on all the dependent variables at the post-test. The results are as indicated in Table 1.4.

Table 1.4 Post-test Independent Sample t-Test Values

Dependent Variable		Laverne's Test for Equality of Variances		t-Test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Instructional System Planning.	Equal Variances assumed	.040	.842	5.327	78	.000
Teacher-learner Interactions	Equal Variances assumed	.705	.404	2.458	78	.016
Dependent Variable		Laverne's Test for Equality of Variances		t-Test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Learners' Motivation & Interest	Equal Variances assumed	3.807	.055	2.348	78	.021
Use of Instructional Resources	Equal Variances assumed	1.102	.297	2.807	78	.006
Classroom Management and Control	Equal Variances assumed	10.927	.001	1.143	78	2.425

It can be noted that Instructional system planning had an independent t-test value of $t(78) = 5.327, p < .05$) while teacher-learner classroom interactions recorded an independent t-test value of $t(78) = 2.458, p < .05$) as recorded in table 1.4. Learners' motivation and interest had an independent t-test value of $t(78) = 2.348, p < .05$). Use of teaching

resources showed t-test value of $t(78) = 2.807, p < .05$) while classroom management and planning had a t-test value of $t(78) = 1.143, p < .05$). These results reveal that all the independent t-test values obtained except for classroom management and control were significant. This means that the experimental group performed better than the control group on all the variables under study except on classroom management and planning which showed a non-significant t-test value.

Discussions

The main objective of this study was to establish whether the context-based learning model through the use of focus discussion groups improves pre-service teachers' teaching effectiveness as compared to teachers trained under the traditional content-based pedagogical model. The pre-test descriptive statistics used showed minimal differences between the experimental and control groups in all the variables under study before treatment except for instructional system planning. This means that the two groups did not have significant differences at the pre-test stage. However, the post-test results obtained showed that there was a significant difference in all the variables of the study except on classroom control and management. Therefore all the null hypotheses were rejected except the fifth for which further investigation can be done. These results are consistent with the findings of studies done by Kiggins (1999), Kiggins (2007), Tiwari, Wong and Lai (2005), Carpenter and Blance (2007) and Choi and Johnson (2005).

Analysis of the reflective practice diaries and observations made during the focus discussion groups provided some useful information on the experiences and perceptions of pre-service teachers on focus discussion groups and reflective practice and further supported the findings obtained after the post-test as noted in the following pre-service teachers' excerpts.

At first I did not think the discussion group was necessary. The work was too much to bear. I even came in late during the group discussions but I later realized the group members were talking about the same problems I had experienced in my classroom teaching. This gave me hope that I was not alone and motivated me to participate in the group discussion. I finally found out that sharing with my colleagues helped me learn how to solve my classroom problems. (Beth, Group 2).

I think the benefit of a group discussion is that you are not focused on the outcome like in a classroom situation. You are more concerned with seeking solutions to a problem. You are able to connect what you were taught in the classroom with what is happening in schools. I think I learnt more during the discussions than when I attended lectures because the

lectures were mainly focused on exams unlike the discussion groups. However, the sessions were rather short. (Odindo, group 2).

I felt involved in my learning. I believe this was the main advantage of the discussion groups and the reflections I made. Teaching practice was good though quite involving. (Maluki, Group 1).

The main observation that emerged from these pre-service teachers' excerpts is that pre-service teachers valued learning from each other and reflecting on their teaching. It is evident from the results obtained that context-based learning model through use of the focus discussion groups improved pre-service teachers teaching effectiveness. Reflective practice, school-based learning and cooperative learning were the main sources of learning in the context-based model. These findings are consistent with the observations made by Kiggins (2007), (Cheany & Ingebritsen, 2005), Hammond (2006), Tiwari, Wong and Lai (2005), and Choi and Johnson (2005) in which they argue that the 21st century teacher requires the use context-based learning models to help him/her be aware of the context in which learning is to take place and accommodate the social, environmental and the psychological conditions in his/her teaching taking into consideration the demands of the fast changing world.

The second objective of this study was to formulate a suitable pre-service primary teacher training model for Kenya. In order to accomplish this objective, it was important to consider the findings of this study and relate the new model to other existing models. Various teacher education models have emerged in many developing countries as a basis for meeting their teacher education needs. According to Tulasiewicz and Adams (1995) and the Eurydice (2002), they are mainly divided into two; the concurrent and consecutive models. The most common in many countries is the concurrent model which entails the integration of all teacher education components namely; the teaching subject content, pedagogical content, micro-teaching and teaching practice. In the consecutive model, the subject content is taught first followed by the pedagogical content and later teaching practice. Within these broad categories, innovative pre-service teacher education models such as the Mentoring teacher education models which have some variations that include the Collaborative Schools Model (CSM) and the Professional Development School Model (PDS). They mainly involve the use of a mentor who provides support to the pre-service teacher in developing classroom management skills, lesson planning, gaining familiarity with teaching resources and reflective practice, a school coordinator who identifies qualified mentor teachers and provides support to mentors and pre-service teachers and a university or college facilitator who plays the role of a mediator and enables open communication

between all parties in addition to ensuring that all components of the school-based experience model function as expected.

As noted earlier, the primary teacher education in Kenya and many other developing countries is based on the concurrent content-based pedagogical model that is teacher-centered and has little room for learner participation, innovation and creativity. Following the recommendations of the KESSP (2005), Sessional Paper No. 1 of 2005 Republic of Kenya (1999) and MoEST (2003) the following context-based teacher education model for Kenya is formulated and recommended. It is an integration of four components namely; classroom learning and micro-teaching, cooperative learning, school-based learning and reflective practice. These components were used as the treatment for the experimental group in form of a focus discussion groups. The results of this study showed that pre-service teachers taught using the focus discussion groups performed better in classroom practice than those taught using the traditional model. In addition, pre-service teachers' reflective diary recording further provided evidence that the cooperative learning, the school-based and the reflective practice components were operating well. The main focus of the model is the instructional roles of pre-service teachers and their personal development as well as generating new ideas for better quality teacher education. As commented by Kiggins (2007), the context-based model promotes learner-centered learning through problem-solving, learner independent learning, improves learners' and stimulates pre-service teacher's creativity among other advantages. This is in contrast to the current primary teacher education model in Kenya.

The context-based model recommended based on the findings of this study is as illustrated in fig. 1.1.

Fig. 1.1 Context-Based Primary Teacher Education (COBPTE) Model for Kenya.

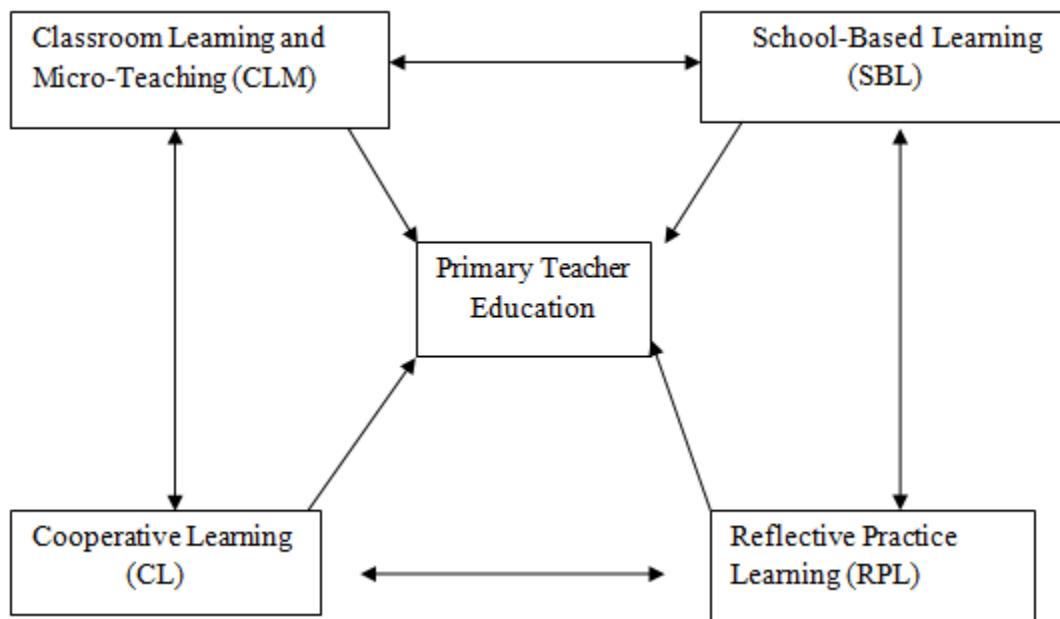


Fig. 1.1 shows the new and recommended primary teacher education model for Kenya based on the findings of this study. The model provides four fundamental sources of learning for pre-service teachers. The four components contribute to effective training of a primary school teacher who is capable of engaging in concrete tasks of teaching, assessment, observation and reflection. They include:

Classroom learning and micro-teaching (CLM)

This entails the teaching of educational professional courses and teaching subjects to pre-service teachers followed by micro-teaching that involves short practical teaching sessions (normally between 7-10 minutes long). This source is the first component in pre-service teacher education and should provide a foundation on teaching and classroom practice and give more room for pre-service teachers to actively participate in their learning. It is interlinked with school-based learning and cooperative learning.

Cooperative learning (CL)

This source aims at creation of a community of learners made up of pre-service teachers and the facilitator which helps them to discuss the strengths and weaknesses of their lessons and thereby make improvements on their professional practices. As pointed out by Anne (2001) and Lieberman and Mace (2009) professional development of teachers is considered a collaborative process where there are meaningful interactions between pre-service teachers. Cooperative learning was found very useful in this study as can be seen

from the pre-service teachers' excerpts on FDGs since it helps them to connect theory to practice. The source is interlinked to classroom learning and reflective practice sources.

This source of learning is critical to this model since it places the learner as the main determinant of his/her learning as opposed to the mentorship models where the mentor plays a more significant role in pre-service teachers' learning. It takes place both during classroom learning and micro-teaching and after reflective practice learning. Its importance is supported by research findings by Whitecomb, Borko and Liston (2009), Lieberman and Mace (2009), Zwart *et al* (2009), Kiggins (2007) and Wenger (1998) who point out that cooperative learning helps learners to collaboratively research in their area of interest and thereby collectively advance their intellectual growth through sustained collaborative investigation.

School-Based Learning (SBL)

This source of learning represents the actual attachment of pre-service teachers to schools. The aim is to help the pre-service teachers understand primary school-based culture and how schools operate. Though it is already a requirement for any pre-service teacher in the current traditional primary teacher education model in Kenya it should be more enhanced in terms of generating problems for discussion in a community of learners in this model. The objective is to increase pre-service teachers' awareness on the teacher's role in the classroom and school. This would reduce what Koetsier and Wubbels (1995) calls "reality Shock" that confronts beginning teachers when they start their teaching practice. It is linked to classroom learning and micro-teaching because pre-service teachers will be expected to put into practice in an actual classroom setting what they have learnt in college. It is closely connected to reflective practice learning since it is the source of the issues to be reflected on by the pre-service teachers.

Reflective Practice Learning (RPL)

In this study, reflective practice learning was carried out through recording of the pre-service teachers' reflections on their teaching in a diary. The recordings formed the basis of discussion problems during the focus discussion group meetings. As is evident from the analysis of the reflective diaries and the pre-service teachers' excerpts on the same, pre service teachers found the process valuable in evaluating their teaching practice and improving on it. However, they found the process tedious and in some cases confusing. Reflective practice as indicated by Anne (2001), Adesina, Daraniola and Talabi (1989) Schon (1983), helps pre-service teachers confront existing theories and preconceived ideas of what teaching entails taking into consideration what Thyalk and Cuban as quoted by Dembele and

Miara – 11 (2003) call the ‘grammar of schooling’ meaning a set of expected patterns teachers have historically constructed regarding what teaching entails.

From the foregoing, it is clear that the context-based learning model improved primary school pre-service teachers teaching effectiveness as evident from the results of the independent t-test for equality of means on all variables under study. However, the main potential challenges of the model include the enormous amount of time required to effectively implement it in a large scale, the costs required in terms of human resource and other resources and the requirement for re-training of the primary teacher educators and policy-makers as well as pre-service teachers to embrace a rather unconventional form of teacher training. Nevertheless, based on the findings of this study and the advantages mentioned above, the context-based pre-service teacher educational model has more advantages than the current traditional content-based pedagogical model and is therefore, recommended for primary teacher education in Kenya.

Conclusion

The findings of this study reveal that context-based learning in the form of focus discussion groups as a model of pre-service teachers’ training improved their classroom teaching. These results are consistent with other research findings by Jonassen, Peck, and Wilson (1999), (Cheany & Ingebritsen, 2005), Tiwari, Wong and Lai (2005), Kang’ethe, Nafukho and Mutema (2002), Choi and Johnson (2005) and Kiggins (2007) who indicate that context-based learning as a model of training helps learners to effectively participate in their learning, motivates them to learn and improves their problem-solving skills and enhances their higher order thinking skills. This approach also helps pre-service teachers to connect their professional training to the actual experiences in the classrooms and schools through collaborative and reflective learning. Based on the findings of this study the context-based learning model improves pre-service primary teacher education in an effort to provide quality education for societal transformation. Recommendations are thus made for implementation of the model and development of appropriate in-service programmes to address the weaknesses of the current traditional model as recommended by the Sessional Paper No. 1 of 2005 and the MoEST Report of 2003.

Key Terms

Context – Based Learning: - Learning that is based on the actual day-to-day pre-service teachers’ specific environment and experiences; **Cooperative Learning:** - Learning in which pre-service teachers learn through interaction and sharing of ideas and information in a purposed group of peers; **Reflective Practice Learning:-** Learning in which the pre-service

teacher learns through retrospective own analysis of his/her teaching performance after each day's teaching; **School-Based Learning**:- Learning through actual participation of the pre-service teacher in a real school setting (teaching practice); **Teacher Effectiveness**:- The degree of excellence to which a teacher performs his/her teaching duties in the classroom; **Traditional concurrent content-based pedagogical teacher education models**:- The teacher-centered methodologies where the learner is passive and emphasis is on transference of knowledge and skills from the teacher to the learners.

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TEACHER PREPARATION FOR THE 21ST CENTURY

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Abstract

Teacher quality affects the quality of the education curriculum, its implementation, assessment and evaluation, making preparation of teachers a very important aspect of any education system in the world. However, most social systems do not treat teacher education as a serious endeavor and so do not improve conditions to make success a possibility. For example, the teacher education curriculum has remained more or less the same over the years. Again, besides the initial training, most teachers have minimal opportunities for any further professional development. As countries continue to experience education reforms in tune with the demands for the 21st century competitive workforce, social cohesion and individual growth, it is imperative to have a teacher education program well planned to fit in the rapidly changing world.

Thus this paper, proposes a teacher education program suitable to meet the exigencies of the 21st century. The paper argues that teacher education preparation needs to have strong knowledge based pedagogy incorporating clinical schools and information communication technology (ICT). Through it, teachers' practice will be informed and guided by reflective practice, research and professional development to ensure lifelong learning. Ultimately, the 21st century teacher is one who is going to be able to unlearn, learn and relearn in order to influence positive student outcome. As a result, active learning that is constructivist in nature will be encouraged in the classrooms, moving away from the commonly used transmission mode of education.

Introduction

Education reforms are currently sweeping many countries in the world (Borko, 2004; Spillane, 1999; Fullan & Miles, 1992). In line with this, UNESCO (2008) points out that teacher professional development¹ fits into the larger educational reforms context as countries tune their educational systems to produce the 21st century skills required for a competitive workforce, social cohesion and individual growth, because ultimately teacher quality affects the quality of the education. This therefore suggests that it is imperative to

¹ Teacher education while already in service

have a teacher education program² that is well planned to meet the challenges of a rapidly changing world. However research reveals that teacher preparation is condemned by both internal and external critics for lack of intellectual rigor, selectivity, structural arrangement, research cause and failure to achieve positive results in schools and classrooms (Cochran-Smith & Fries, 2005). Furthermore, Fullan (2007) notes that most societies do not treat teacher education as a serious endeavor so do not improve conditions to make success a possibility in spite of blaming teachers for failing education standards. Fullan (2007) asserts that a teacher's expertise, that is, what a teacher knows and can do, affects all the core tasks of teaching. Moreover, there is a positive correlation between quality of education and quality of teachers, which all depend on teacher education. So there is need for an innovative teacher education program in place of teacher training.

Background

Till recently, the preparation of teachers was described as teacher training, a label that reflected the process of giving prospective teachers and the non-certified in-service teachers some subject matter, knowledge and pedagogical tools so that they could transfer information to their students. Unfortunately, as Darling-Hammond (2000) notes, those education schools have been ineffective in the preparation of their teachers for work as they are usually a onetime process prior to the beginning of teaching career, and the in-service staff development where teachers congregate to receive the latest information about effective teaching from an "educated expert" (Darling-Hammond, 2006).

Experience in the Kenyan context shows that to date, graduation from the teacher training programs marks the end of teacher education, as one is considered ready to work as a teacher. Once this teacher is employed by the Teachers' Service Commission³, the employer does not push for any further academic improvement as do employers in other fields. Any further academic endeavor occurs mainly through the teacher's own initiative; otherwise this teacher is expected to work for many years without even a refresher course or a form of updating.

There has been a global call for change and transition in the structure, goals and organization of Teacher education program to emphasize continuous learning and introduction of professional development (PD) for teachers. As noted (Darling-Hammond, 2006) changes in education and the teacher education program in particular, are encumbered by traditional systems of teacher preparation that are enormously difficult to

² Teacher education as a form of initial teacher preparation.

³ Teachers' employer for all teachers in public primary, secondary and tertiary education institutions in the country.

dismantle. These will continue to affect the education systems unless they are sorted form within the system itself. Thus the teacher education program needs to fit in the dynamic turbulent school environment and carry on the complex process of helping students to learn.

Consequently, in this paper, I recommend a teacher education program that allows for interaction between the learner, teacher, curriculum and milieu in order for the teacher to fit in the changing world and ensure that teachers of tomorrow are better than those of today in developing the understanding and thinking of the learners. Skills that enhance continuous learning will also be incorporated into the teacher education program. Ultimately, the 21st century teacher is the one who is going to be able to unlearn, learn and relearn in order to influence positive student outcome, and produce graduates who are good people and thinkers.

The teacher education program is recommended with the assumption that once it is put into use, teacher educators will influence change in teacher education for improvement of the whole school system, not just up to the point of certification of the new teachers.

Recommendations on Elements of teacher education program for the 21st century.

Basic Contents for a Teacher education program

Ideally, a teacher education program needs to equip teachers with a strong knowledge base, skills and practice to enable them to become lifelong learners. A teacher education program in any set up needs to offer some basic aspects to enhance the novice teacher with the knowledge for teaching. Informed by Shulman, (1986; 1987) & Stronge, (2002) the teacher program needs to offer pedagogy, which incorporates three aspects namely: pedagogical knowledge, content knowledge and pedagogical content knowledge.

Firstly is pedagogical knowledge which focuses on how to teach and the skills necessary for a professional teacher to teach. Pedagogical knowledge provides understanding on the learning environment and instructional strategies, classroom management, and knowledge of learners and learning (Shulman, 1986). Teachers are exposed to how learners learn, communication skills and psychology. The novice is be made aware of elements of what particular learners need in order to learn effectively, paying attention to how the learners develop in their social contexts, how learners learn, learning environments and how to sustain them, instructional strategies and classroom management techniques and approaches.

Secondly, content knowledge focuses on facts concepts and procedures that define a given field of understanding of the specific discipline. Darling Hammond (2000; 1999a) and Stronge, (2002) reveal that familiarity with content knowledge is an essential component among effective teachers as it enhances understanding of content in the curriculum. Content knowledge also pays attention to subject content knowledge which articulates actual content to be taught in the schools aspects such as the content of the curriculum the goals of education and strategies of valid and reliable assessment.

Thirdly, the teacher education program needs to inculcate pedagogical content knowledge which shows the prospective teacher means of communicating the content in class. It informs the novice teacher on the organization of the teaching learning material in order to envisage a conceptual map of how to teach the subject matter, Knowledge of potential learners' misconceptions and alternative conceptions and also Knowledge of curricular materials. Pedagogical content knowledge is important because it forms the core of the teachers' function of delivering content to the learners. If the teacher cannot communicate the subject content, then no learning can take place.

The above mentioned three basic aspects of pedagogy are expected in all teacher education programs. However in order to fit in with the exigencies of the 21st century the current teacher education program calls for revitalization. This means that the recommended teacher education program will incorporate attitudes, knowledge and skills useful in the school. Informed by cognitive constructivism theory, (Snowman and Biehler, 2006) the recommended program should enable the teacher educator to use new and emerging knowledge to challenge the learners' current knowledge in order for the learner to engage in high level cognitive processes such as explaining and interpreting ideas in order to enable the learners to develop thinking skills. Teacher learning will therefore be more constructivist than transmission oriented as it is today. This means that, besides theory in the classroom, novices will react to and incorporate emerging issues and research findings into their teaching. They will also learn through sharing, networking and in reference to their context during their performance.

Innovations in teacher education program

Clinical schools

Prospective teachers need to be exposed to classroom experiences as much as possible in preparation to their career. Several scholars including Bristor, Kinzer, Lapp and Ridener (2002), Darling-Hammond (1996) and Goodland (1990) emphasize the importance of inclusion of clinical schools attached to universities offering teacher education programs, for

prospective teachers to carry out practice so that as the teachers learn theory, they try out the skills. This suggests that schools and universities need to collaborate in the establishment of clinical schools. These clinical schools will enable continuous guidance of the teacher novices on their practice, and ensure that abstract ideas given in class can be put into practice in a real classroom. Townsend & Bates (2007) asserts that clinical schools are important because the teachers need to learn how to draw on the resources around them to create a meaningful assemblage, and carefully and thoughtfully make a series of professional judgments about what and how to teach in order to make specific and particular sense for each group of students with whom they work. Moreover, the novices will have a chance to observe their teacher educator put theory in to practice thus enabling teacher education to prepare teachers practically, for the work in the classroom. Darling-Hammond (1998) asserts that comparative studies, on the quality of teachers, done in different countries reveal that intensively supervised internship, that allows new teachers to watch their experienced colleagues, allows teachers to perfect their practice and continually improve and refine their practice.

Judging from experience, lack of regular access to quality classroom experience is very frustrating to prospective teachers. In the Kenyan context for example, teaching practice is usually a two to three month affair in which there is minimal contact between the pre-service teacher and their supervisor during actual teaching practice. The period is too short leading to minimal guidance and supervision from the teacher educators. Many pre-service therefore teachers do not practice adequately while the supervisor assesses purely to determine whether they pass for certification or not. Although this matter is under review, having been discussed by scholars in a recent international conference (Otieno & Omanga, 2009), the dissatisfaction and ill-preparation of teachers would be eliminated if the TEP incorporated more time of close guidance and various collaborative innovations that help teachers to continually learn from one another for best practice and confidence in the job. This practice would be sorted by access to a clinical school in which continuous practice is carried on alongside learning the theory. The novices may also have a chance to observe practicing teachers at work as a way of learning.

The assumption here is that a collegial approach interested in continuous development of the teacher will build commitment and involvement in the profession more than the summative evaluation practiced today (Loucks-Horsley, Harding, Arbuckle, Murray, Dubea, and William, 1987). Therefore, the teacher education program should include clinical schools which will, in turn, incorporate various collaborative innovations to help teachers learn from one another for best practice.

Mentoring

Mentoring describes a combination of coaching, counseling and assessment where a teacher in a school is delegated responsibility for assisting pre-service or newly qualified teachers in their professional development. Usually mentors have a lot of experience and craft to share learnt over the years through experience and interactions in the service. Mentoring helps the in-experienced teacher by unblocking ways to change, building self confidence, self esteem and on-going interpersonal relationships in continuing personal and professional development (Daresh, 2003). Mentors may also learn from the innovativeness of the new teacher.

However, mentoring is not taught in the initial teacher preparation program and few schools- mainly in the private sector- have established mentoring programs. In majority of schools, teachers are required to settle in schools with minimum guidance. It is expected that the pre-service training is sufficient for them to perform their duties, a situation that sees many make unnecessary mistakes as they lack confidence in their duty performance and so adopt a trial and error style. On the other hand, in schools with a mentoring program, the mentee feels more confident to translate theory into practice in a more communicative way, while mentors gain a renewed enthusiasm for the profession from the young teacher. This concurs with Fletcher, (2000) and Loucks-Horsley et al, (1987) who posit that mentoring is responsive to the strengths values and needs of both mentor and mentee.

Introduction of mentoring in teacher education program may enhance the introduction of the same in the schools. The assumption made here is that once teachers get involved mentoring while still in teacher education program, they will translate it into their practice, thus create a culture which will be useful for many generations to come. Mentoring will thus become very a supportive form of induction for all new teachers. It may also encourage networking among teachers, a process which enhances continuous learning and professional development for the teachers as they share experiences.

Induction

Closely related to mentoring is induction which refers to formal introduction into a new job or organization. Unfortunately, in most schools induction of new teachers is not carried out fully. Besides being shown around the compound, it is assumed that a trained teacher has the knowledge to handle the teaching, thus little guidance is offered on how to approach the profession. For many new teachers, the transition is often dramatic, challenging and frightening and learning to teach takes time. Fullan (2007) asserts that the way one gets started on the job dramatically affects the rest of their career. Thus without induction, many of the teachers today teach in a way of copying what their teachers did thus practicing what

they learnt through apprenticeship of observation. This may render the teaching in the teacher education program almost worthless as it becomes difficult for the teacher to put theory learnt into practice. Induction is thus important because teachers need to learn the best practice. Thus the teacher education program needs to equip teachers with induction skills and practiced in the clinical schools. Induction in the clinical schools will enable the prospective teachers to unlearn the skills acquired through apprenticeship of observation as they make the transition from being students into being teachers.

Peer coaching

This involves colleague teachers observing one another's lessons and then discussing the performance and lesson presentation. Peer coaching requires teacher to teacher interaction aimed at improving instruction (Loucks-Horsley et al.). This practice allows for positive criticisms as a way of giving the teacher a chance to receive feedback on their performance and suggestions on pedagogy, which in turn allows for improvement. By having colleagues observe and discuss one another's lessons, both observer and observed learn from the sharing. Experience shows that the usual scenario in our schools is whereby teachers exert extra effort and expend long hours to improve student performance. Allen & Leblanc, (2005) observe that teachers keep doing the same things harder, resulting in burn out rather than success or satisfaction. However, what the teachers require is encouragement and effective guidance which may be possible through peer coaching.

Nevertheless, this is quite sensitive as there requires high level communication and professionalism for all teachers to take the criticism positively. In the Kenyan context, the practice of observing teachers in class is dreaded since it has usually been associated with the quality assurance officers when in need of a report for various reasons. This suggests that it is not widely accepted so there is need to have the practice introduced early in the teacher education program in order to accustom the teachers to it. The assumption in introducing peer coaching into teacher education program is that teachers will not personalize issues if they learn and practice trust right from their initial preparation. Peer coaching can be introduced into the teacher education program within the institution and also through regular communication between prospective teachers in different colleges. The use of the skill in the clinical schools will enhance its acceptability and adoption as a means of continuous learning and professional development for best practices.

Reflection

Another important skill that teachers need to learn as a means of continuous professional development is reflection. Reflection refers to thinking about one's practice, analyzing and

synthesizing it then using this new understanding to reform or improve performance. Reflection can be on-action, in-action, about action and for action (Schon, 1983). Reflection helps chart a way forward as it has to impact on the individual's performance. For the teacher, reflection requires taking into careful consideration the diverse contexts associated with schools and classrooms, and the multiple roles of the teacher (Knowles, Cole & Presswood, 1994). What this means is that issues in the teachers' environment and practice need to be reflected upon as they arise with the daily duties. Habitual reflection will enable the teachers to expand the individual's performance and profession because it acts as a learning experience, leads their decision-making and helps chart the way forward.

Teachers reflect on their work and also the attributes used by others outside the profession to gauge teachers' effectiveness. According to Hammerness and Shulman (2006), reflections help to develop teachers' visions as they strive to become quality teachers. Being a reflective practitioner is thus an important skill that teachers need to learn as a means of continuous professional development. Their attitude towards reflective practice will be influenced by the quality and character of teacher education program and the professional development that the teachers undertake. This suggests that reflection will form an important feature in the proposed teacher education program in order for prospective teachers to learn its importance. The use of the skill in the clinical schools may enhance its acceptability and adoption as a means of continuous learning and professional development for best practices. Reflective practice will most likely lead to research as the individual builds knowledge based on the issues which are reflected upon thus encouraging continuous and lifelong learning.

Research

Research involves carrying out studies to establish facts about phenomena. Action then needs to be taken for betterment of the situation. Loucks-Horsley et al, (1987) assert that pre-service teachers need to engage in critical dialogue, enriched by investigations of their work and living environment, to work through the problems of the community they will be teaching in. This therefore calls for research while in action for action, seeking to answer pressing questions into the teacher's practice as the teacher attempts to find out what he needs to do to improve the teaching. In the Kenyan context, most teachers are seen as aloof and imposing on the community members but who must be obeyed. A meeting at school is seen as a way of declaring more unquestionable levies on the parents in the name of school development. This creates a hate- love relationship between school and community which may be eliminated through research and interaction with the community. Thus collaborative inquiry and action research by teachers as researchers is a notion that is to be included in the teacher education program of the 21st century. This suggests that an

effective teacher education program is one that will encourage contextual and relevant reference to the environment searching for information to answer pressing questions into the novices' work. Such initial teacher preparation will encourage teacher to be in touch with their work environment and community.

The teacher education program therefore needs to engage the novices as researchers, in order to build knowledge base for lifelong learning. Consequently Teachers will engage in collaborative inquiry and action research seeking answers that are contextual and relevant to the environment. The assumption here is that once the teachers become aware of the issues facing their learners, they will adopt a teaching approach to fit in with the situation thus tweak their approach and teaching in line with the emerging issues.

ICT- Information Communication Technology

Today ICT is important as a research tool, providing information and lifelong learning for all people in the global village. This is because search for information promotes skills in high order thinking, reasoning and problem solving skills. Teachers should not be left behind otherwise as Hoffman and Pearson (2000) point out those functionally literate today will see themselves as functionally illiterate in future. Thus teacher education programs have the critical role of providing leadership in adapting pre-service and in-service teacher education to deal with these demands of the society and economy. UNESCO (2002; 2008) asserts that both professional development programs for practicing teachers and for preparing future teachers should provide technology-rich experiences throughout all aspects of the training. Moreover, Townsend and Bates (2007) assert that the old image of the teacher with a piece of chalk and a few books is now in the past... "computer based technology can be powerful pedagogical tools and also rich sources of information but also extension of human capabilities and contexts for social interactions supporting learning" (p. 20). For example, in the teacher education program, ICT can be used to develop motivational simulations that support pre service teacher (Ferry, Kervin, Cambourne, Turbill, Puglisi, Jonessen & Hedberg, 2004) since in real classrooms once a lesson is taught it can't be re played so simulations can form a basis for learning.

In many schools within the Kenyan context, computers lie idle due to lack of knowledge on their use. Yet in others the students are taught only basic computer operation. The computers are available, suggesting that, once ICT literacy is achieved and they are connected to the internet, they may be made a useful learning and research tool for the learners. The importance of ICT as a rich resource in teaching and a source of information therefore make ICT not an option anymore, but a mandatory course for teacher learning in the 21st century. Once ICT is incorporated into the teacher education program, teachers will

be in a position to make use of such resources and also assist learners to become information seekers and analyzers, problem solvers and decision makers, communicators and collaborators by accessing this vast resource. This is because the key individual in helping students develop these capabilities is the classroom teacher. Consequently, it is imperative that the teacher education program of the 21st century prepares all classroom teachers to provide their students with these opportunities by incorporating ICT in teacher education program.

Challenges

The greatest challenge lies with the conservative nature of the current teacher education program which is deeply entrenched in a system that has been accepted over the years. What that suggests is that it has developed its own culture which is not easily adjusted. Thus in changing to meet the exigencies of the 21st century, drastic measures are necessary. This calls for willingness for the teacher educators to unlearn what we are used to, and have the ability to learn new system. Moreover they need to appreciate the dynamism of teacher education thus adopt continuous learning in order to remain abreast with the fast changing world.

In addition, the Educators must be empowered prior to adoption of the program as well as during the change process. Establishing a stable, committed cadre of teachers is the first teacher education program towards a successful implementation of the program (Cooper 1998 in Andrews, & Lewis, 2002). Once this is accomplished, these educators will then be charged with the responsibility of adjusting the existing programs in line with the recommended teacher education program.

There is also a need to establish strong networking among teacher educators in order for them to learn from one another as they adjust to emerging issues. What this suggests is that there will be no fixed system of doing things but continuous research will inform practice. Participation in learning communities facilitates professional development that is driven by the needs of teachers as they are naturally engaged in efforts to accomplish their goals (Vescio, Ross, & Adams, 2008). Networking will enable the educators to be in touch with study findings which they will adapt to fit in with their context.

Conclusion

The UNESCO international commission on education for the 21st century contends that learning throughout life and participation in the society of learning are key factors in meeting the four pillars of education which are learning to live together, learning to know,

learning to do, and learning to be. Teachers need to be empowered to be in the forefront in helping the rest of the world adopt these four pillars. Moreover, the 21st century teacher is one who does not know everything but is learning continuously therefore the recommended teacher education program will give rise to a collaborative inquisitive initial teacher preparation which also emphasises life long continuous learning. The program will allow for continuous intensive practice and internship of prospective teachers in cooperation with in-service teachers in the clinical schools. The two groups will continuously learn from one another in a community of learners for the best outcome of their students and education.

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ADVANCING PROFESSIONAL LEARNING COMMUNITIES DURING TEACHER EDUCATION: EMERGING TRENDS WITH LESSONS FROM NEW YORK AND CALIFORNIA

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Abstract

Co-teaching is emerging as a way of advancing professional learning communities (PLCs) for preservice teachers during their teacher education programs. Co-teaching posits elements that are consistent with the practice in PLCs. Research comparing experiences in co-teaching classrooms and non co-teaching classrooms during student teaching reveal various benefits for co-teaching for student teachers, cooperating teachers and the students in these classrooms. These results and similar findings in two cases of co-teaching are presented. The first case drawn from New York focuses on the process of planning for co-teaching during an elementary science methods course while the second case drawn from California focuses on co-teaching practice during student teaching placements in middle and high school classrooms. Benefits and challenges resulting from these cases are discussed with a specific focus on STEM education subject areas.

Introduction

The term *professional learning community (PLC)* has become quite commonplace in education circles. The term describes a collegial group who are united in their commitment to an outcome. In the case of education, the aforementioned commitment would be to student learning. The community engages in a variety of activities including sharing a vision, working and learning collaboratively, visiting and observing other classrooms, and participating in shared decision making (Hord, 1997). Co-teaching is emerging as a way of

advancing professional learning communities for teacher candidates during their teacher preparation, including student teaching (teaching practice).

Research data show that co-teaching is a way to build stronger connections between universities and school partners; to provide both support and professional development for cooperating teachers; to increase targeted opportunities for placement of teacher candidates; to better meet the learning needs of high school students and for teacher candidates and cooperating teachers to build strong relationships; for teacher candidates to have more opportunities to teach; for teacher candidates and cooperating teachers to enhance their communication skills; and to induct and mentor teacher candidates . Reported benefits for high school students in classrooms where co-teaching occurs indicate that students in these classrooms became more engaged by working in smaller groups, received more individual attention, got their questions answered faster and got papers, assignments and grades back faster (Teacher Quality Enhancement Center, 2010).

Background

Science, technology, engineering and mathematics (STEM) fields are currently at a crossroads when discussing how to recruit, prepare and sustain effective professionals to have long-lasting careers. For STEM teacher educators, one of the primary needs is to determine how to effectively develop quality professional experiences that will have a lasting impact on reform-oriented teachers. One way to ensure that we develop effective STEM educators is by implementing meaningful professional development experiences during their teacher education programs. Developing PLCs into teacher education programs is one way in which STEM educators can effectively meet the changing needs of our nation's youth.

Six principles have recently been identified by the National Commission on Teaching and America's Future (NCTAF) as necessary in order to make a learning community effective.

- Shared values & goals
- Collective responsibility
- Authentic assessment
- Self-directed reflection
- Stable settings
- Strong leadership support

(NCTAF, 2011, pg. 5)

According to the NCTAF report, participating in learning teams can successfully engage STEM teachers in discussions about the mathematics and science that they teach. This may sound like a simple and basic idea, but as the report identified, this is crucial for effective teaching. While it is considered a professional trait to continuously seek more knowledge, in reality it can actually be threatening for some professionals even to acknowledge that there is something more that they should know or understand better. Many teachers operating in isolation are often hesitant to discuss the content that they teach. The NCTAF report found that improving teaching quality is the single most important investment we can make to prepare today's students for college and career success. But this need comes as many states and school districts are struggling with significant reductions in funding at both the state and national level.

In the face of this fiscal reality, we need innovative ways to organize STEM teachers for better learning outcomes with a more cost-effective deployment of existing resources. The report says that we can achieve this objective by enabling STEM teachers to team up for more effective teaching and learning. Implemented effectively, co-teaching can successfully include each of the six principles identified above and help to increase student learning and teacher satisfaction.

Professional learning communities

Many teacher educators believe that in order for practicing teachers to engage professional development they need to feel that such engagement is truly meaningful. Meaningful professional development is relevant, of high quality and will benefit the quality of their teaching and impact student learning.

One important component of professional development is ownership. Many teacher educators would argue that teachers need to contribute to their own professional development. One example of this model of effective professional development is the professional learning community (PLC). In essence, PLC consists of educators helping each other to examine student work and ways to improve teaching and learning (Desimone, 2009). PLC functions under the skillful guidance of an experienced, reform-minded leader who may be a science teacher educator from the local university. This individual works with a small group of teachers on a variety of issues. For instance, teachers discuss their lessons (what worked and what did not work) and receive feedback from colleagues. Teachers may look at student work and discuss students' alternate conceptions and evidence of learning. With the direction of the science educator the PLC members can examine standards-based inquiry lessons and adapt them to the needs of their classroom and students.

Co-teaching

As stated earlier, co-teaching is emerging as a way of advancing professional learning communities for teacher candidates during their teacher preparation, including during their student teaching placements (teaching practice). Co-teaching is defined as two or more teachers (during student teaching, the cooperating teacher and teacher candidate) working together with groups of students, sharing the planning, organization, delivery and assessment of instruction, as well as the physical classroom space (Villa, Thousand & Nevin, 2008). At the core of co-teaching is the fact that two or more teachers who may have different ways of thinking and beliefs about teaching come together to develop a plan for teaching and learning. Essentially, the individuals working together establish trust, develop and work on communication, share the work and work together to overcome the challenges of the classroom environment.

Elements of co-teaching

Villa, Thousand and Nevin (2008) describe the elements of the co-teaching team as two or more people who agree to do the following:

1. Coordinate their work to achieve at least one common, publicly agreed-on goal
2. Share a belief system that supports the idea that each of the co-teaching team members has unique and needed expertise
3. Demonstrate parity by alternatively engaging in the dual roles of teacher and learner, expert and novice, giver and recipient of knowledge or skills
4. Use a distributed functions theory of leadership in which the task and relationship functions of the traditional lone teacher are distributed among all co-teaching team members
5. Use a cooperative process that includes face-to-face interaction, positive interdependence, interpersonal skills, monitoring co-teacher progress, and individual accountability (pg. 5).

The major challenge for implementing co-teaching into teacher education programs is being able to effectively develop each of the above elements. However, if each of the elements is developed during teacher preparation programs significant benefits will occur. These benefits are discussed at the end of this paper.

*Models of co-teaching**

The following six examples include models of co-teaching that are often used in inclusive science classrooms.

1. Models	2. Characteristics
Interactive Teaching	<ul style="list-style-type: none"> • <i>Both teachers equally share the instructional activities for the entire class.</i> • <i>Each teacher takes turn presenting, engaging, and evaluating.</i> • <i>Each teacher has equal status in the class.</i> • <i>Requires a high level of professional trust, commitment, and compatibility of teaching styles.</i>
Alternative Teaching	<ul style="list-style-type: none"> • <i>One teacher provides instruction to a heterogeneous group of learners while the other teacher interacts with a small group of pupils.</i> • <i>Although commonly used for remediation purposes, alternative teaching is equally appropriate for enrichment as well as for pre-teaching activities and in-depth study.</i> • <i>Students with disabilities must NOT be exclusively and routinely assigned to the small group—all members of the class should participate periodically in the functions of the smaller group.</i>
Station Teaching	<ul style="list-style-type: none"> • <i>The lesson is divided into two or more segments and presented in different locations in the classroom.</i> • <i>One teacher presents one portion of the lesson while the other teacher provides a different portion.</i> • <i>Then the groups rotate, and the teachers repeat their information to new groups of pupils.</i> • <i>Depending on the class, a third station can be established where students work independently or with a learning buddy to review material.</i>
Parallel Teaching	<ul style="list-style-type: none"> • <i>Instruction is delivered by each teacher to one-half of a heterogeneous group of learners.</i> • <i>Coordination and timing are crucial.</i>
One teach, One support	<ul style="list-style-type: none"> • <i>Both individuals are present, but one teacher takes the instructional lead while the other quietly provides support and assistance to the students.</i> • <i>It is important for teachers to exchange roles frequently; this model should be used sparingly or as one of several approaches in order to avoid students from becoming overly dependent on additional assistance as well as jeopardizing the credibility of one of the teachers.</i>

<p>One teach, One observe</p>	<ul style="list-style-type: none"> • <i>One teacher presents the instruction to the entire class while the second teacher circulates gathering information on specific pupils, a small group of students, or targeted behaviors across the whole class</i> • <i>It is very important for teachers to exchange roles frequently to avoid one professional from being perceived as the “assistant teacher.”</i>
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*Models were selected from Gargiulo & Metcalf (2010).

Co –Teaching Context in New York and California

Two cases of co-teaching have been implemented at Utica College in upstate New York and California State University San Marcos in California. Both cases were influenced by earlier research from the Teacher Quality Enhancement Center (2010) at St. Cloud State University in Minnesota. St. Cloud State University researched the effect of co-teaching in the elementary, math and language arts during student teaching. In the New York co-teaching case, the primary focus was on planning for co-teaching in the elementary science and special education methods courses. In the California co-teaching case presented here, the focus was on secondary science teaching during student teaching placements.

Context of New York Co-Teaching Case

The teacher education program focused on from New York consists of several programs that are offered at a private liberal arts college located in upstate New York of the U.S. Other programs offered at the college include arts and sciences, health professions, and business and justice studies. There are 37 undergraduate majors, 27 minors, and 19 graduate programs with a total enrollment of 2502 undergraduates and 599 graduates. There are 131 full-time faculty and 212 adjunct faculty (Utica College Catalog, 2009-2010; Utica College Fact Book, 2009). The education program is housed in the School of Health Professions and Education.

The education program has four main program aims which are to provide graduates with: 1) a foundation in the knowledge, values, and teaching practices for quality inclusive schools, 2) a foundation of knowledge in child development, learner characteristics, and theories of learning and teaching, 3) skills in critical thinking, problem solving and methods of inquiry and 4) skills that will help them foster collaboration among teachers, professionals, family and community (Teacher Education Accreditation Council Inquiry Brief, 2010).

Each teacher education program at Utica College is designed for candidates who are seeking state certification in early childhood, childhood, adolescence and special education areas. Undergraduate education candidates select majors in their content area. The candidates major in a liberal arts field (for science these include: biology, chemistry, physics and geology). In order to be state certified, prospective teachers are required to complete a bachelor's degree, including the teacher education program requirements, and pass the mandatory state teacher certification examinations. Courses in the teacher education program include both observation and fieldwork in diverse educational settings as well as regular course work.

One of the major aims of the teacher education programs at Utica is to provide preservice science education students (both elementary and adolescence) with a set of integrated and coherent experiences that will continually expand their professional development as science teachers. These experiences permeate throughout the entire program, although they become a major focus area within the elementary and adolescence science methods courses. These experiences give students the opportunity to consider their current conception of effective science teaching and learning and also offer them the chance to reflect on their own pedagogical growth and change as their ideas develop over time.

At each stage of the program, preservice students are placed in situations where they can refocus their ideas or modify them to fit with their constantly evolving conceptions of what it means to be an exemplary science teacher. Each teacher education program has distinctive and unique characteristics which include coursework, extensive fieldwork and student teaching experiences. One of the new experiences being implemented in the childhood and adolescence and special education programs is co-teaching.

The overarching goal of both the elementary *science* methods course and *special education* methods course is to provide preservice students with the practical and theoretical knowledge that they need to become highly effective classroom teachers in elementary science and special education. Both elementary areas are complex and require a solid understanding of both science concepts and special education strategies. In addition, lesson and unit planning, curriculum development and modification, and appropriate teaching and assessment strategies are needed. The objective of the courses is to prepare the preservice students for the student teaching experience with the knowledge and skills that are essential for effective science teaching to occur. Emphasis is placed on teacher decision-making that is research-supported. This decision-making promotes ongoing professional development practices throughout the preservice teacher education program and into each student's career as an inclusive educator.

The class activities in both courses are geared toward engaging preservice students in as many authentic teaching and learning experiences as possible. Students participate in microteaching episodes, demonstrations, role-playing exercises, class discussions, and inquiry activities throughout the semester.

Co-teaching activity

In an attempt to prepare for the expectations of co-teaching for today's inclusive classrooms, students from both the elementary science & technology methods course and the elementary special education methods course were placed into co-teaching teams in the spring 2011 semester. Students were engaged in a co-planning activity to apply principles of Task Analysis and Universal Design for Learning (UDL) in the general curriculum that will meet the needs of all students.

Students in the science & technology methods course served as the "content specialists," and students in the special education methods course served as the "instructional specialists" during the co-teaching activity. The primary goal of the co-teaching activity was for the preservice teachers to experience the collaborative planning process for co-teaching in inclusive classrooms whereby a "special educator" and a "general educator" work together to design a lesson for co-teaching. In addition, preservice teachers applied principles of Universal Design for Learning to a general lesson plan to meet the needs of students with disabilities in the general curriculum. Preservice teachers planned for co-teaching the lessons by determining the roles and activities that would be carried out by each in the event that the lessons were actually executed in a co-teaching model.

The methods course instructors developed the groups based on several factors, (schedule, experience, program, etc.). Preservice teachers were introduced to the assignment in class but met independently in their groups outside of class to plan their lesson for co-teaching. Then, the preservice teachers generated a collaborative plan that included the Task Analysis, the UDL considerations, and the roles & responsibilities of each individual in the co-teaching arrangement. The items that were included for the Task Analysis were, skills needed for gross motor, fine motor, social/emotional, and speech/language development.

Lastly, preservice teacher groups submitted their co-teaching plan to the course instructors. The co-teaching plans were evaluated by both instructors using the same 4 point scoring rubric which evaluated the preservice students' collaborative skills and attitudes, the Task Analysis, the Universal Design for Learning, and the actual co-teaching plan.

Emerging results from the co-planning activity show that students in both methods courses perceived the co-planning activity as a positive one. Some of the comments regarding the co-teaching activity included learning about how to effectively modify the curriculum to meet the needs of all students:

I found it very interesting and eye opening. I was able to see very simple changes that could occur within my teaching that could help improve the learning of all students
(Sam, content specialist)

It really opened my eyes to the power of co-teaching with an inclusion specialist. It also gave me insight into what I can expect from the future of education with the big push of inclusion
(Kevin, content specialist)

Reactions to the assignment also included how this preservice activity serves as a model for what the students will see when they graduate and begin their teaching career:

I liked the idea that we could see what it would be like to work hand-in-hand with an instructional specialist. In real-life situations you need to be able to effectively communicate with each other to reach a common goal. This assignment allowed us to do that
(Ashley, content specialist)

I think that being paired with an instructional specialist was a positive impact on everyone. Working with someone whose expertise is in an area where our educational experience is lacking is something that was a great benefit. Also, learning the ways of co-teaching now can benefit us in the future. I also feel that working with people who can make us aware of special needs children was an opportunity that might not happen again. There are special ed. teachers in schools, but the one on one experience with someone was something that was extremely beneficial
(Rebecca, content specialist)

Students also found that co-teaching can serve as a starting block for building a professional learning community:

Working with peers on lessons or specialists only aids to the success of education. The more professionals you can surround the students with the better off the students will be in the long run.
(Kevin, content specialist)

I realize how important it is to have a general education teacher who understands how to work with me. This assignment is great because we, as future special education

teachers, spend so much time trying to make up situations to apply what it is we're learning. In this assignment, the special education teacher is able to do what they will be asked to do in a real school setting, which is adapt a previously written lesson plan for a student who needs it (Joe, instructional specialist)

Working with another colleague and collaborating to come up with an effective plan to co-teach [was beneficial]. Also, being that I may co-teach as a future teacher, this assignment gave me an idea of what to expect when I co-teach and how it can be used to benefit students (Krystal, instructional specialist)

Although the student reaction to the co-teaching assignment was perceived as beneficial, there were lessons learned which will influence how we implement this co-teaching activity in the future. One of the biggest changes in the future will be to have the students actually teach their lessons as a collaborative team. During this activity, the content specialists each taught their science inquiry lesson to a group of learners and then met with the instructional specialist to plan modifications to their lessons. Next time, it is imperative that both the science and special education methods students have the opportunity to actually teach their lesson plan as a team and then spend some time reflecting on their teaching and student learning. This co-teaching plan will require much more collaboration among the science and special education methods course instructors. Lastly, one benefit found from the co-teaching experience was the amount of collaboration between the science and special education methods instructors.

Context of California Co-Teaching Case

The science teacher preparation at the California State University San Marcos is part of the single subject teacher credential program. The single subject (high school) teacher education candidates enroll in a program designed to prepare them to teach students in grades nine through twelve. Upon completion of the program, candidates receive a Preliminary Single Subject Credential. In the two-semester curriculum, candidates take courses in teaching and learning in high schools, discipline and interdisciplinary specific methods, and multilingual/multicultural education. Coursework is taught by a team of instructors with class sessions and assignments geared to the particular needs of high school teachers and learners. The teaching team consists of faculty from both the Colleges of Education and Arts and Sciences, and they are assisted by educators from local high schools who share expertise and experiences and model exemplary practices for high schools.

Local high schools in the county serve as sites for Clinical Practices (student teaching or Teaching Practice). Supervision of the teacher candidates is a shared responsibility of a

University faculty advisor and an on-site supervisor (a full time teacher at the high school level). Two different opportunities constitute the clinical practice--one at the ninth/tenth grade level and one at the eleventh/twelfth grade level. Within these experiences there are opportunities to practice teaching a variety of subjects to diverse student populations with varying ability levels. In addition, teacher candidates are encouraged to participate in school faculty activities outside of the classroom in order to gain both experience and expertise in the organization and decision making characteristic of the high school culture.

Another important aspect of the Single Subject Credential Program is the acquisition of and Authorization to Teach English Learners. Requirements are met through the infusion of content and experience not only through the specific courses, but also during the clinical practice experience in order to better serve the needs of students from diverse language and cultural backgrounds often encountered in classrooms.

Successful completion of the program results in issuance of a Preliminary 5-year credential. New state Standards require employment as a full-time teacher and completion of an induction program to qualify for the Professional Clear Credential.

Co-teaching activity

The College of Education at California State University San Marcos introduced co-teaching in 2010 designed around a model that had been applied at Teacher Quality Enhancement Center (2010) at St. Cloud State University in Minnesota. In the San Marcos Co-Teaching structure, the preservice science teacher, cooperating teacher, the On-site Supervisor and the university supervisor evaluate and agree on one specific co-teaching model the teachers will adopt based on the Gargiulo and Metcalf (2010) list of co-teaching models.

A key element of the co-teaching model is the cooperating teacher with whom the preservice teacher co-teaches with. Cooperating teachers are required to have a minimum of three years of successful, exemplary teaching experience to qualify as a cooperating teacher. They also must hold a valid teaching credential. Additionally, the district must consider them to be "highly qualified" when being recommended as a cooperating teacher. Because student teaching placement is a negotiation between the school and the university, the process for placement varies by district. In some cases, the college has little or no voice in the placement. However, it is generally the case that the college makes the placements once the eligible and willing cooperating teachers have been identified. We make every effort to place our students in situations where the cooperating teacher is not only qualified but also matches the needs of the candidate.

A research study has been designed to evaluate the impact of the co-teaching. The study is designed as a replica of the pioneer study carried out by St. Cloud State University which compared achievement scores in reading and math in elementary school of students in co-taught classrooms and students achievement in a single teacher classroom. The San Marcos study compared student performance in high school science classes.

Emerging results show that student teachers who were involved in co-teaching had improved classroom management skills, increased collaborative skills, more teaching time, deeper understanding of the curriculum and more opportunities for self-reflection.

The cooperating teachers reported to have benefitted by being able to reach high need students, developing better relationships with the teacher candidates, and professional growth through co-planning and enhanced energy for teaching.

Data on the comparison of student achievement in co-teaching and non-co-teaching classrooms will be investigated to examine the impact of co-teaching on student learning in the future.

Conclusion

Benefits of co-teaching

Research has found that if successfully implemented, co-teaching is effective for students with a variety of instructional needs including English language learners (Mahoney, 1997), those with hearing impairments (Luckner, 1999), those with learning disabilities (Rice and Zigmond, 2000), high risk students (Dieker, 1998), and students in a language remediation class (Miller, Valasky, and Molloy, 1998).

In addition to the research based benefits, co-teaching also increases the teacher-to-student ratio, a greater sense of community is developed in the classroom, co-teacher report professional growth and enhanced motivation and an increase in job satisfaction (Villa, Thousand and Nevin, 2008). No matter what model of co-teaching is used, these benefits go hand in hand with the purpose of professional learning communities.

Challenges of co-teaching

As with most reform oriented changes in education, co-teaching does have its share of challenges. One of the most formidable challenges is teacher resistance. Teachers may be resistance to co-teaching and PLCs for several reasons. With the constant state and national mandates being proposed for K-12 education, inservice teachers often grow weary of the

latest “educational fad” and numerous teachers lack the motivation needed to implement effective PLCs including co-teaching.

Other teachers teach through a traditional approach simply because they do not know other methods. Often times the lack of quality professional development that is meaningful to individual teachers prevents change from being implemented. However, professional development that allows teachers to systematically investigate and incorporate alternative teaching strategies (i.e. co-teaching) will overcome many of the challenges and give teachers positive experiences inquiring about their own teaching practice and their students’ thinking and learning.

When most teachers experience PLCs work in their own school and classroom they become eager to learn more. So, the challenge that remains is how can science education researchers and science teacher educators get teachers to be willing to start the process of implementing PLCs into their practice.

Future Implications of co-teaching

The implications drawn from the cases discussed in this paper point to the need for further developing a continuum of professional co-teaching experiences that begins in teacher education programs, continues during student teaching, and then carries over into the early induction years of teaching. These experiences need to seamlessly flow together across the various levels of the teaching continuum. In addition, future research studies need to address the impact, positive or negative, of co-teaching on student learning and achievement at all education levels. Lastly, there are significant resource implications when incorporating co-teaching during the induction years of teaching. Resources need to be allocated to support the implementation of professional development experiences like co-teaching in K-12 education.

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THE ROLE OF SCHOOL LEADERSHIP IN THE PRACTICE OF NEWLY QUALIFIED TEACHER INDUCTION *A CASE STUDY OF A NATIONAL SECONDARY SCHOOL IN KENYA*

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Abstract

Newly qualified teachers (NQTs) in comparison to other professionals experience a more difficult transition into the profession and teaching is described as one profession that 'cannibalizes its young'. Though research has led to the coalescing of components referred to as the 'best practice' in NQTs induction, the role of school leadership in the practice has not been given much attention. Using a qualitative approach and a case study design, this study sought to examine the role played by a school principal and heads of departments in a national secondary school in Kenya during the induction of newly qualified teachers. Study participants included the school principal, heads of departments (HODs) and data for the study were collected using interviews. Findings show the practice within the study school as informal, mainly located at the departments. Though there is considerable interaction of the HODs with NQTs during induction, that of the school principal in monitoring the practice is low. Study brings out significant insights about NQTs induction in the context of a national school. Recommendations include the need for development of policies to underpin NQTs induction and possibility for comparative studies on NQTs induction in different contexts.

Key words: Newly qualified teacher (NQT), teacher induction, leadership, best practice.

Introduction

The first years of teaching are professionally challenging (Doerger, 2003) and literature on teacher retention reports high rates of new teachers leaving the profession during the first five years (Johnson, Berg and Donaldson, 2006). Beginning teachers face many challenges that may be aggravated by inadequate induction including lack of professional support, undefined professional expectations, heavy workload and isolation. Indeed, teachers' career entry phase is characterized by "survival with the initial complexity and uncertainty of the [school] and classroom environment, continuous trial and error, and preoccupation with self dominating" (Huberman, 1993 p. 5).

Lortie (1975), credited with some of the early scholarly works on NQT induction argue that induction is investment that pays up in form of 'craft pride' in later years in the career. Tisher (1980) on the other hand argue that NQTs have a 'latent culture' as they enter the teaching career. This culture, (knowledge, skills, values, attitudes and perspectives) is activated depending on what is done for the new teachers as they come progressively [socialized] under the influence of their employing authority, their school [leadership], classrooms and the profession at large (ibid). Ball and Godson (1985) however posit that the possibilities and constraints that teachers experience in certain periods seem to imprint themselves on their views and attitudes and could have long-term effects on the career patterns and progress. It is imperative that NQTS are given a sound grounding in the context of the first posting because this could determine their motivation to consider teaching a lifelong career and influence what kind of teachers they become.

Induction programs cannot be successful without the involvement of school of leadership. School leaders are key figures in either blocking or promoting change and, overseeing the processes of growth and renewal (Huber and West, 2002). The role they play in examining the types of information to include in NQTs induction programs, the ways their schools implement programs and the effect such programs have on new teachers cannot therefore be overemphasized. In developing countries, while there has been progress from a position where concern is more on other fundamental problems such as shortage of teachers to quality of teachers, not much research has gone on about teacher induction. In their research on teacher education, policy and practice in low-income countries in Africa, Lewin and Stuart (2003) revealed lack of formal policy for induction with decisions on new teacher induction left to the discretion of head teachers [school leaders]. In Kenya, research done on newly qualified teachers' experiences of the probation period show that induction is haphazard and informal and that NQTs seldom benefit from it (Indoshi, 2003).

Varah et al. (1986) cited in Wanzare (2007) asserts that among others benefits, teacher induction maybe viewed as an effort towards the improvement of the teaching profession by retaining the most effective teachers and ultimately improve the quality of education in schools. Fetler (1997b) cited in Doerger (2003) points out schools with structured teacher induction programs reap positive consequences in student achievement and more collegial atmospheres that lead to positive staff morale. By engaging school leadership, this study opened the possibility of discerning whether NQTs induction is given deliberate attention for the benefit the school obtains from the practice.

Aims and Significance of the Study

The stimulus to conduct this study was prompted by reflection on an incident related to the practice of NQT induction. During a workshop where I facilitated a topic on induction for new [science] teachers, participant's responses brought out glaring disparities in new teacher induction processes and practices in their schools as well as their personal experiences. In Kenya, NQT induction has remained an ignored subject in research, policy and practice and it was only in the year 2004 that guidelines for new teacher induction were developed. However, these guidelines only dwell on teachers' professional conduct and have little to do with instructional practices and grounding of NQTs in specific teaching contexts. Furthermore, not much research has been done on the experiences and the roles played by school leadership in the induction process. It is imperative that newly qualified teachers posted to public schools in Kenya are given a sound grounding in the context of the first posting because this could determine their motivation to consider teaching and long life career and what kind of teachers they become. This study therefore sought to explore the practice of new teacher induction in the context of a national secondary school in Kenya through analyzing the roles, experiences and practices of school leadership. The study focused on orientation, curriculum implementation, and continued support through mentoring and continuous professional development. The study sought to answer the question of the leadership roles in new teacher induction by asking the broad questions "What policies are in place for induction of newly qualified teachers; "what are the roles and experiences of school leadership during the NQT induction?" and; "What continued support is provided to NQTs?"

The findings of this study over and above being additional knowledge in this field were expected to enhance the understanding of NQT induction and ultimately benefit schools through the application of the research results in design and implementation of induction programs in specific school contexts. Moreover, the findings could help shift the focus of NQT induction policy from current preoccupation with teaching regulations and teachers' conduct to that of grounding new teachers into the teaching profession and particularly in specific school contexts.

Literature Review

New Teacher Induction: Policies and Best Practices

There are varying definitions of new teacher induction. Huling-Austin (1990) defines NQT induction as planned programs intended to provide systematic and sustained assistance to beginning teachers for at least one school year. Stirzaker (2004) citing Crago and McAlpine (1995) on the other hand consider induction to be a process of socialization into the teaching profession, adjustment to the procedures of the school site and school system, and

development of effective instructional and classroom management skills. Though in the early 1980s, research on induction practices was informed by need to stem NQT attrition (Horn, Sterling, and Subhan, 2002), a paradigm shift has over time changed the focus to contents and structure of induction programs as means of retaining the best teachers as well as improves the quality of instruction. With increased recognition of NQT induction as a critical component of teacher development (Villani, 2002), policy makers are increasingly focusing on induction programs as part of broader educational reform initiatives (Humphrey et al., 2000). The consequence, world over, is the development of policies geared towards streamlining NQT induction. In Britain, for instance, NQT induction is an entitlement planned and funded by government and which, head teachers are required to give by law (Earley and Weindling, 2004). Before it was made a statutory requirement in the year 1999, NQTs induction in the UK was dependent on the professional integrity of the school heads and advisors to sustain and encourage good practice (Bleach, 1999 in Earley and Weindling, 2004).

In a comparative study of five countries, Wong, Britton and Ganser (2005) demonstrate how policies influence modeling and practice of NQT programs. Examples include Switzerland whose NQTs induction policy rejects the 'deficit aspect' that assumes that new teachers are lacking in some areas and require mentors. New teachers in this country practice and network with experienced teachers in a seamless professional development continuum from novice teaching to professional teaching and learning. In Shanghai, China, new teachers engage in a culture of lesson preparation and teacher research groups while in Japan lesson study is the main model for guiding NQTs (Wong, et al., 2005). In the USA, the Government recognizes teacher quality as an essential aspect of raising education standards and has policies that entrench NQTs induction as one of the strategies in meeting such standards (Berry, 2004). Though in the early 1980s, research on induction practices was informed by need to stem NQT attrition (Horn, Sterling, and Subhan, 2002), a paradigm shift has over time changed the focus to contents and structure of induction programs as means of retaining the best teachers as well as improves the quality of instruction. With increased recognition of NQT induction as a critical component of teacher development (Villani, 2002), policy makers are increasingly focusing on induction programs as part of broader educational reform initiatives (Humphrey et al., 2000). Over time, there has been effort to describe programs that offer the best initial teaching experience to newly qualified teachers; a development that has led to the design of NQTs induction programs around a criterion referred to as 'best practice'. Horn, et al (2002) identified and described nine common elements of best practice in NQTs' induction programs that include **orientation, release time, adjusting working conditions, formal mentoring, professional development, opportunities for collegial interaction, teacher assessment, program evaluation and induction continuum**. Further, Arends and Rigazio-DiGilio (2000) in their review of research

based on induction practices recommend similar components but condensed them into fewer thematic areas such as release time (e.g., for mentoring, preparation, staff development, collaboration, and evaluation), reduced workload and less challenging assignments. Other researchers in this field such as **Dyal and Sewel (2002) propose an orientation model that does not just familiarise NQTs with school policies and procedures but also deals with the personal needs such as housing, transportation, health and social amenities. Though these models differ in detail and approach, they nevertheless address one common theme; the need for induction programs that go well beyond supporting NQTs at the entry level of their career but also provide an experience that helps them grow professionally.** In quest to looking at the role school leadership does in NQT induction, I condensed the characteristics of the **'best practice' in NQT induction into two i.e. orientation and continued support through mentoring and continuous professional development.**

The role of school leadership in NQT induction

School improvement researchers have demonstrated increased recognition of the importance of school leaders for all stages of the school improvement processes (Fullan, 1992; Leithwood (1992) in Harris and Muijs, 2005; Sergiovanni (1994) in Huber and West, 2002). School leaders are cited as key in school development, either blocking or promoting change and, overseeing the processes of growth and renewal (Huber and West, 2002). For example, though a school principal may not necessarily affect individual teachers directly, the type of policy direction and administration that they proffer has a major impact on the kind of school climate. School leaders are essential in preparing and promoting long-term retention of beginning teachers within their specific contexts (Darlin-Hammond, 2000). In a study of elementary principals' beliefs and actions and their influence new teachers' experiences, Youngs (2007) reveals that a principals' direct interactions with NQT has positive impact such as increased confidence and intention to stay in teaching. This interaction appears related to the principals' professional backgrounds, their leadership focus and actions regarding induction as well as response to state policy. Wischkaemper (2005) citing Monsour (2000) similarly observes that school leaders who are supportive and knowledgeable regarding the needs of beginning teachers significantly influence the experiences of teachers in their first year of teaching. They do this by displaying respect, support, accessibility, and involvement of the NQTs in the life of the school (Johnson and Kardos, 2002). Wischkaempers' (2005) in his comparative case study on the moral leadership of principals in NQTs induction practices pointed out that "a moral principal does not let beginning teachers flounder but strives to develop a trusting, caring relationship with them..." (p. 42). Equally, Strauts' (2002) research on 'principals' perspective on new teacher needs' observes that NQTs who develop a relationship with school administration feel

important and recognized, which in turn increases the likelihood that beginning teachers remain in the teaching profession.

School principals usually work with other leaders such as the deputy principal and heads of departments in the running of their schools. Academic departments in particular are mentioned as important social sites for implementing NQT induction programs with the departmental head cited as the pivotal figures in the process (Trowler and Knight, 1999). In Kenyan schools, HODs are in a position of authority and act as gatekeepers responsible for authorizing certain academic activities such as workload allocation, sourcing of teaching and learning resources as well as being in charge of departmental accountability. Moreover, McLaughlin and Talbert (2001) in Johnson et al. (2001) point out that it is at the department where professional interactions related to classroom practices are possible.

Unfortunately, school leadership is faulted as one of the possible obstacles to establishing and implementing effective induction programs (Veenman, 1984). Some administrators, Veenman posits, assume that initial teacher education and certification entities ensure that beginning teachers are ready to teach. They therefore do not view NQTs' inadequacy as a responsibility of the school but a failure of initial teacher preparation. Moreover, some administrators place institutional or policy constraints such as high performance expectations that make many NQTs not able to cope with complexities of skilled teaching (Cheng and Pang, 1997). There is concurrence in literature that the kind of support most meaningful and beneficial to NQTs takes place within the school setting. This is where the immediacy and relevance of induction practices are taken into account through day-to-day experience (Brady and Schuck, 2005; Doerger, 2003). By studying the role of school leadership in the practice of NQT induction in the school, this study intended to bring to light the contextual conception of NQT induction and how this influences the practice of NQT induction. Moreover, this study sought to know the kind of interactions NQTs have with the school leadership and how such interactions influence their practice.

Continued Support for Newly Qualified Teachers

There is need to extend NQT support beyond the first year of working. In their review of conceptual literature on NQT induction, Feiman-Nemser, Schwille, Carver and Yusko (1999a) argue that NQTs' induction should be viewed not just as a brief period of support, but a continuum for professional learning and growth. This review on continued support discusses mentoring and opportunities for continuous professional development as examples, among others, cited in literature as indispensable for offering continued support for NQTs.

Mentoring

Mentoring is a cost effective way of providing opportunities for growth, improving retention, attitudes and instructional strategies for beginning teachers. In their article 'Letter to the next President', Rotherham, Mikuta and Freeland (2008) argue that lack of strong and quality mentoring programs has long-term implications for teacher effectiveness. In the context of teaching, Odell and Hulling (2000) posit that mentoring can be viewed as a professional practice occurring whenever an experienced teacher supports, challenges, and guides novice teachers. Moreover, Fletcher (2000) argues that mentoring is a way of managing change and that for NQTs; it is about easing transition and ensuring development. She further claims:

mentoring is a dynamic process where a teacher, new to the profession, not only learns the necessary skills with a more experienced [probably trained in mentoring] teacher, but also develops attitudes, practices and knowledge conducive to bringing about pupils' learning. (p. 4)

Wong's (2004a) research on 'programs that keep new teachers teaching' further clarifies that whereas induction is a comprehensive and a coherent process organised to support NQTs, mentoring is a component of induction and 'an action' by a specific person to help new teachers. Viewed as a difficult and demanding task, successful mentoring depends on conditions such as the willingness of the mentors to sustain relationships with new teachers (McIntyre and Hagger, 1994), release time and support for teachers performing the mentoring role (Wildman et al., 1992 in Feiman-Nemser, 2001). Conversely, some scholars have faulted mentoring as an outdated methodology for inducting NQTs. Wong (2004b) citing Schlager et al. (2003) argues, "[the] needs of NQTs are so variant and immediate that the appropriated combination of expertise and experience is unlikely to reside in one mentor" (p. 44). Additionally, Feiman – Nemser's (1996) critical review of claims on teacher mentoring reveal few studies that show context, content and results of mentoring exist. In spite of such critics, mentoring is a powerful tool for grounding NQTS in the teaching profession. This study sought to establish whether mentoring is part of the continued support NQTs get and if so, how the school leadership involved and the impact thereof whether positive or negative.

Continuous Professional Development Opportunities for NQTs

While writing on sustainable professional development (PD) for new teachers, Wong (2004a) argues that most other professions have continuous training programs and that "for the most part, education has failed to recognize what [other] industries have always recognized

– training matters” (p. 45). Continuous PD for newly qualified teachers would mean having formal and sustained programs that span beyond induction. Feiman-Nemser (2001) posits that a curriculum that addresses the realities of NQTs must extend over a reasonable span of time. Having participated in PD activities, my experience is that, it is not easy to change beliefs and attitudes of teachers when they have been in the profession for quite some time.

School based teacher induction is a form of professional development and as Gorinski (2007) argues, PD activities contextualized within individual teacher settings provide opportunities for schools in developing their own strategy to address their own needs rather than imposing a 'one size fit all' approach. However, Andrews (1987) cited in Wanzare and Ward (2000) cautions that it is only through a well-designed induction program that foundation for NQTs continuous professional development could emerge. PD forms a platform upon which new skills, concepts and processes related to teaching are continually inculcated and this study sought to look into PD activities the school has put in place as a way of continued support for NQTs.

Conclusion

Literature reveals that due to lack of support during the early years of their career, NQTs experience challenges both personal and at curriculum implementation level with the situation being more dire during the first one to two years. In many contexts, NQTs quit teaching within the first five years. Leadership is important if the practice of NQT induction is to thrive in institutions and school leadership must go out of its way to create an environment in which NQTs feel secure and confident as they embark on their teaching career. Induction activities at school level also emerge to have the most positive impact with departments cited as the best points of implementation of induction programs. In the Kenyan context, the scanty research in this area points out the fact that NQT induction as a practice has not taken root. This study was therefore timely as it added to studies that continue to capture the voices of key stakeholders in the NQTs induction. Moreover, national schools in Kenya are expected to be exemplars in their practices and this work brought to further understanding the practice of NQT induction specifically in such a context.

Research Methodology

Approach and Design

In order to understand the role of school leadership in new teacher induction in a national public secondary school, this study adopted a qualitative approach using a case study design. A qualitative approach was essentially strategic in answering broadly stated questions as the study concerned human experiences and realities, studied through contact with people in their natural settings (Denzin and Lincoln, 2003; **Dingwall, Murphy, Watson, Greatbatch, and Parker** 1998). Use of a qualitative approach allowed the researcher engage participants in presenting their views and opinions on induction practices in the school, drawing out both negative and positive issues in answering the study question. This resulted in rich descriptive data that helped interpret the practice of NQT induction in the school through the lenses of participants' experiences.

The case study design was applied to studying phenomena (the practice of NQTs induction) in its unique organisational [and] social context (Yin, 2003). In affirming the suitability of a case study method for this kind of a study, Cohen, Manion and Morrison (2007) as well as Glesne (1999) argue that contexts are unique and dynamic and case studies enable the investigation and reporting of unfolding events, human relationships and other factors in a unique instance. Furthermore, case studies are concerned with rich and vivid description of events and provide chronological narratives of events relevant to a case (Hitchcock and Hedges (1995) in Cohen, et al., (2007) as well as strive to catch up-close reality of lived experiences, thoughts, and feelings about a situation (Geertz, 1973 in Cohen, et al., 2007). Conducting the study in the participants own setting, getting to know them personally and their experiences was also considered a compelling advantage to using case study.

Context of the Study, Sampling Strategy and Data Collection

The site for this study was a public national secondary school in Kenya. It is similar and representative in social economic composition with about twenty other national schools spread across the country. National schools in Kenya admit the best students at the exit level primary school education and performance in these schools is therefore usually exemplary. The study school was a girls' boarding established in the 1930s. The school has four classes (forms one to four) with five streams each and at the time of the study, the student population was approximately 750. Since the focus the study was on the role of school leadership in newly qualified teacher induction, purposive sampling was used to select school principal and heads of academic departments. The intention was to capture voices of critical stakeholders with direct experiences informing the practice of NQT induction. Purposive sampling allows a researcher to home in on people or events, which have good grounds in what they believe and are critical for the research (Dane, 1990).

Data Collection and Data Analysis

The study of phenomena, such as the practice of NQTs induction, favours the intimacy that in-depth interviewing creates. Interviews are conversations with a purpose and in research; they help open what lies behind our actions (Robson, 2002). In order to bring diverse and in-depth insights to the analysis of new teacher induction in the school **this study** employed semi-structured one – on – one interviews with heads of departments and with the principal. Interviews were employed not merely as a method of data collection but as an active interaction that led to negotiated, contextually – based data, examining “how” and “why” as well as the “what” (Ratcliffe, 2002) of the practice of new teacher induction. Furthermore, interviews offered the possibility of modifying lines of enquiry, probing up interesting responses, rephrasing questions as well as engage in non-verbal communication. Hughes and Tight (1996) argues that interviews below 30 minutes are unlikely to be valuable while anything above one hour could be an unreasonable demand on participants; for this interviews, study took approximately 40 minutes to an hour. Though interviews with the HODs focused on their role in induction specific to their departments, collectively, they provided a broadened view about the practice in the school which corroborated well with data resulting from interviews with the principal.

Research Findings and Discussion

Role and Responsibilities of Leadership in NQTS Induction

The school leadership sampled for this study included the principal and six heads of departments (HODs). The leaders started by giving their basic demographic information including their routine roles and responsibilities in the school. The school principal who had headed this particular school for three years is the overall in charge for day-to-day running of the school. The school has two categories of departments; those predominantly involved with instructional processes including Mathematics, Sciences, Humanities Languages and Creative Arts, and those dealing with non-instructional activities include games, boarding, guidance and counseling and, clubs and societies. The principal, who is a long time mathematics and chemistry teacher and has a leadership experience of sixteen years, enumerated her responsibilities as to providedirection for the school by supervising both the teaching and the non-teaching staff. She is also an agent of TSC and manages teachers at the school on its behalf. While four of the HODs I interviewed transferred to this school on promotion, the other two joined the school as NQTs and have been promoted over time to HODs. HODs’ leadership experience ranged from five to eighteen years with four HODs having an experience of above ten years.

Heads of departments are in charge of the overall running of a department. The HODs enumerated their responsibilities as teaching and learning including supervising and ensuring

that teachers in their respective departments in develop relevant work plans such as schemes of work and lesson plans; that teaching goes on, records of work are done as well as setting of tests and examinations. HOD I spoke of “acting as a link between members and the administration to help build the team towards the goals of the school” (Interview, 1st April, 2009). Surprisingly, though HODs could describe induction activities later on during the interviews, only one mentioned NQTs induction as one of their responsibilities.

The Induction Program

The interview with the principal and the HODs provided the overall picture of the organization of NQT induction at the school. The principal pointed out that to socialize NQTs the school follows an ‘informal’ program ‘since it is not documented’ [field notes] and that departments are free to organise their unique programs. In fact, throughout the interview, she referred to the heads of departments as the ones in charge of NQT induction and that her role is to provide direction. After her initial contact with the NQTs, she delegates this duty to the relevant departments, who give a detailed induction. The principal observed that departments should be the focal points of NQT induction. Indeed, nearly all the HODs interviewed mentioned that induction activities as delegated from the principal’s office and that their roles were to facilitate department specific induction.

At the departmental level, the principal enumerated the role of HODs in NQTs induction as to introduce the NQTs to the other teachers, learning facilities, ensure that they are allocated workload as well as the necessary information for them to settle. After describing these issues as they happen, the principal sat back and added “if you come to this school three days after induction you may think the teacher has been here for years...we have actually done so well” (Interview, 31st March, 2009). The principal was not categorical on how long induction takes and expressed that, other than the orientation processes, ‘that take three to five days’ induction is gradual. She observed that many extra curricula activities do not come immediately the teacher reports but appear at other times in the school calendar. Even at the departments, there was no agreement on how long induction takes. For some HODs, it should take not more than a year and as HOD VI commented: “I do not think we have anything beyond the first year...we work with the assumption that once a teacher works for one year, she/[he] is orientated enough to handle situations as they come” (Interview, 31st March, 2009).

The focus of the induction program [though with many variations] was described both by the principal and the HODs to broadly include welcoming and settling the new teachers, orientating them in the school (staff and students as well as school facilities) and getting them to start instructional processes (work planning and teaching).

NQT Orientation

NQTs orientation in this school starts at the principal's office where after the initial welcome and introduction, the principal expressed that she 'finalises the recruitment process'. This involves opening the newly qualified teachers' 'school file', filing the posting letter and, writing a report to the Teachers Service Commission (TSC). The next concern, the principal recalled, is to make sure the NQT settles. This mainly involves organising accommodation (temporary in most instances) either in the school or in the surrounding community. This fact was corroborated by the NQTs. When asked the most important action taken by the principal during induction, three NQTs cited her concern about their welfare when they reported to the school. As the principal indicated:

Other than just telling them [new teacher] this is the subject they teach, you need to get more information how fast can the teacher settle, and if the school is having accommodation or not. It is your duty to get accommodation within the school neighborhood since the teacher is new they cannot do that, which is what I normally do. (Interview, 31st March, 2009).

During the introductory meeting with the NQTs, the principal indicated that she brings to the attention of the NQTs information such as the leadership structure, mission and the vision of the school, school rules and daily or weekly routine. It is important, the principal indicated, that new teachers know "as they settled down to work, they are in the understanding that this is a 'serious school' and that 'work here' demands commitment" (Interview, 31st March, 2009). On whether the school gives newly qualified teachers opportunity to express their expectations, the principal answered in the negative but said on the contrary it is the school (i.e. the principal and the HODs) that express the school expectations on the new teacher.

Though the HODs had matching ideas in stating their roles and responsibilities, there were disparities in the understanding of the concept of NQT induction as well as the practice of the same in the departments. In departments, the process of inducting NQTs starts with an orientation that includes introducing the NQTs to members of the department, explaining the functions of the department, showing NQTs where teaching and learning (TL) facilities (for example laboratories, cookery room) are located as well as how to source for materials. This was similar to the earlier explanation the principal had given when she mentioned the delegation of induction duties. Data from the interviews with HODs revealed that, there is no formal arrangement for conducting introductions. While some departments introduce NQTs during impromptu meetings specific for that purpose, others introduce

them in the staffroom during breaks. Details in focus and depth of orientation appeared to vary among the departments. HOD II claimed the practice in her department is to literally walk the new teachers to the various facilities, introduce them to the personnel in those departments while at the same time helping them acquire what is of immediate necessity. While the latter HOD takes the new teachers and introduces them to their first class, the HOD VI over and above these 'normal' introductions organises for NQTs to be taken to non-academic areas such as the kitchen, school farm, boarding facilities and introduces them to personnel working in these departments. HOD I gave a description of the basic orientation process in his department where I noticed another level of delegation in the induction process to the heads of subjects.

Normally we welcome the teacher to the departmental office where I give them our working rationale and targets...I introduce them to the heads of subjects of one subject the new teacher will be teaching. The head of subject is the one who show the new teacher the infrastructure, gives them stationery, and ultimately introduce the teacher to the staff. After this, we give him a sitting place and she/he is now one of us.
(Interview, 1st April, 2009).

Working with NQTs in Curriculum Implementation

The HODs described ways in which they support NQTs in starting teaching and learning. HOD III aptly put the need to orientate NQTs in this area thus "...you know once someone graduates they could think they have all the knowledge required for curriculum implementation...but the [this] school has its own unique ways..." According to the HODs, curriculum implementation is a critical part of the induction and the majority observed that to be able to fully implement curriculum and meet the standards expected, NQTs required a lot of patience and guidance. Activities involve the NQTs in the development of work planning documents specific to school such as schemes of work, filling records of work, assessments related activities (setting and marking of examinations), as well other duties and assignments related to the teaching processes as well as working with learners.

As in orientation, the level of detail in implementation and focus differed from department to department. There was a mixed response to the question whether there are duties that should not be assigned to new teachers. For example, while HOD V argued that the words 'newly qualified' should not be fundamental in deciding which classes, workload and other assignments to assign to NQTs, HOD IV thought this was an important consideration. Other HODs argued that NQTs are qualified to performed all teacher duties but observed duties such as setting and invigilation of examinations as well as being class teachers were not

suitable for first time teachers. This conflicting approach seemed to dictate how workload, other duties and indeed, support in general to NQTs is organised in this school. Expressing sentiments on the issue, HOD IV observed that:

When you have a new teacher, first do not assign many duties. Assign one and assess their achievement, their interactions. New teachers need contact time with students. Again, teachers [NQT] may not discover some of the issues that affect a student since they are right from college... sometimes you may find there is too much pressure...and dynamics of various school terms are very different.

(Interview, 1st April, 2009).

While some departments assign workload and duties to NQTs through meetings, other HODs assign workload with minimal consultation. HOD IV expressed that their department liaises with the school principal for advice on matters to do with assigning classes. There was however, agreement that some duties should be assigned to NQTs only after some considerable amount of experience. One example where there was such consensus among HODs was that NQTs should not be assigned teaching duties beyond form two unless in special circumstances. It did not matter if the newly qualified teacher is posted to replace a teacher who had left the school; the workload and timetable are re-organized to fit the NQT in the lower forms. Incidentally, reasons advanced in support of this practice varied from one HOD/department to the other. This question elicited comments such as, “we cannot trust them [NQTs] with classes that have a lot of sensitivity such as forms three and four since they are already settled and disrupting them at that level would not be good” (HOD VI: Interview, 31st March, 2009). “Lower classes give the new teacher more time to know the school and also implementation progression of the curriculum. Junior classes are more receptive and accommodative and will I say... patient than the seniors” (HOD I: Interview, 1st April, 2009). Another HOD claimed that some NQTs request not to be assigned senior classes and, citing her own experience observed that this approach equally helps to develop the new teachers’ confidence. Interestingly, the principal had a similar outlook arguing that as much as the NQTs are equally qualified there was need to take care of senior classes and ‘we would not want to disrupt their teaching’ [field notes].

Continued Support to NQTS

To understand whether the school leadership continually supports NQTs, I first sought to know what strength and unique needs they had observed as NQTs progressed. On strengths, HOD I cited NQTs who acknowledged the need to consult when in doubt while HOD II mentioned NQTs willingness to share new ideas. This latter HOD gave an example of a topic in ‘Kiswahili’ language called ‘*isimujamii*’ [Language registers] that old teachers find

difficult to teach, and where a NQT came in to help. Some NQTs were pointed out as innovative with one having introduced a unique lesson evaluation method using 'card method' and even demonstrated it to other members of the science department. On her part, the principal observed that, while supervising, she is able to tell a NQT who is 'serious, innovative, more committed and dedicated to duty' [field notes]. She therefore, as the school leader brings them on board and gets to know more of their skills. Indeed, she talked of a NQT she identified and assigned to work as the HOD in charge of examinations.

Nevertheless most HODs expressed the fact that NQTs had more needs than strengths. The fact was that most NQTs feel overwhelmed by the amount of work and the performance expectations in the school. Statements such as "when you explain to them [NQTs] the kind of work...you can see they are overwhelmed" (HOD IV), "this being a national school, they [NQTs] find work to be on the higher side" (HOD III), "you note someone comes here...they are highly qualified but they are not able to cope"...(HOD II),(HOD interviews, 1st April; 31st March, 2009) were expressions used to press the fact NQTs found work in the school overwhelming. Laxity to comprehensive use of work planning documents such as 'lesson plans', 'schemes of work', 'records of work' as well as the preparation of teaching and learning materials were equally cited as areas of need, with HOD III and HOD I making observation that some NQTs are averse to being supervised. Tests and examinations was another area of concern with the observation that most NQTs have difficulties in setting exams to the required standards and equally needed guidance in moderating as well as marking exams.

Cognizant of the fact that answers to the question of how school leadership provides continued support to NQTs could be broad, I focused on three aspects of support; support through mentoring, collegial relationships and continuous professional development. According to the principal senior teachers are familiar with the school practice on induction and it was the expectation of the administration that they can provide guidance to NQTs. Support during the teaching process, the principal indicated, is through horizontal consultation among the teachers of the same subjects and departments. Asked whether the newly qualified teachers come to her for consultation, the principals' response was to the effect that 'systems in the school work' [field notes]. According to her, it is rare to find a NQT having issues and when they have problems, they alert their respective HODs.

As the HODs described ways in which they support NQTs, it was apparent that much of this was by virtue of their leadership position and, manifests more in form of supervision. HOD V pointed out that she accords NQTs more supervision time while advising on work planning and instructional processes such as development of schemes of work, setting tests and

examinations than she does with other teachers. HOD I observed that support in his department usually took a more collaborative approach:

Support is more during curriculum implementation and since those who have taught for some time have experience, much of the support to the new teachers comes from them. This is in terms of teaching innovations such as instructional materials and teaching methodologies. Sometimes a new teacher could approach a topic that needs a more practical [approach] in a very theoretical way ... we come in and tell them how to approach the topic.

(Interview, 1st April, 2009).

In addition, NQTs are assigned less workload and fewer assignments (example, class teacher, housemaster and remedial teaching). HODs claimed that this is helpful so that the NQTs are not overburdened and have more time for planning. Data revealed that departments use experienced teachers as a strategy of support for NQTs where HODs call upon such teachers to consult with the NQTs. However, the Creative Arts department was unique in that some subjects such as Art and Design and, Music have only one teacher. Inasuch where such a teacher is newly qualified, HOD V explained that support is sourced from outside the school. In instances where NQTs have done things contrary to expectations, most HODs concurred to have used an approach that does not demean or make NQTs feel inferior. In fact, HOD IV cited the constant need to make NQTs feel that their work and efforts are appreciated. Similarly, HOD V mentioned that her department deals with negative issues about NQTs during departmental meetings such that they [issues] do not appear personal.

Mentoring and Continuous Professional Development

On the question of support for NQTs by use of mentors, most HODs had very little to say and it was apparent that mentoring is not a common practice in the school. While HOD III described mentoring as 'natural process' where NQTs find help among teachers of their 'age', HOD IV expressed similar sentiments and argued that their support to NQTs was 'positional' [being HOD]. That when it came to mentoring, it was up to the teacher to identify a person they felt easy to work with. Only HOD II described a strategy of identifying and assigning teachers in the department to work with the NQTs. According to this HOD, the department identifies "teachers who are knowledgeable, responsible, interested...and have time to work with NQTs" (Interview, 31st March, 2009).

With regard to continuous professional development (CPD), study findings revealed that there are no such activities organised specifically for NQTs. They fit into normal PD activities

organised in the school (expert talks, seminars and workshops) for all teachers or attend the ones organised out of school. However, HOD IV and HOD I observed that teachers in their departments (Science and Mathematics departments attend Government organised INSET (In-service education and training) workshops. Nevertheless, the principal was emphatic that teachers who desire to further their knowledge are allowed time off (referred to as 'release time' in induction vocabulary) as long as it does not affect their school duties.

Discussion

Data from this study show evidence of the involvement of the school leadership at various levels during the induction of NQTs. The school principal is involved at the orientation stage and hands over the process to the HODs. However, except at this initial stages of orientation, the principal does not play a continued role of monitoring the practice of the NQTs. She believes that the 'systems work' [field notes] and NQTs do not need to be in constant contact with her. Though cited as an overly overlooked component of induction practices (Brock and Grady, 1998), the principal's role in monitoring NQTs for at least one year provides opportunity for development through observation and feedback (Hope, 1999 in Angelle, 2006). In her study of socialization of NQTs, Angelle (2006) posits that school leadership, as the fulcrum for organizational climate and socialization, sets the tone for the beginner's first experience in the school community. Furthermore, Youngs (2007) argues that a school principal's beliefs and responses to policy influence the direct support they provide to new teachers as well as their efforts to facilitate other assistance for them.

Most induction activities at the school take place in the departments. This is consistent with notions expressed by Trowler and Knight (1999), and Staniforth and Harland, (2006) who point out that a department is the most important site for new staff induction, and that HODs are critical in the life of new staff. Moreover, departmental structures and the dynamics within them are significant in influencing the decisions of novice [high school] teachers to remain teaching in the same school (Kapadia, Coca and Easton, 2007). HODs in this school bore the burden of inducting the NQTs and, without any formal structures to direct the practice, many variant ways of doing the same thing (orientation, curriculum implementation and continues support) were evident. Lack of a structured approach to NQT induction was probably the main cause of variation in the practice of inducting new teachers at the study school. Moreover, the principals' assertion that "I am under no obligation to follow what others have been doing..." (Interview 31st March), portends the risk of not having a policy on induction as a point of reference to inform practice. Variations in focus, depth, and approach cut across all induction activities and were dependent on the understanding, and the importance a HOD attached to a certain induction activity. Strategies for implementing orientation, for example, introductions and familiarizing NQTs with

instructional facilities were organised differently in departments. While some HODs took time to orientate the NQTs to other teachers, staff and facilities beyond their respective departments, others had the practice of doing the bare minimum. The result was that while some NQTs settled and started curriculum implementation activities early and in high spirits, others took time and started probably in low spirits and negative attitude toward teaching and the school.

Implementing a curriculum is cited as problematic for many newly qualified teachers and most are in need of assistance in instructional processes (Feiman-Nemser, 2001; Wanzare, 2007). Findings of this study show that the principal, as well as departmental heads were cognizant of the curriculum implementation (CI) needs of NQTs. The fact that HODs could point out areas in which NQTs were strong and where they needed help was a pointer to this fact. To address NQTs curriculum implementation needs, departments school organise various methods of assistance and just as in orientation, there was no uniformity in the practice. For example, while some departments offered all round assistance, some were of the opinion that NQTs do not deserve special consideration since they were qualified teachers. This argument is consistent with Bolam's (1987) notion that induction is unnecessary extension of training and that NQTs should be 'thrown at the deep end'. Though most NQTs did not have many CI problems as cited in research literature, HODs nevertheless offer leadership and support and equally tap on the strengths of the NQTs.

There is no specific consideration when assigning workload to NQTs and allocation depends on the available classes. The highest number of lessons a NQT had was 28 with the lowest having 12. In their paper on 'accountability through best practice induction model', Horn et al, (2002) argue that as part of adjustment to working conditions, NQTs should have reduced teaching load, and less involvement in non-teaching duties. The Teaches Service Commission (Kenya) has a policy that requires teachers to have a maximum of 27 lessons meaning that most NQTs lessons were within the provisions. The practice in some countries such as Britain is that lessons for NQTs are reduced by 10% to 15 % (Earley and Weindling, 2004). The reason behind such a practice is that less teaching load "gives the NQTs time to hone their professional skills, opportunity to observe other teachers teach, confer with colleagues and reflect on their own teaching" (AFT, 2001, p. 1).

There was the matter of a 'silent' consensus of not giving NQTs lessons in forms one and two. Based on the varying reasons given by the principal as well as the HODs, it was evident that this was a 'culture' in the school. The reasons given by HOD I that, "lower classes allow NQTs more time to know the school and implement curriculum progressively" (interview, 1st April, 2009) were not believable. The same HOD argued that [maybe through experience] junior classes are more receptive, accommodative, and patient with new teachers. Though it

was prudent to explain to NQTs that the practice was in their interest as well as that of the school, this information was not communicated to the NQTs. Some HODs cited cases where NQTs did not agree with the leadership, with some even being averse to supervision. Bolam (1988) similarly reports cases of NQTs refusing to submit to systematic induction and evaluation with the claim that they are fully qualified. In this respect some HODs adopted an approach to working with NQTs who encountered challenges through understanding and acknowledging their efforts as well as not demeaning them when they erred. This, in my assessment, was appropriate and sustainable.

Apart from the support offered at the initial stages of the teaching career, continued support beyond the first year is important if NQTs induction is to yield long-term benefits. Mentoring and opportunity for continuous professional development are effective approaches through which continued support can be offered to NQTs. The argument by Danielson (2002) that mentoring should initiate reflective practice, leading to professional growth through a supportive listener, resources and exemplars of best practice was not evident in this institution. Support that leadership offered to NQTs through mentoring and continued professional development was weak and not sustained. Mentoring as a practice goes beyond the normal interactions in that, a school identifies teachers with certain qualities useful in helping in professional growth of other teachers.

In this study, HODs displayed variant comprehension of the concept of mentoring. While to some it meant normal supervision, others were of the opinion that it should go beyond supervision to include having specific teachers working with NQTs. The negative feelings and misunderstanding about mentoring and, the reluctance to offer support of this nature were not an isolated case. Writing on mentoring NQTs, Danielson (1999) observes that lack of support for novice teachers might be attributed to erroneous beliefs such as NQTs are qualified and should not blame others when they fail, and that NQTs fail to seek support so as not to appear incompetent. Besides, Wong (2002), a scholar of new teacher induction practices, observes that mentoring is demanding and I could add, complex. It is not a question of 'experienced' teachers guiding NQTs but rather a symbiotic relationship where all participants are learners. Mentoring programs are expected to meet the demands of first-year teachers and lay a foundation for long-term professional commitment (Brennan, Thames, and Roberts, 1999).

Professional development (PD) is also a critical aspect to new teacher induction and as Gorinski (2007) posits, it is one way of updating and ones' expanding professional knowledge. Data from both the school principal and HODs point to the fact that most of the CPD activities are organised outside school and the few within the school are not formally structured. Furthermore, from the description of CPD activities, and from literature on the

CPD for NQTs, I am of the considered opinion that the current arrangement does not offer opportunities for the NQTs to practice within the realms of the 'best practice' models in NQTs induction. CPD activities cited as important and that hold promise for NQTs professional growth are better located within the context of practice [school based] (Doerger, 2003). These include classroom based activities such as lesson study (Podhorsky and Fisher, 2007) lesson observation, team planning, team teaching and reflection (Feiman – Nemser, Carver, Schwille and Yusko, and 1999b).

Interview with the principal revealed that her involvement in CPD activities is through permitting teachers 'release time' to attend CPD courses. Indeed a prominent way in which principals shape teaching practices is through their beliefs and actions regarding teacher professional development (Youngs and King, 2002). Though the move by the principal to allow teachers release time was positive, NQTs do not enjoy exclusive release time and, attend CPD with the same conditions as other teachers. It would benefit the NQTs more if activities are organised with the specific aim to meet their needs and more so in the context of the school.

Conclusions, Implications and Recommendations

This study was centered on the role school leadership plays in the induction phase of newly qualified teacher in a public national secondary school in Kenya. The intention was to bring to the fore pertinent leadership practices and experiences on NQT. The understanding the role of school leadership during the induction process provides, in my assessment, further understanding of this phase of teacher lives and therefore the basis within which induction programs to support NQTs could be designed.

This study revealed that the practice of NQT induction is dependent on the school leadership as well as NQTs self-discovery. However, the commitment of school leadership is weak and not coordinated leading lack of consistency in induction programs among departments. Data revealed that the principal engage at the initiation of the induction process but her influence in terms on monitoring the practice is not sustained and wanes with time. On the other hand, HODs are more active in NQTs induction though the leadership for induction at departments varies with emphasis and focus being different depending on a HODs priorities and leadership [style]. This eventually seemed to result in a differentiated experiences and induction pathways for the NQTs. On the subject of continued support for NQTs through mentoring and continuous professional development (CPD), data from this study revealed very little of such practice. Expressions about continuous professional development pointed out to the fact that it is not a constant practice.

Furthermore, mentoring and CPD activities such as lesson study, peer coaching, and action research, would require those implementing such activities to have requisite skills.

Findings from this study are consistent with those of researchers such as Indoshi (2003) that NQTs induction is still a practice that has not taken root in Kenya. While Indoshi reports inconsistencies in the practice of NQT induction across schools, this study reveals the same findings within departments in a school. If the desired impact is grounding teachers, not only in a school but also in the teaching career, school leadership must be at the forefront in putting in place structures for such a NQT induction practices to become part of the school culture. The bottom line is that school leaders should be able to coordinate comprehensive induction programs that not only provide NQTs opportunities to begin to understand the school's culture but equally offer them a platform for beginning their teaching career as well the necessary support to overcome challenges associated with that phase of teachers' lives. Finally, for the practice of NQT induction to thrive, school leadership must continually provide ongoing assistance and facilitate supportive school conditions for NQTs practice. At the very least, school leadership should heed Wongs' (2002) advice on the three critical components for effective NQT induction programs. That they are comprehensive, with many people and activities involved; coherent in that there is logical connections among components, and are sustained in that they continue for many years.

This study demonstrate that new teacher induction is still an unstructured practice in the school. As a national school [study site], one would expect to witness certain measures towards making induction an institutionalised practice. Moreover, in the current teacher recruitment arrangement in Kenya, where NQTs posted to public schools must remain in a station for at least five years before they can seek for transfer, the need to structure the practice of induction in the context of schools becomes more critical. It is imperative that NQTs are given support and systematic guidance at this critical stage in the context of the first posting. This has implications in determining not only their motivation to consider teaching as a lifelong career, but more importantly, what kind of teachers [and probably leaders] they become. To make induction a worthwhile experience for the new teachers in the school, an implication for school leadership is that, it should promote a culture of networking among departments in the organization of NQTs induction. These would enable collaborative sharing of practices, challenges and working out of solutions with regard to the practice of inducting new teachers. The school could better still develop NQT induction guidelines. With the guidance of experienced teachers, trained as a mentors and support providers, NQT induction can start taking the shape as envisaged in 'best practices,' become a formal activity with the possibility of moving beyond the current preoccupation with orientation activities. NQTs can formally start receiving feedback from support and mentor teachers as well as through reflection and apply lessons learned to practice. This way, NQT

induction would form a platform upon which teachers will *ad infinitum* be introduced the ethos of continuous professional development and lifelong learning, which would in turn translate into student learning and school-wide success.

It was the intention of this study to provide recommendations that could help improve practice of NQTs induction in a national school. These include recommendations policy, practice and for further research. To underpin the practice of NQTs induction in schools, it would be important for the Government of Kenya to develop a comprehensive policy, that conforms to the 'best practice' models in NQT induction. The guidelines should be clear in purpose, content and specifications that relate to the role of new teachers and the processes of teaching and learning. This could help schools in turn to develop site-based NQT induction programs that could lead to a structured NQTs induction practices across schools and uniform experiences of induction among NQTs.

Sustained NQT induction practice will demand developing institutional capacities especially for those in school leadership and teachers charged with the responsibility of mentoring new teachers. Activities such as mentoring, peer coaching, action research and team teaching are complex tasks that would require training for those implementing them. It would be worthy to make a deliberate arrangement and consider giving NQTs fewer assignments such as the teaching load to enable them have time to settle and learn the procedures and practices of specific school contexts. This study has brought to light significant insights in the practice on new teacher induction and in specific experiences and the roles of leadership in a national school. As I conducted this study, I could identify other areas worthy of research and specifically in the East African context. This could include comparative cases studies among schools of the same or of different socio-economic status, this would further broaden the understanding of NQT induction and in particular, how contextual factors influence NQTs experiences and practice and; learners influence new teachers practice and motivation.

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UTILIZING COGNITIVE APPRENTICESHIP: DEVELOPING QUALITY TEACHERS THROUGH PROFESSIONAL DEVELOPMENT AND TEACHER PREPARATION PROGRAMS

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Abstract

Improving the quality of educators for the betterment of our students and society in the 21st century depends upon a multitude of variables, including a recent focus on teachers and their own individual abilities. The quality of teaching is commensurate with the variations in student achievement. In the past decade, issues concerning teacher preparation and its effectiveness have received an unprecedented wave of attention. Every nation is concerned about teacher quality and teacher preparation. The economic health of a nation is largely contingent on the quality of its education system, and directly dependent upon how teachers are selected, prepared, supported, and evaluated. Yet, teacher preparation and development programs have often been regarded as an isolated enterprise. Looking forward, in an effort to produce high quality teachers to meet the demands of current reform initiatives, some have argued that we need to place greater emphasis on practice in lieu of theory in teacher preparation programs (Collins, Brown & Newman, 1989; Dennan, 2004; Zeichner, 2008). Darling-Hammond's (2000, 2006) case studies suggest good teacher preparation programs have extensive field placements that reflect a program's vision of good teaching, interwoven with coursework where the novice's teaching is carefully mentored (Zeichner & Conklin, 2008). We will discuss the importance of placing greater emphasis on practice throughout the teacher preparation continuum by merging the experiences of theory and practice, utilizing the cognitive apprenticeship concept. According to Dennan (2004), teaching and learning through cognitive apprenticeship makes tacit

processes visible to novice teachers so they can observe and then practice immediately (Collins, 1989; Dennen, 2004). Greater focus and emphasis on clinically rich practice opportunities involving cognitive apprenticeships are critical aspects to consider for improving “**quality educators for societal transformation**” in the 21st century.

Improving the quality of educators for the betterment of our students and society in the 21st century depends upon a multitude of variables, including a recent focus on teachers and their own individual abilities. Although current education reforms in the United States have primarily emphasized the need to prepare quality teachers, teacher preparation programs have often been treated as isolated entities. The various pathways to teacher certification must be improved in order to prepare future teachers to meet the current political and societal education demands of any society or educational context.

In many teacher preparation programs, skills and knowledge are taught in an abstract manner without opportunities to practice and apply information in concrete, real world situations (Collins, Brown & Newman, 1989). Too often, programs are linear in nature, with theory-based courses provided initially, followed by practice teaching at the end of a multi-year curriculum. In this scenario, many teacher educators fail to provide learning experiences that adequately and *simultaneously* connect theory to practice. As a result, many novice teachers fail to see the relationship between school-based learning and real-world application (Dennen, 2004).

In the United States, pre-service teachers are often partnered with a practicing teacher in an authentic learning environment toward the completion of their collegiate course work. This practice is called “pre-service teaching” or “student teaching.” The novice teacher is an invited guest in a previously established classroom with an experienced teacher and assigned students. These experienced teachers are often called “host teachers” or “cooperating teachers.”

In other countries, such as Kenya and Tanzania, “there is a very big challenge to improve the quality of teacher training at Universities and the Ministry of Education teachers’ college because school class sizes are very large now and expansion is at a critical level” (O-saki, 2007, p. 58). Individuals studying in a teacher preparation program in some African countries are also provided an opportunity to practice in an authentic educational setting upon completion of the theory portion of the curriculum. However, these novice teachers, unlike their United States counterparts, are not always matched with a practiced host teacher. Instead these beginning teachers practice as independent novice teachers in an assigned secondary classroom with an approximate class size of 70-80 students (O-saki,

2007), *without* daily feedback and guidance from an expert teacher. It is important to note that both in the United States and African countries, novice teachers receive periodic visits and feedback from university representatives or “supervisors” during their practice teaching.

During the past 10 to 15 years, educational researchers have been addressing concerns about teacher development issues by seeking better ways to integrate theory and practice in teacher training. In an effort to produce high quality teachers to meet the demands of current reform initiatives, some have argued that we need to place greater emphasis on practice in lieu of theory in teacher preparation programs (Ziechner, 2008). In recent years, research has demonstrated a need for this approach. Darling-Hammond’s (2000, 2006) case studies suggest desirable teacher preparation programs have extensive authentic practice opportunities that mirror a curriculum based on a vision of good teaching, interwoven with coursework during which the novice is carefully mentored (Zeichner & Conklin, 2008). Historically, attention to science, mathematics and technology is often at the forefront when considering teacher preparation knowledge (Grant & Agosto, 2008). Attention to mastering the teaching craft through thoughtful student teaching placements and well-communicated practice field experiences has been marginalized from the discourse. In an effort to maximize learning for the novice teacher, careful consideration should be given to the formal mentoring process that takes place during the authentic novice teacher practice in any given setting or country.

According to O-saki (2007), one lesson learned from recent teacher development initiatives in Tanzania is that learning transfer did not effectively occur without appropriate peer coaching and mentoring. Enkenberg (2001) expanded this idea in arguing for adopting *cognitive apprenticeship* in formal education settings to enhance the pre-service field placement experiences. Teaching and learning through cognitive apprenticeship makes abstract thoughts, ideas and processes more visible to novice teachers so they can observe, reflect and then practice immediately (Collins, et al., 1989; Dennen, 2004). Several cognitive apprenticeship models have been implemented and researched. Though the models have different components, there are often core program elements that overlap in many of the proposed apprenticeship models with various differences and component variations in each. Every nation is concerned about teacher quality and teacher preparation. The economic health of a nation is dependent upon the quality of its educational system. How teachers are selected, prepared, developed, supported and evaluated should be given great consideration and review, which is why it is critical to investigate better ways of mentoring novice teachers. Placing greater emphasis on practice throughout the teacher preparation continuum by bridging the gap and merging the experiences of theory and practice is a crucial element for teacher development training. This paper will discuss the importance of

cognitive apprenticeship as a possible means toward strengthening field and clinical experiences in an effort to enhance science teacher preparation programs.

Cognitive Apprenticeship

A cognitive apprenticeship is similar to a trade apprenticeship, where learning occurs as experts and novices interact socially while focusing on the completion of specific tasks. The focus in an educational setting is on developing cognitive skills through active participation in authentic learning experiences, as implied in the name, cognitive apprenticeship (Dennan, 2004). Collins et al. (1989) defined cognitive apprenticeship as “learning-through-guided-experience on cognitive and metacognitive, rather than physical, skills and processes” (p.456).

In a study of a tailor shop in Africa, Lave suggest that apprentices learn specific methods through a combination of observation, guidance and practice. Through a sequence of activities, the novice apprentice observes the master modeling the practice. The apprentice then attempts to duplicate the process, guided by the expert. This mentoring process can also be considered a form of coaching. A key component of coaching involves guided participation with close responsive support from the expert as the novice acquires specific skills. Over time, the master reduces his or her participation and the apprentice becomes more independent and proficient through repeated practice (Lave, 1998).

Historically, traditional trades were the only industry utilizing apprenticeship type programs. In 1989, several researchers attempted to update the concept of apprenticeship to make it relevant to modern subjects like reading, writing and mathematics, coining the phrase “cognitive apprenticeship” (Brown, Collins, & Duguid, 1989; Collins, Brown & Newman, 1989). The term “apprenticeship” was used to describe the expert-novice teaching process. The word “cognitive” was added to articulate the distinction from conventional apprenticeship trade settings to non-traditional learning environments and professional communities. Professional communities include those found in classroom and clinical settings, such as pre-service teaching. The intent of cognitive apprenticeship is to modify the learning environment in order to make the internal thought processes of the expert externally visible. Rather than viewing teacher development as an isolated physical skills or a series of deliberate steps, with cognitive apprenticeship teacher educators are considering the relationship between learning, development and the context of the novice teachers’ learning. This shift directly parallels development of learning theory from behaviorists to cognitive psychologists and the broader focus offered by socio-cultural theory on the contexts and conditions that promote knowledge formation (Darling-Hammond, & Bransford, 2005). Lave and Wenger (1991) suggest, “learners inevitably participate in

communities of practitioners [emphasis added] and that the mastery of knowledge and skill requires newcomers to move toward full participation in the socio-cultural practice of a community” (p. 29).

Cognitive apprenticeship differs from traditional apprenticeship in that tasks are sequenced to slowly increase in complexity to reflect the changing demands of learning. Traditionally, apprenticeship teaches skills within the context of their use, while cognitive apprenticeship generalizes knowledge for use in different setting and varied contexts (Collins, 2006).

Cognitive Apprenticeship Frameworks

One of the challenges of researching cognitive apprenticeship is the inconsistency of terminology involving the scaffolding, mentoring and coaching components of the various models. Some refer to mentoring and/or coaching as a form of scaffolding (e.g., McLouglin, 2002). Others refer to scaffolding as an aspect of coaching (e.g., Collins, Brown & Newman, 1989), and several argue that each are separate strategies that fall under the full cognitive apprenticeship umbrella (e.g., Enkenberg, 2001).

Researchers Dennen (2004) and Enkenberg (2001), suggest the following necessary cognitive apprenticeship components to support the goals of this model:

1. Modeling: meaning the demonstration of the temporal process of thinking.
2. Explanation: explaining why activities take place as they do.
3. Coaching: meaning the monitoring of students’ activities and assisting and supporting them where necessary.
4. Scaffolding: meaning support of students so that they can cope with the task situation. The strategy also entails the gradual withdrawal of the teacher from the process, when the novice can manage on own.
5. Reflection: the student assesses and analyses own performance.
6. Articulation: the results of reflection are put into verbal form.
7. Explorations: the students are encouraged to form hypotheses, to test them and to find new ideas and viewpoints (Dennan, 2004, p.814; Enkenberg, 2001 p. 203).

It is important to note that these components of cognitive apprenticeship refer to the teacher or expert actions. The learners are engaged in acts of observation, repeated practice and reflection.

Liu (2005) presents the example of a web-based cognitive apprenticeship that introduced pre-service teachers to the topic of lesson planning and determined that this model, which

involved expert teacher participants, enhanced the novice teachers' performance and attitudes in comparison to the traditional knowledge-based course used as a control. This study considered the characteristics of a web-based learning environment to design a three-phase cognitive apprenticeship model. The three phases included (a) modeling-observing, (b) scaffolding-practice, and (c) guiding-generalizing. Each phase is named after the specific tasks first performed by the expert teacher and then the action followed by the pre-service teacher.

Although there are numerous models of cognitive apprenticeship with various definitions of framework components and strategies, all include an expert and novice interacting in a supportive context. Often mutually beneficial relationships develop as a result of these interactions. These relationships are built and based upon trust developed through the coaching and mentoring process.

Coaching initiatives as a means to achieve instructional improvement are gaining in popularity. The expertise of the coach is directly related to program effectiveness. Professional development for these teacher leaders acting as coaches is critical even though it can be costly (Mangin & Stoelinga, 2008). Because of the intricacies of learning through cognitive apprenticeship involving complex relationships between individual and collective components of the socio-cultural process, it is not always completely understood and important to study further (Gallucci, Van Lare, Yoon & Boatright, 2010). Future research may contribute to the enhancing knowledge of teacher leader training and then strengthen novice teacher development.

Cognitive Apprenticeship: Coaching and Mentoring Components

Communication is a means of making tacit instructional processes and conscious pedagogical thought more visible for pre-service teachers. Why does an experienced teacher select one method over another when teaching a specific topic? How is it that one form of classroom management works best in a particular situation? A pre-service teacher might have an opportunity to observe these methods and internally ask these questions and yet never know or obtain answers to these questions unless planned conversations with expert practicing teachers take place.

In the education "trade" there are many variables to the teaching craft in addition to the unique differences of each student in every classroom. Observation and modeling followed by repeated practice of one specific skill is not always an option and/or best practice as it can be with traditional single-skill trades. Conversation regarding the necessity for pre-planned purposeful lessons and post-teaching discussions to foster reflection are a

necessary part of the teaching craft. During the past five years as a university supervisor, the first author witnessed the greatest successes in terms of novice teacher growth in classrooms when there was extensive communication and designated daily and weekly opportunities for collaborative discussion and feedback. In these productive scenarios, the host teachers often mention how mutually beneficial relationships developed as a result of these ideal *coaching and mentoring* experiences.

It is important to note that coaching and mentoring are two terms that are often confused and used interchangeably. Parsloe and Wray (2000) distinguished coaching from mentoring by suggesting that a mentor provides support of a more general nature in an ongoing capacity and a coach provides assistance for meeting a particular goal. Costa and Garmston (2002) suggest that the numerous terms used in education to describe support services are often confusing. They narrowed their focus to four categories of support intended to improve instruction: evaluating, collaborating, consulting and *cognitive* coaching.

Cognitive coaching is a nonjudgmental, interactive strategy focused on developing and utilizing cognitive processes, and liberating internal resources as a means of more effectively achieving **goals** while enhancing self-directed learning. The mission of cognitive coaching is to produce self-directed persons with the capacity for high performance, both independently and as members of a community. Research suggests that teachers with higher conceptual levels are more adaptive and flexible in their own teaching style. Cognitive coaching increases the capacities for sound decision making and self-directedness, resulting in higher achieving students (Costa & Garmston, 2002). The focus of this cognitive coaching model is on the novice practitioner's cognitive development and is based on the belief that growth is achieved through the development of intellectual functioning. In the teacher profession, novice teachers must not simply repeat or model the exact same expert practices in a puppet-type fashion in order to demonstrate proficiency. This is different from a more traditional trade skill or manual craft involving required repetition and series of steps. The pre-service teacher must also understand the expert teacher's thought process which involves the what, how and why related to instructional and classroom management decision making.

Few education innovations achieve full success without some type of coaching component. Traditional and conventional approaches to staff development (e.g. workshops, lectures, demonstrations) show little evidence of transfer to actual classroom practice. Joyce and Showers (1995) estimate that only five percent of classroom application occurs as a result of traditional professional development, even after high-quality training that integrates theory and demonstration. This statistic slightly increases when teacher development includes some form of practice and feedback. However, when coaching is introduced in the training

design, the level of training transfer increases to 90 percent (Costa & Garmston, 2002; Joyce & Showers, 1995).

Another term often utilized in the industry is *instructional* coaching. This concept can be utilized during teacher training and by practicing teachers in numerous classroom settings. Knight (2007) suggests that instructional coaching involves a carefully articulated philosophy and set of actions. The primary goal of the facilitating teacher is to implement scientifically proven instructional practices that respond directly to teacher issues and challenges (Knight, 2007). Knight recommends the following eight instructional coaching components:

- 1) Enroll
- 2) Identify
- 3) Explain
- 4) Model (You watch me)
- 5) Observe (I watch you)
- 6) Explore (Collaborative Exploration of Data)
- 7) Support
- 8) Reflect (Knight, 2007, p.)

Regardless of the selected coaching and mentoring program, collaborative goal setting is important to incorporate into any given model. There are numerous instruments to foster communication and the establishment of common objectives throughout the mentoring continuum. According to Pelliter (2000), the introductory meeting between mentor and mentee should be used as an opportunity to communicate mutual goals and personal expectations. A simple handout of possible cooperating/host teacher and student/pre-service teacher *general* goals can be used to foster communication during this first meeting (see Appendix A). Pelliter recommends that both parties retain a list of all initial agreed-upon collaborative goals. Subsequent and regularly scheduled mentor-mentee meetings should also occur to add, delete and revise goals, and to also discuss all possible coaching components as outlined by Knight (2007) above. Pelliter (2000) also suggests another possible communication tool used during routine meetings to identify *specific* goal setting actions and the communicated evaluation process for goal attainment (see Appendix B). Both of these general and specific goal-setting tools help make abstract thoughts and ideas more visible and concrete.

During the initial stages of the student-teaching practice experience, the pre-service teacher often passively observes the host teacher modeling instruction. In an effort to make observations more meaningful, Guskey (2000) suggests that the novice record thoughts and questions on a straightforward guided note taking page, while observing the host teacher

engaged in modeling the teaching craft (see Appendix C). There are six general sections of this form (a) I learned, (b) Most helpful, (c) Least helpful, (d) I would like to learn, (e) Appreciations, Concerns, Suggestions, and (f) Other/Goal Setting (p.130). This completed form can also be reviewed during regularly scheduled expert-novice meetings to help further discussions and communication between the pre-service teacher and host teacher in a proactive manner.

Co-teaching is usually the next step in the cognitive apprenticeship scaffolding process followed by independent novice teaching. Podsen and Denmark (2007) suggest two additional closely interrelated forms for this segment of novice teaching training used for pre-service lesson planning and instructional observations by the host teacher or supervisor (see Appendices D and E). The last section of both these forms also includes a goal-setting component to help further advance the novice teacher's practice experience through reflection and pro-active expert-novice communication.

The teacher-training institution provides and reviews all suggested communication documents with pre-service and host teachers, prior to student teaching (see Appendices A-E). All documentation is maintained by the pre-service teacher throughout practice teaching to demonstrate individual teaching progress. University supervisors are encouraged to review these records during periodic pre-service teacher observation visits for two reasons (a) to motivate and confirm documentation use and (b) to collect evidence of novice teacher progression. Collection and review of all documents by the training institution at the completion of student teaching can be performed as an analytical device to evaluate the individual novice teacher and comprehensive training program.

Coaching and Support for Beginning Teachers

The expert-novice dialogue and knowledge exchange makes the experience more meaningful and valuable. An intentional plan to establish goals and commit information to writing is a necessary part of this process. Lipton and Wellman (2003) suggest "support alone will not promote growth and learning for novice teachers...skillful mentors engage novices in structured planning, reflecting and problem-solving conversation on a regular basis" (p. 13).

Coaching may also be beneficial for other reasons. In addition to quality teacher training, retention of novice teachers must also be given careful consideration. There is a long history of unusually high teacher attrition rates, especially among new teachers, (Johnson etal, 2004, Lortie, 1975). Additionally, new teachers spend the majority of the first few challenging years of teaching in an isolated environment from colleagues in a "sink or swim"

or “trial by fire” position (Ingersoll & Kralis, 2004; Johnson & Kardos, 2008). Beginning teachers require planned connections to experienced teachers in order to be successful. Studies show that novice teachers who are mentored early in their careers are more effective (Evertson & Smithey, 2000) and are likely to remain in the profession longer than those who were not (Johnson & Kardos, 2008).

Enhanced Teamwork, Positive Relationships & Productive Environments

Coaching promotes a safe community for engaging professional dialogue while developing reflection skills on practice necessary for productive collaboration (Costa & Kallick, 2000). Research by Mocada (1998) reveals that school culture is determined by modifications in the social construction of reality brought about by conversations. Workplace culture involving shared values, quality relationships and collaboration has great influence on how people perform (Garmston & Lipton, 1998).

Cognitive coaching provides frameworks, skills and tools for coaches and host teachers to work with both adults and students in resourceful ways to foster cohesive school culture while enabling everyone to work together in productive and respectful ways to meet the demands on our educational systems.

Teacher Quality and Student Achievement

Both the current global economy and an intense period of educational reform are placing fierce financial constraints on many schools. There are increasing demands for teacher quality and student achievement. In an effort to meet these challenges, coaching and mentoring through cognitive apprenticeship should be further considered. More than years ago, Witherall and Erickson (1978) found that teachers at higher stages of intellectual functioning and development demonstrate more flexibility, toleration of stress and adaptability. They draw from a broader base of teaching models and utilize a variety of coping mechanisms from multiple perspectives. Well-coached and high-functioning teachers are also more effective with a wider range of students, including students from diverse cultural backgrounds (Costa & Garmston, 2002; Witherall & Erickson, 1978).

Summary and Concluding Discussion

We are living in an era where worldwide information is more widely accessible and international knowledge exchange is a valuable practice. It is important to note that in education reform, one size does not fit all. According to Gray (1999), issues to contemplate

when considering teacher development reform include resource availability and program relevance to overall context. Gray noted:

Clearly, in an increasingly global community, it would be unwise to ignore developments in the developed world. However, developing countries need to have greater confidence in their ability to produce curricular programs and not simply emulate what happens in the developed world (p. 262).

In both developed and developing countries, great consideration must be given to the unique context, challenges and resources involved in each educational setting. What works exceptionally well for one teacher might not transfer exactly the same for others situated in an entirely different environment. It is also important to recognize the individual teacher's curricular abilities and limitations in order to lead to the best possible outcome. Teachers who are trained in a thoughtful curricular program that weaves together theoretical coursework with extensive practice and that also partners them with an expert teacher in a coaching and mentoring relationship will have more opportunities for mastering the dynamic craft of teaching. The cultivation of quality teachers in these kinds of scenarios will strengthen educational systems in a variety of settings.

At no other time in the history of education has teacher development been more important than today. Society has redefined the mission of education with rapid social and economic transformations, requiring greater learning from all students. Schools are no longer expected to just *provide* education; now they must *ensure* high levels of learning for all students. In order for these requirements to be met, there must be strong leadership, combined with highly qualified and committed teaching force (Darling-Hammond, 1996b; Guskey, 2000). Current research suggests great potential for cognitive apprenticeship as a means to facilitate learning and to create this well trained, versatile teaching force. According to Dennen (2004), the most essential statement that can be made regarding cognitive apprenticeship research is, "We need more." The current body of cognitive apprenticeship research is scattered across the field. Research is needed to demonstrate if cognitive apprenticeship is preferable when used with pre-service practice. If it is favored, the conditions, details of successful implementation, and support of this model need to be outlined to determine if cognitive apprenticeship is suitable, practical and efficient (Dennan, 2004). Research that focuses on the use of cognitive apprenticeship during practice periods for pre-service teachers will lead to greater generalizability of results and the development of knowledge to guide practitioners. Although current research has some limitations, studies have already shown that cognitive apprenticeship has obvious advantages and the following numerous education benefits: (a) coaching support for beginning teachers (b)

enhanced teamwork, positive attitudes and productive environments, and (c) improvements in overall quality teacher development and student achievement.

Overall, cognitive apprenticeship fosters positive adult interactions in school settings, strongly influencing the climate of the learning environment and instructional outcomes for students. Specific focus and future research emphasis should be placed on cognitive apprenticeship as a means towards strengthening field and clinical experiences to develop quality teachers. Gray (1999) poetically stated:

In the developed world there are countless examples of poor science education that occur in very well-resourced schools. By the same token, in many developing-world schools there are inspired and creative teachers operating in very impoverished circumstances to provide rich science education experiences for students. (p. 265)

It is often the quality of the individual teacher that makes the difference and “No education system can rise above the quality of its teacher” (Osaki, 2007, p. 59). Greater focus and emphasis on extensive field experiences and clinically rich practice opportunities will produce high quality teachers to meet the demands in the 21st century.

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APPENDIX A
Collaborative Goal Setting

Take this meeting as an opportunity to discuss goals you have thought about as part of your preparation process. It is critical for the host teacher to know what the pre-service has in mind. Please review possible goals on this form and make a copy for the pre-service teacher. Create time during the practicum for both of you to add, delete, and/or revise your goals. During the last week of the practicum, review goals on this form to see if they have been met.

POSSIBLE HOST TEACHER GOALS:

- To meet regularly with the pre-service teacher to answer questions
- To observe the pre-service teacher regularly
- To team teach a lesson with the pre-service teacher
- To observe a colleagues class while the pre-service teacher is teaching
- To try teaching some of the pre-service teacher's lessons
- To organize curriculum materials to share with the pre-service teacher
- Other: _____

POSSIBLE PRE-SERVICE TEACHER GOALS:

- To learn how to implement (ex. cooperative learning strategies) effectively
- To learn how to implement (_____) effectively
- To design successful lesson plans
- To practice a variety of classroom management/discipline techniques
- To observe other teachers in the building
- To create an interactive learning center
- To incorporate lesson learned in college classes including: _____
- Other: _____

From *A Handbook of Technique and Strategies for Coaching Student Teachers* (p. 29), by C. N. Pellitier, 2000, Needham Heights: Person Copyright 2000, 1995 by Allyn & Bacon.

APPENDIX B
Goal Setting

Pre-service Teacher: _____

Post-conference Date: _____

Lesson: _____

1. During the conference, jointly select one aspect where the pre-service teacher could strive for growth. This could be a “recommendation” from you or a goal offered by the student teacher.
2. Discuss specific actions the pre-service teacher would have to take to grow in this area. List those actions.
3. Set a time when you will review this plan to see if the goal has been met. At that time, you may revise and continue with the same goal or select a new one and start the process again.

This form is for the pre-service teacher.

GOAL	
ACTIONS What will you do to achieve your goal?	
EVALUATION Date for goal review. How will you know if you reach your goal?	

SAMPLE GOALS

- Having interesting introductions to lessons
- Culminating a lesson in an orderly way
- Moving around the classroom
- Pronouncing all the words in a lesson correctly
- Managing an effective classroom routine during a lesson

Make the goal achievable, observable, and measurable!

From *A Handbook of Technique and Strategies for Coaching Student Teachers* (p. 154), by C. N. Pellitier, 2000, Needham Heights: Person Copyright 2000, 1995 by Allyn & Bacon.

APPENDIX C
Host Teacher- Model Lesson

EVALUTAION FORM	
Topic: _____ Date: _____ Position: _____ Grade:/Content Area: _____	
I learned . . .	
Most helpful . . .	Least helpful . . .
I would like to learn . . .	Appreciations, Concerns, Suggestions . . .
Other/Goal Setting	

From *Evaluating Professional Development* (p. 130), by T.R. Guskey, Thousand Oaks, CA: Corwin Press. Copyright 2000 by Corwin Press, Inc.

APPENDIX D
Lesson Plan Template

Lesson planning varies within content areas and across grade levels. The purpose of this sample is to help pre-service and first-year teachers develop lessons based on the elements of effective instruction.

Lesson Title: _____

Level: _____

Pre-service Teacher: _____

Date: _____

Host Teacher: _____

<p style="text-align: center;"><i>I. State or National Content Standards</i></p>	<p style="text-align: center;"><i>II. Lesson Input</i></p> <p>Instructional strategies to consider to meet your objectives: lecture, discussion, textbook, recitation, cooperative learning, discovery, role play, peer tutoring, problem-solving, oral and written work, drill and practice, computer-assisted instruction, simulation, guided practice, independent work.</p>
<p><i>III. Performance Objectives and Assessment</i></p> <p>Objective #1</p> <p>Assessment #1</p> <p>Objective #2</p> <p>Assessment #2</p> <p>Objective #3</p> <p>Assessment #3</p>	<p style="text-align: center;"><i>IV. Lesson Implementation</i></p> <p>Beginning the Lesson</p> <p>Gain attention Focus on objective</p> <p>Relate to students' experiences</p> <p>Middle of the Lesson</p> <p>(1) Describe in detail your lesson sequence and teaching strategies.</p> <p>(2) Provide directions for students.</p> <p>(3) Include how you will check for</p>

	<p>understanding.</p> <p>(4) Provide time allotment for each step.</p>
V. Differentiation of Instruction	Middle of the Lesson <i>(continued)</i>
VI. Materials Needed:	End of the Lesson (Summary, follow-up activities, closure)
VII. Supplemental Materials – Extension Activities (Homework) – Backup Plan	
VIII. Classroom Management Strategies for This Lesson	
IX. Reflection	

From *Coaching & Mentoring First-year and Student Teachers*, p. 194, by I. J. Podsen and V. Denmark, 2007, Larchmont, NY: Eye on Education. Copyright 2007 by Eye on Education, Inc.

APPENDIX E

Observation Form:

(Completed by Host Teacher & University Supervisor)

Pre-service Teacher: _____

Subject: _____

Date: _____

Instructional Teaching Behaviors

Presenting Instruction

Beginning the Lesson

	<i>Very Effective</i>	<i>Effective</i>	<i>Somewhat Effective</i>	<i>Growth Area</i>
Gain attention				
State Objective				
Establish purpose of the lesson				

Middle of the Lesson

	<i>Very Effective</i>	<i>Effective</i>	<i>Somewhat Effective</i>	<i>Growth Area</i>
Input: Demonstrates the ability to present the content through a variety of instructional strategies such as lecture, discussion, group work, etc.; demonstrates the ability to sequence the content logically.				
Modeling: Demonstrates the ability to model classroom behaviors, for example, using technically correct written and oral language, courtesy, listening skills, and acceptance.				
Guided Practice: Demonstrates the ability to break down learning into manageable steps by providing examples, demonstrations, and guided practice to ensure student understanding.				
Checking for Understanding:				

Demonstrates the ability to monitor student understanding by seeking a variety of responses from varied students.				
---	--	--	--	--

Ending the Lesson

	Very Effective	Effective	Somewhat Effective	Growth Area
Closure				
Independent practice				
Follow-up assignments				

Classroom Management Behaviors

	Very Effective	Effective	Somewhat Effective	Growth Target
Communicates clear expectations about behavior				
Distributes materials efficiently				
Avoids unnecessary delays, interruptions, and digressions				
Manages efficient transitions				
Provides clear directions				
Promotes on-task student behavior				
Monitors behavior throughout the room				
Intervenes appropriately when students are off-task and non-disruptive				
Intervenes appropriately when students are off-task and disruptive to the learning of others				
Establishes a supportive and nonthreatening learning atmosphere				

Lesson Notes (by observer):

Conference Notes:

Professional Conduct, Collaboration:

Goal Setting:

(See Post-conference Goal Setting Form)

From *Coaching & Mentoring First-year and Student Teachers*, p. 94, by I. J. Podsen and V. Denmark, 2007, Larchmont, NY: Eye on Education. Copyright 2007 by Eye on Education, Inc.

A DECADE OF TEACHER IN-SERVICE PROGRAMMES – THE SUCCESSSES AND CHALLENGES

The need for continued teacher learning and development has led to many organizations providing in service training for teachers. There is, however, not much documentation available on the models used for such training programmes or the outcomes of the programmes. This paper describes the model of in service programmes provided by an institution of higher learning in the East African region for the past ten years. It draws its data from interviews with the facilitators of the programmes, document analysis of the programmes' course handbooks, course reports and reflections of the researcher who has been the course leader of a number of the courses conducted. The paper discusses some of the successes of the programme – improved teaching approach, more interactive classrooms, use of teaching learning resources, increased teacher professionalism and confidence. It also outlines the challenges the programmes have encountered like selection of course participants, lack of programme follow ups, teacher mobility, challenges faced by course participants in their own schools, financial problems etc. The paper concludes by sharing some of the lessons learnt from the programmes over the past ten years.

1. INTRODUCTION

Teachers have a key role to play in making learning effective and leading to effective schools (Leliveld, 2006). They undergo teacher training in preservice teacher education programmes, however, these preservice programmes cannot fully equip teachers with all the skills, knowledge and attitudes they will need throughout their careers (Hammerness, Darling-Hammond, Bransford, Berliner, Cochran-Smith, Macdonald and Zeichner, 2005). There is always need for teachers to keep updating their knowledge and skills in an everchanging world, lifelong learning (ibid) has come to be the buzz word everywhere and inservice programmes are a part of this lifelong learning.

One of the in-service providers is the Aga Khan University.

1.1 The Aga Khan University, Institute for Educational Development, Eastern Africa (AKU IED EA).

AKU IED EA is a private university which was established in Dar es Salaam, Tanzania in September 2006. AKU IED's overall objectives are to promote and disseminate knowledge and provide quality education, research and service to the region of Eastern Africa. The institute's two major academic programmes are the Masters in Education degree programme and the Certificate in Education programmes (CEPs). In-service programmes are offered through the CEPs. Although AKU IED was established as a university in Dar es Salaam in 2006, CEPs were already being conducted in the East African region through the Professional Development Centre Lead-in Project (PDC, set up in 2000) which was affiliated to AKU IED, Pakistan. AKU IED EA actually built upon the work of the PDC..

1.2 The Certificate in Education Programmes (CEPs)

The CEPs are six month in-service professional development programmes for practicing teachers, school leaders and other educators. The programmes are diverse in their range of subject matter (English, Mathematics, Science, Social Studies, Educational Leadership and management, Teacher Education, Teaching, Learning and Assessment and Early Childhood) but have certain shared characteristics like length, field focus, structure, aims, target groups, selection criteria and assessment.

1.2.1 Aims of CEPs

The CEPs aim at equipping teachers with content knowledge and more updated pedagogical skills so that they become more effective teachers, they also encourage reflection and collaborative work among teachers (Course Handbook, Mombasa 2000).

It is also expected that after participating in the CEP, the teachers help colleagues in their schools to acquire the new knowledge and skills and in this way help the school. As more teachers benefit from the programmes, capacity of effective teachers is built in the school which leads to school improvement.

1.2.2 Target

The target groups are practicing teachers, school leaders and educators. The participants must have minimum teaching certificates and two years teaching experience in the relevant subject areas (Course Handbook, Kampala 2008)

1.2.3 Structure

The CEP is divided into three phases: Phase 1 and 3 are university based face to face phases while Phase 2 is field based where the course participants (CPs) are in their own schools

implementing what they have learnt in Phase 1. They are observed thrice by course facilitators and given feedback and support on the implementation. During Phase 2, there are three seminars conducted by the course facilitators and the objectives of the seminars are to discuss the challenges and successes of the CPs and to offer support and guidance to them.

2. METHODOLOGY

This is a qualitative study which draws its data from two major sources: interviews with course leaders and document analysis

2.1 Interviews

Face to face interviews were carried out with four course leaders and facilitators of the CEPs.. These were course leaders who have conducted CEPs in six centres in East Africa : Nairobi, Kampala, Dar es Salam, Morogoro, Kisumu and Zanzibar. The interviews provided data on the course leaders' perspectives of the successes and challenges of the CEPs and also their views on the implementation of new leaning as they observed the teachers in the second phase of the programmes where the teachers work on implementing the new learning from the courses. The interviews were audio recorded and transcribed and later analysed.

2.2 Document Analysis

Two documents were analysed, namely, the course handbooks and the course reports. The handbooks showed the course content and assessment criteria while the course reports which were compiled by the course leaders and coordinators highlighted the successes and challenges of the various courses conducted.

3. SUCCESSES OF THE CEPs

3.1 CEPs as Eye Openers

The course leaders were in agreement that the CEPs acted as eye openers for the teachers. As one of them put it,'The teachers become aware of the more current trends in education which they may not have encountered even in their undergraduate studies.'(Interview 1, 14.06.2011). Topic areas which the CEPs cover, like Reflective Practice, Cooperative Learning and Multiple Intelligences (Course Handbook, Nairobi 2008) to name a few, are new topics for teachers, even for graduates from the regions' universities. Hence, the

programmes provide opportunities for teachers to upgrade their knowledge and skills. For this reason the course leaders report that the teachers refer to the CEPs as 'eye openers' and as bringing about 'reawakening'.

3.2 Towards an Interactive Teaching Approach

Phase 2 of the programme allows the facilitators to observe classroom teaching of the CPs. One very striking feature about the change in their classrooms is the classroom arrangement. Group seating replaces the military style rows of desks as Shariff and Otienoh (2003) confirm, 'One of the visible signs of participation in a CEP is the seating arrangement in the class' Students sit in groups and cooperative learning is more evident and teacher fronted classes are less visible. Students have the opportunity to work together and learn from each other. The students are engaged in activities and are more actively involved in their own learning. Teachers appreciate the use of cooperative learning, and feel that 'I involve children, I just act as a facilitator to help them realize what is within them.' (Halai, Otienoh, Shariff and Swai 2005). The use of cooperative learning encourage student talk in the classroom and students were more engaged in their own learning (ibid) It is possible to see students making presentations of their group's work and discussions. It is clear that the CPs make a sincere effort to implement their learning from the course into their classes. However, there is no instant success, the CPs struggle to make their new learning a part of their practice and get feedback from facilitators who observe them (Course Report, Dakawa 2011). It is noted that when the teachers had very large groups, 8 – 12 students in a group, all the children could not even see the task being done and, hence participation for all group members was really not possible (ibid).

3.3 Increased use of teaching learning resources

According to the course leaders, for many of the CPs who participate in the CEPs, their major, and sometimes only, resource for teaching are the recommended textbook and the blackboard. This has led to the common reference to 'chalk and talk'. During the programme they see the use of resources modeled by the facilitators and some programmes have some sessions devoted to discussing the importance of using teaching and learning resources and the making of low cost resources for use in the classrooms (Course Reports Mombasa 2000, Kampala 2008, Zanzibar 2003 Kisumu 2008). This is a very practical approach to teaching about resource use and production which helps the CPs to think creatively about resources in teaching. Observations in Phase 2 has shown that almost all CPs use resources in their teaching(Course Report ,Dakawa 2011). They include the use of resources in their lesson plans and they design activities which use resources. Shariff and Otienoh (2003) reported that one head teacher in a Mombasa school commented,

We always used to tell our teachers to put up interesting things in the class bulletin boards. But what used to happen is that the teachers would cover the boards with posters and these would remain for the whole year even when they became tattered. Now the teachers are asking for materials with which they make their own aids and displays and these are on the boards for a while and then new ones are put up. We also see some of the things the pupils are doing on the boards like compositions and graphs and so on. (p.324)

Apart from classroom bulletin board displays, it has been observed that the school ambiance has been improved with the use of posters, pictures and colourful educational and religious messages and this fosters a positive attitude towards learning (Halai, Otienoh, Shariff and Swai, 2005)

3.4 Increased professionalism

The CPs show a renewed interest in teaching, one CP referred to it as a 'reawakening'. They are keen to learn how to improve their teaching. One of the graduating teachers, in a speech during a certification ceremony had this to say, 'It (the CEP) has affected me to the core, changing my perceptions about myself as a teacher.' (PDC Bulletin 2003). It is common knowledge that for most of the practicing teachers, teaching is not a career of first choice. They take up teaching due to family influence or because it provides an employment opportunity at that time (Shariff and Otienoh, 2003). And it is these same teachers who during the later part of the programme look upon themselves as the 'lamps that dispel the darkness and help children to come to the light.' (ibid) Hence, it is possible to claim that the CEPs help the teachers to view their work in a more positive light and this improves their self esteem and their regard for their profession is higher.

One of the factors that contributes to their increased interest in teaching is that they share their ideas with colleagues and learn from each other as well as from the facilitators. The collegiality also forms the basis of a more collegial working relationship in their schools where previously they had worked in isolation and even competitively. By the time they are reaching the completion of the course, they are invariably asking the question, 'what next?' They say they want to learn more and continue learning. During the CEPs, the teachers get to meet colleagues from a range of schools and exchange information about other courses that are available and useful professional contacts are made (Course Report, Kampala 2008). It has as yet not been possible to follow up the certificate programme with a diploma programme. Nevertheless, some of the teachers who attend the CEP do come to the university to join the masters programme and it is evident that they have an edge over

other Masters students even at the interviewing stage where the masters students are being recruited.

Initially, in the beginning of Phase 2, the CPs look upon classroom observation as assessment (Shariff and Otienoh, 2003). They also looked upon the facilitators as inspectors. However, over the course of the second phase, they became more relaxed and understood that classroom observation was done with the intention of supporting them in their implementation of new learning. In the later part of Phase 2, the CPs express concern about how they can do better at implementing new learning and seek advice on what they think is not going well and the challenges they are facing in the implementation (Course Report, Zanzibar 2009). This need to improve practice and seeking help from the more experienced and knowledgeable facilitators is a sign of growing professionalism. In some schools now there is a growing culture of teachers observing each other's lessons. Teachers are breaking out of their shells of isolation (Nemser, 1983) and moving towards an attitude of mutual support and encouragement. This promotes collegiality and is a sign of increased professionalism among the CPs (Shariff and Otienoh, 2003)

Most of the course reports point out the growth in confidence in the CPs during Phase 1 and in their classroom practice in Phase 2 (Course Report, Kisumu 2008, Mombasa 2000). There is also a marked change in the English language speaking competence in the CPs (Course reports, Zanzibar 2009, Dakawa 2011). Where previously the CPs hesitated to speak in English, despite being teachers of English, they slowly begin to gain confidence in speaking in English and they are very happy about it as is evident from their writing in their journals.

3.5 Facilitators as Role Models

The facilitators of the CEPs work very collaboratively in the planning and implementation of the programmes. Their collegiality and high level of professionalism is evident throughout. One course leader (who used to be the coordinator of the certificate programmes until 2007) explained that this collaborative work was one of the successes of the programme as the facilitating team provided the model for teachers to emulate in their schools. Also, the facilitators use the strategies they are advocating throughout the programme. A good example of this is the use of cooperative learning which they use throughout the programme, so it is teaching by doing. Another course leader emphasized that (Interview 2, 13.07.2011) 'We walk our talk, we are not asking the teachers to do anything we ourselves cannot do, ours is a practical approach.'

3.6 Scope of the CEPs

The current coordinator of the CEPs claims that one of our biggest successes is the way we have expanded our scope in the region (Interview 3, 14.07.2011). We began by offering the programmes in only five centres, namely, Dar es salam, Zanzibar, Mombasa, Nairobi and Kampala. These were all big urban centres. Currently we offer the programmes in rural regions as well e.g. Dakawa, Morogoro and Turiani (Tanzania). And we have realized that there is a great need and demand for the CEPs in rural areas as very few in-service providers venture into the rural regions. Furthermore, the CEPs cover all the subject areas in the curriculum and there are plans to expand further into the areas of research and monitoring and evaluation. Currently we are offering a CEP in early childhood. In fact the CEPs have something to offer everyone from teachers to head teachers to school managers to school inspectors. And therein lies the uniqueness of the CEPs.

4. CHALLENGES OF THE CEPs

4.1 Recruitment of Participants

Generally, participants for the CEPs are recruited through the relevant government offices dealing with educational programmes in each East African country; invitation letters and application forms are sent to the offices to be distributed to the schools. It has happened on a number of occasions that the teachers do not get the invitation letters because the offices become a bottleneck and the letters are not forwarded. Unless there is follow up from the university, the teachers remain unaware of the programme being offered. Sometimes the letters reach the schools too late for the heads (and teachers) to make decisions on who can join the programme as teachers are also involved in other school activities and need prior information to make adjustments to their plans especially since Phases 1 and 3 are held during the school vacations. In one particular incident a programme had to be called off due to insufficient numbers of participants.

Once the invitation letters and application forms have been forwarded to the school, it is up to the head teachers' discretion about which and how many teachers from that school can be released to join the programme. It has also happened that teachers who come to the programmes are sometimes not engaged in teaching the subject which is the content of the CEP e.g. teachers of Arabic and History have come to programmes for English (Zanzibar 2009), they benefit from the generic areas the programmes cover but not from the content of the subject covered.

Course reports indicate (Zanzibar 2009, Nairobi 2008, Mombasa 2011) that CPs join the programme late sometimes (by one to three days) because the recruitment of participants

has been delayed. Hence they miss the start of the programme which orients them to the objectives and schedule of the phases.

4.2. Teachers' Initial Reluctance and Resistance

Teachers mostly come to the programmes without knowing much about what to expect and, hence, are at times reluctant and resentful at being sent to the programmes. There were a couple of instances where teachers even said it was a punishment to come and felt that they had been selected to join because the heads did not like them! (Course Report, Mombasa 2000) Furthermore, as one course leader put it (Interview 2, 14.06.2011), the teachers come with the expectation that they will be given 'receptions of strategies' and are disconcerted that the facilitators concentrate on developing the CPs' understanding and helping them to reflect on their prior practice and forge a way forward. They also come with preconceived ideas on what in-service programmes are supposed to be and are initially overwhelmed at the rigour and strict discipline (relating to attendance and punctuality) of the programmes.

A course leader who has recently concluded a programme in Dar es salam said, 'In our CEPs, we are trying to change the 'routine' teachers to become 'adaptive' teachers, and this is an uphill task.' (Course Report, Dar es salam 2011) According to him, the routine teacher is one who works mechanically and the focus is on completing of syllabus rather than developing relational understanding of the learners, for these teachers the main objective is to teach to examinations and ensure the 'mean score' looks good. To move these teachers to become more reflective in their practice and be able to adapt their teaching to suit the context and type of learners is not easy and it takes time. It calls for patience on the part of, both, the CPs and the facilitators.

The fact that teachers are poorly paid does not encourage many of them to adopt the methodology which the programme advocates as it is more difficult and needs careful planning for the teachers. A course leader who has worked in Zanzibar explained it thus, 'Teachers are used to teaching through lecture method and view the more interactive teaching approach and the use of resources as time consuming and difficult. We are asking them to move out of their comfort zone, and some of them feel that there is no monetary reward for changing their teaching approach'. It is indeed difficult to inspire teachers to try new strategies when they are so de-motivated due to low financial rewards. Many times, these teachers need to engage in petty trading and private coaching to supplement their low incomes and this leaves them with less time and energy to venture into new strategies.

4.3 Teacher Mobility

Participating in the CEPs makes the teachers more effective and confident in their work and, furthermore, being awarded certificates from a university, makes the teachers more marketable. This has led to 'poaching' of these teachers from the sponsoring schools. A head teacher of a private school in Mombasa said, "Believe it or not, the CEP certificate is a very powerful tool which the teachers have to get better paid jobs." (Shariff and Otienoh, 2003)) Some schools feel that sponsoring their teachers to the CEPs leads to teacher mobility and this defeats the objective of building capacity in the schools. One particular private primary school in Mombasa stopped sending teachers to the CEPs because of teacher mobility after their participation in CEPs. Although this was an unforeseen negative impact of the programme, it is also positive in the sense that teachers and schools are beginning to see the benefits of the programme and , hence, the 'poaching'.

4.4 Lack of Monitoring

There is no structure or mechanism in place to investigate the long term impact of the CEPs. Once the programme is over there is no follow up so it is not possible to know if the teachers sustain their changed practice or go back to their old ways. The only documented monitoring done is in Phase 2 of the CEP when the teachers are trying to implement their new learning and are observed by the course facilitators. However, this field based component is a part of the programme and, therefore, the teachers could be working hard on the implementation to fulfill the requirements of the course. Upon completion of the CEP and certification, there is no real contact with the teachers apart from informal conversations with them when there are chance encounters with them. It would be interesting to have at least one follow up meeting with the CEP graduates a year after completion of the CEP to see how their practice is developing and how they feel about their changing practice. However, there is no funding available to do this monitoring.

4.5 Challenges in Schools

The teachers are exposed to a range of teaching strategies and the one the teachers appreciate very highly is cooperative learning. They go back to school excited and enthusiastic and ready to share their new learning and try out new strategies in their classrooms. After returning to school, the teachers sometimes feel deflated, however, as colleagues assume that they are merely showing off and show a lot of skepticism about whether new ideas can work in the classrooms. Head teachers are also suspicious because these teachers now know more about teaching and learning than the heads themselves. As teachers try to implement cooperative learning in their classes, the bone of contention becomes classroom arrangement and 'noise level'. (Course reports, Nairobi 2008, Mombasa

2000) Cooperative learning requires students to sit in groups and work together. This 'disrupts' the traditional classroom arrangement and, inevitably, when students work together, as opposed to in isolation, there is more discussion/noise. Head teachers and colleagues see this as matters of indiscipline and disorganization. Instead of supporting the teachers' innovative practice, they are very critical and this discourages the teachers from persevering in their attempts at implementing their new learning.

4.6 Logistics and Funding

Since the CEPs are conducted in the East African region in a number of centres – Nairobi, Kisumu, Mombasa, Kampala, Dar es Salaam, Morogoro and Zanzibar - logistics needed to enable the facilitation of the programmes are sometimes formidable. Firstly, venues have to be identified and negotiated for in the various centres where the CEPs are conducted. Secondly, facilitators and materials have to be transported to these centres. Thirdly, staff needs to be identified and engaged to work during the duration of the Phase 1 and 3 of the course (e.g. administration assistant, caterer and cleaner). Furthermore, prior to the planning of the course, a needs analysis has to be carried out with potential participants to help in identifying their needs and plan the programme to meet their needs. All these logistics need to be in place and paid for before a course can begin. Past experience has shown that coordinating CEPs in the various centres from the university which is based in Dar es Salaam is riddled with problems and delays.

Course reports (Kampala, 2008, Kisumu 2009, Morogoro 2010 and 2011) cite issues of materials not arriving on time or not in adequate quantities, delay in payments to facilitators and difficulties at the venue. In some cases, there is a problem with power supply (Zanzibar 2009, Morogoro 2010) and equipment cannot be used. Also due to power failures, the venues become uncomfortable as no lights and fans can be used. However, these problems are beyond the capacity of the university to deal with.

4.7 Location of CPs' Schools

During Phase 2 of the programmes, the facilitators visit the schools of the CPs to observe the CPs teaching. Therefore, the location of the schools is a crucial factor. When the schools are far flung, transport to the schools takes up a lot of time. Again, during the rainy season, some schools become inaccessible (Course Report, Dakawa 2011, Zanzibar 2009). CPs have had to go to other schools to teach their observation lessons (Dakawa 2011) and this is not fair to the CPs and does not give the true picture of the CPs' work. Furthermore, often punctuality becomes a challenge as CPs who live very far away find it difficult to be in time for sessions in the mornings. This becomes an even greater challenge during the

Muslim month of fasting (Ramadhan) when female CPs have to prepare the evening meals at home (Course Report, Zanzibar 2003 , 2009)

5. RECOMMENDATIONS

5.1 Introduction of a monitoring framework

Once the CEP is over, there is no formal contact with the CPs. It is not possible to see whether the teachers sustain their new learning and practice. It would be very useful to do some follow up monitoring to see the impact of the CEP. This monitoring would also enable the programme designers to take feedback from CPs about their perspective on their learning from the course and use it to feed into future programmes. In order for this to happen, after programme monitoring cost needs to be factored into the cost of the programmes. However, it needs to be acknowledged that the financial implications may be a hindering factor for monitoring. The university has tried to sustain the CEP associations which have been set up to provide the teachers with ongoing professional activities, but these have not led to the outcomes hoped for as without university support and presence, they fizzle off. The CPs themselves need to take ownership of the associations and propel them forward.

5.2 More publicity for CEPs

The difficulty with recruiting participants for the programme, suggests that not enough time and effort is spent on sensitising schools about the CEPs. Teachers who come to the programme tell the course leaders that the CEPs are really powerful, valuable and inspiring, however, they did not know of the existence of these programmes before. It would be useful to send some write up on these programmes to schools and a calendar of events to schools so head teachers and teachers become aware of the programmes well ahead of time so that they can plan to participate. More awareness about the programmes can also be created through the local press.

5.3 Research into impact of CEPs

This paper looks at the CEPs and its successes and challenges from the university's viewpoint and from the course leaders' perspectives. It would be useful to get the views of the course participants what the programmes mean to them and what kind of long term impact it has on the teaching and learning in the region of East Africa.

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Appendix 1

Interview Guide for Course leaders

1. How many CEPs have you conducted between 2000 and 2011? Where?
2. How would you describe the CEPs?
3. What are the successes of the CEPs?
4. What are the challenges faced by you and the CPs?
5. Recommendations for improving the CEPs?
6. Any other comments?

Appendix 2

Contest Form

Name of research participant:

Name of researcher: Zeenat Shariff

Title of research: A Decade of Teacher In-service Programmes: Successes and Challenges.

I have been informed about the paper the researcher is working on and am willing to be a participant and share my views on the topic. I understand that the information I share through an interview will be used in a conference presentation and may later be published as a journal article.

I know that my contribution will be sought through an interview which may/may not be audio recorded. I will be able to read the final draft of the conference paper before it is presented.

Signature of research participant

Date

TEACHERS' ATTITUDE TOWARDS HIV AND AIDS INFLUENCES THE IMPLEMENTATION OF HIV AND AIDS EDUCATIONAL PROGRAMME

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Introduction

The acquired Immune Deficiency Syndrome (AIDS) is a group of signs or symptoms of a disease, which is caused by a virus which is known as the Human Immune Deficiency Virus (HIV). When HIV infects a person, it attacks white blood cells that help the body fight off diseases. By attacking and slowly destroying the body's white blood cells, HIV makes a person begin to succumb to various infections which would normally not be a problem when the body's defense system is intact. According to Tuju (1996), HIV corrupts vital body fluids turning blood, semen and even breast milk from being sources of life into instruments of death. HIV and AIDS presents a significant societal threat to both developed and developing nations. World-wide efforts to develop a drug or vaccine to combat this epidemic have been frantic but elusive (NAS COP, 1996). The United Nations Programme on HIV and AIDS (2002) reported the following as some of the key statistics regarding the global HIV and AIDS pandemic: more than 60 million people have been infected with HIV and AIDS since the pandemic began. In 2002 the total number of those living with HIV and AIDS increased to 42 million up by 2 million from 2001.

According to National Aids Control Council (2000), HIV and AIDS is an epidemic occurring in every district of Kenya. It is responsible for the deaths of 1.5 million Kenyans since the early 1980s. These deaths have left behind more than 1 million orphans. About 500 Kenyans die each day from AIDS. Estimates suggest that over 2 million people out of a population of 29 million are infected. The cumulative number of deaths due to AIDS may rise to 2.6 million by the end of 2005 (NACC, 2000).

The World Health Organization (1994) best summarized the uniqueness of AIDS as one that has no known cure or vaccine to control it. "HIV is spread through modes at the core of human sexuality, which is shrewd in mystery and secrecy, making it difficult for health intervention measures. Due to long incubation of the disease (like 10 years) before symptoms are apparent, this leads unwittingly wide scale infection. At the same time, the disease is highly stigmatized in the society."

From 1981 when the first case of AIDS was reported in United States of America among gay community, Centre for Disease Control (1981) the AIDS has had unprecedented manifestation that has shaken the very survival of mankind (Pratt, 1988). Since no known cure or vaccine to combat the scourge has been discovered AIDS education managerial efforts both at national and international level have focused on informing and educating people about the disease (WHO, 1995). Aiken (1997) and the WHO (1995) also states that "in the absence at present of a vaccine or cure for HIV and AIDS, the single important component of National AIDS programmes is information because its transmission can be prevented through informed and responsible behavior." However, the number and infection rate globally of HIV and AIDS has increased since the response in many countries has been inadequate (UNESCO, 2000).

One of the major impediments in management of the scourge has been misplaced attitude towards the disease. In United States of America (UNESCO, 2002), it is associated with gay men while in Africa, East Europe and South East Asia, it is associated with prostitutes. This indicates that misplaced attitudes toward HIV and AIDS are one of the managerial obstacles that influence the implementation of HIV and AIDS related programmes.

HIV and AIDS managerial obstacles can also be seen in some of the techniques used to fight it. Malawi and Zambia for example concentrate on providing facts about HIV and AIDS transmission and ignore other fronts of fighting the scourge. This kind of situation was also experienced in the Kenya National Development Plan (1994-1996) that states that some of the government policies on the management of HIV and AIDS are that HIV and AIDS awareness will help people make informed decisions in adopting lifestyle that slow the spread of HIV and AIDS. In the absence of a vaccine or cure, health education is the next option.

Consequently, information on the nature of disease, its modes of transmission, symptoms, testing and prevention was disseminated through posters, pamphlets, books and in the electronic media. Public institutions like schools, colleges, universities, churches and hospitals became avenues of HIV and AIDS health information (MOE, 2001). The health programmes were premised on the theory of reasoned Action and Health Relief Model,

(Resenstock, 1966). The inherent assumption of these models is that individual human pride and adventures are restrained when faced with a threat to health (Agglestone Homas and Mossa, 1989). Behaviour change is dependent on the extent an individual perceives risks of contracting disease, its severity, degree of exposure to information and convenience that preventive measures have more rewards than costs.

The fact that adolescent age group is among the most vulnerable group have been supported in several studies. Secondary school age group falls in this category. This group has been identified as the most vulnerable. This implies that there is an urgent need to address the management of HIV and AIDS education programme in secondary schools. The HIV and AIDS syllabus for secondary schools was launched in Kenya in 1999. It was to be taught as a subject on its own or be integrated with other subjects, (Ikiara, 2001). However, a case study at the Coast Province of Kenya revealed that some teaching techniques used to teach HIV and AIDS have failed. This is due to the managerial problems influencing the implementation of HIV and AIDS education programme.

Managerial factors influencing HIV and AIDS programme can be found in the attitude towards HIV and AIDS education programme. Importance attached to these programmes is questioned due to the fact that it is not handled in the same way as other curriculum subjects. This is due to fact that HIV and AIDS awareness information has mainly been disseminated through non governmental organization (NACC, 2002). In most cases they liaise with guidance and counseling teachers, school heads or both to teach secondary school students on HIV and AIDS programme. Roeber and Crickson (1995) states that any service towards school whether related to maintenance of school facilities or services to supplement regular classroom instruction requires full support of headteacher and other high ranking education managers. Without their approval and continued support, any initiative to manage HIV and AIDS education programme will “Wither on the vine” because the students and teachers would not like to be at loggerheads with the administration.

Headteacher in secondary schools bear the ultimate responsibility of overall management of schools and for maintenance of the tone all – round standards. They are particularly charged with great responsibility of fostering the right atmosphere for child growth and development (Mbiti, 1974), headteachers may delegate but it is their responsibility to see to it that both academic and co-curricular programmes succeed.

Secondary school managers (heads) have to know how to change the attitudes of teachers involved with teaching about HIV and AIDS by ensuring that the resultant stigmatization that the sufferers of the disease encounter is addressed. This therefore means that if the secondary schools are effectively to be used in impacting relevant knowledge in fighting HIV

and AIDS, the management problem identified must be addressed. Waihenya (2001) reports that laxity among school inspectors may slow down the HIV and AIDS campaign. School inspectors and school head have to be at it if the fight is to succeed.

Kimengi (1983), in his study on Kenya secondary school teachers' attitudes towards teaching and their job satisfaction stated that teachers were not satisfied with supervision they received from headteachers. This needs to be addressed if the school managers/heads have to implement the HIV and AIDS education programme. Teacher must have the confidence with their supervisors. Head teachers in turn must be fully equipped with relevant skills in this case; knowledge and management of HIV and AIDS education programme.

Kamau (2001) reports that male teachers were not willing to be taught about HIV and AIDS by a woman. This implies that the schoolheads need to know the impact of duty allocation in order to achieve desired goals. Related to this is what Mbiti (1974) asserts that headteachers must chart out their course with the student at the centre of all learning experiences.

Thika has been one of the leading districts with HIV and AIDS infection cases. Most infection occurs within the bracket of secondary school students' age group. If the problem is to be tackled, the school management must be at the centre of programmes aimed to stem the spread of disease. Thika District Development Plan (1997-2001), indicated that there were 368 HIV and AIDS cases out of 637 patients screened in year 1993. On the other hand, Thika District development Plan (2002-2008) states that HIV and AIDS prevalence in the District stands at 34%, the highest in Central Province. The implication is that out of the district total population of 170,664 in 2002, about 238, 565 people are HIV positive. This makes the HIV and AIDS hospital bed occupancy to be 60%.

Most of those infected are between the ages of 20-49 years. The education sector has been badly affected with HIV prevalence rate being 17% amongst primary school children and 22% amongst secondary school students. To manage the scourge, all stakeholders including education institution, private sectors have a mandate to intensify the campaign against the spread of AIDS and HIV since there is no cure. However with HIV and AIDS awareness in the district standing at 95% prevalence still high, the challenge that faces the district is to translate the awareness into practice so that the rate of prevalence is reduced. (Thika District Dev. Plan, 2002-2008).

Objective

- To investigate if the availability of funds and facilities influences the implementation of secondary schools HIV and AIDS education programme.

- To find out if the availability of personnel for the secondary school HIV and AIDS educational programme influences its implementation.
- To find out if the attitude towards HIV and AIDS influences the implementation of the HIV and AIDS educational programme.
- To establish whether HIV and AIDS education should be made an examinable subject.
- To determine if those involved in education especially headteachers and teachers should be made aware of the importance of HIV and AIDS education programme.

Methodology:

Questionnaire Return Rate:

Two questionnaires were used in collection of data. These were secondary headteacher and teachers questionnaires. In each case, the total was 79. Only 56 headteacher questionnaires were returned duly filled. This was 70 percent return rate. From the teachers 75, duly filled questionnaires were given back. This formed 94 percent return rate.

Conclusion

The study explored three areas related to HIV and AIDS education programme of secondary schools in Thika District. The purpose of this study was to investigate the managerial factors influencing the implementation of HIV and AIDS education programme in secondary school. Data was collected from secondary school managers and the teachers in charge of this programme. Data was analysed using descriptive statistics.

The results showed that inadequate funds and facilities (resources) were the main obstacles to the HIV and AIDS education programme. Lack of specific trained personnel for the HIV and AIDS programme had some important influence on the implementation of the programme. The attitudes of headteachers and teachers towards the scourge and the programme also influenced the implementation of this programme.

From the research carried out, it was also noted that some teachers had personal interest to teach the HIV and AIDS education programme. However they were unable to pursue this interest effectively due to the obstacles influencing the implementation of the programme. Some of these obstacles are insufficient of funds and facilities, general negative attitude towards the programme by learners and administrators, lack of enough teaching materials, insufficient time for implementation of the programmes, inadequate training and experiences among others.

Results

Biodata of Respondents:

Gender

There were 30 male comprising (56%) and 26 females (46%). This showed there were more males than female headteachers in Thika District.

Academic qualifications of headteachers

Most of the respondents were Bachelor of Education graduates forming 63 % (35). The headteachers with Master of Education were 10 (18%), 10 (18%) had KACE and only one (2%) had KCSE.

Professional qualifications of headteachers

Majority of the principals 63% (35) were qualified with Bachelor of Education, 10 (18%) had a Master in Education, 10 (18%) approved graduate teachers and only one (1%) had Diploma in Education.

Problems of personnel

The findings revealed that there is lack of enough HIV and AIDS education personnel. This is a real managerial obstacle that badly influences the implementation of the HIV and AIDS education programme. This is true for there is no programme that can succeed without enough qualified personnel.

Headteachers' view

Though in a minor way, the attitude towards the HIV and AIDS education is another problem that influences the implementation of this programme. This problem and the other two discussed above could be some of the major managerial factors influencing the implementation of the HIV and AIDS education programme. As the headteachers indicated there is a need to look for a solution if this programme is to succeed.

Headteachers' recommendations

The headteachers therefore suggested ways in which the major problem of HIV and AIDS education programme can be solved. By so doing they cited training of teachers as the main solution (34.4%). Other suggestions were financial assistance (16.1%), provision of teaching materials (10.8%) making the subject examinable (10.8). These would improve the implementation of HIV and AIDS education programme.

Teachers' demographic information

Age:

The teachers were asked to indicate their age and the youngest schoolteacher was 24 years of age while the oldest was 54 years of age. The mean age was 35 years.

Gender of the teachers' incharge of HIV and AIDS education

A total of 36 male teachers which formed 48.0% filled the questionnaires and 39 female teachers comprising 52.0% did the same.

Academic qualifications of the teachers

Majority of the teachers were graduates. They formed 79% (59), those with Masters degree were five (7%) and KACE were 12.0% (9) while those with KCSE qualification were two forming 2%. This implies that most of the teachers incharge of HIV and AIDS education programme were academically qualified.

Professional qualification

Only five (7%) of the teachers respondents had master degree of education. Majority had bachelor of education and they were 51 forming 68.0%, those with diploma in education were 6 (8%), Approved graduate teachers were 7 (9%) while S1 teachers were 2 (3%). The teachers incharge of HIV and AIDS education programme with Bachelor of science were 4 (5%)

Teachers' experience

Majority of the teachers (85%) had been teaching HIV and AIDS for 1-5 years. 8% had taught 6 to 10 years and those who had taught for more than 10 years comprised 7%. Out of 75 teachers 58 have been teaching HIV and AIDS education teachers, with a mean of 3 years of teaching, a maximum of 15 years and a minimum of 1 year of teaching experience. The longest time a teacher has been in that particular school was 18 years, shortest time being 1 year and a mean of 3 years.

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