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IMPROVING STUDENT TEACHING FOR QUALITY TEACHER PREPARATION: A KENYAN UNIVERSITY CASE

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Abstract

This study on teaching practice experience was conducted at a Kenyan University by researchers from both the USA and Kenya through a partnership project to build capacity through quality teacher preparation. The portion of this study presented here used survey techniques and specifically addressed the student teachers' perspectives on the preparation processes, and ability to plan, instruct and use feedback to improve instruction in teaching practice. Stratified sampling of student teachers (n=360) and supervisor (n=240) was used. The student teacher questionnaire covered several educational components such, as professionalism, lesson material preparation, content knowledge, teaching performance skills, and reflection based on classroom observation feedback. The major findings were student teachers inability to integrate Information Communication Technology (ICT) in teaching, a gap in the teacher education curriculum on the role of ICT in teacher education, and lack of supportive supervisory feedback to the teacher candidates during teaching practice. The study recommends mapping of teacher education courses to ensure that ICT and expert feedback are covered before teaching practice by offering coursework on modern accessible ICT and facilitating rigorous microteaching experiences. Also,

programs should train enough teaching practice supervisors, strategically plan school placements, and ensure timely posting of student teachers.
Keywords: Kenya Education, East Africa Education, Student Teaching, Teaching Practice, Teacher Preparation.

Introduction

In teacher preparation, educational accrediting bodies identify specific standards by which teacher performance is evaluated (Kenya Ministry of Education, 2013; Council for the Accreditation of Educator Preparation [CAEP], 2013). In Kenya these standards are part of the quality assurance standards as established by Kenya's Ministry of Education. While most teacher education programs focus on equipping the student teacher to meet these standards, the degree of how well prepared the teacher candidates are upon graduation is unclear.

One of the required accrediting standards is for the student teacher to intern or practice. CAEP (2013) notes, "the provider ensures that effective partnerships and high-quality clinical practice are central to preparation" (p. 6). Internship is an important component of any professional training since it provides the opportunity to translate theory into practice (Glickman & Bey, 1990; Mclntyre, Byrd, & Fox, 1996). In fact, internships have been compared to apprenticeship when making the case for increased professionalization of teacher preparation (Darling-Hammond, 2012). Such steps in the professionalization of the teacher preparation requires creating a comprehensive system of teacher development that encompasses not only rigorous standards and assessments but also rigorous support mechanism for novice teachers entering the teaching career. It is important for beginners to have systematic, intense mentoring in the early years of the profession. Most research has addressed the mentoring that occurs during the first years upon entering the teaching profession. However the need for such support needs to start during the pre-service year(s). Having weekly support and in-classroom coaching in the first year for fine-tuning skills, for planning lessons, and for problem solving about things that come up in the classroom ensures that someone experienced is there during the critical moments of the beginning teacher's first year. About three-fourths of new teachers report that they have participated in an induction program and have had a mentor teacher assigned to them (Wei, Darling-Hammond, & Adamson, 2010). In pre-service teacher preparation, the internship is normally in form of teaching practice (TP). During TP, the student teacher is obligated to prepare and teach lessons in a classroom setting. At this time, student teacher is observed and given feedback on lesson planning and teaching by a supervisor. The TP process is there both a mentoring and evaluative stage of teacher development. The significance of mentoring for beginning teachers has been gaining wide recognition in developed countries (Pungur, 2007), but is still at a formative stage in developing countries. Attention continues to focus on teachers as a key factor in educational reform and on their need for on-going improvement and support, so teacher mentoring becomes a viable option in education policy.

Student teacher's performance is assessed on various skills such as the ability to:

- Create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation.
- Create learning experiences that make the subject matter meaningful to students.

- Use a variety of instructional strategies to encourage students' development of critical thinking, problem solving and performance skills.
- Plan instruction based upon knowledge of subject matter, students, and curriculum goals.
- Use effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.
- Provide learning opportunities that support students' intellectual, social, and personal development.
- Create instructional opportunities that are adapted to diverse learners.
- Use formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social, and physical development of learners.
- Integrate Information Communication Technology (ICT) in teaching.

The student teacher's effectiveness on these skills during the TP experience can be impacted by a variety of factors. In addition to the more documented aspects such as content knowledge (Brousseau, 1987) and student teacher beliefs and values (Twigg, 2010) , a student teacher's performance in TP is mostly affected by the quality of the preparation education courses take prior to the TP experience and the supervision and feedback that the student teacher receives. Other influencing factors may include: (a) how the teaching practice process is managed; (b) the structure of the teaching practice; and (c) the relationships that the student teacher develops with other school personnel (Beck, 2002; Wyss, Siebert & Dowling, 2012). There are a myriad of challenges that affect the quality of TP, but herein, we have discussed some issues namely disconnect between coursework and actual classroom performance, large TP student teacher enrollments, quality of supervision and placement, and mentoring by the cooperating teachers.

Problem

Many African universities typically experience very large enrollments in teacher education programs. Thus the TP exercise is faced with many structural problems, mainly placement, financing of the TP exercise, and supervision. In Kenya for example, there has been massive expansion of various local universities dealing with teacher education program with huge student enrolments, which exert pressures to both human and physical resources and are bound to lower the quality of teacher preparation.

According to a survey carried out by Kenyatta University in July 2012 as part of the baseline data for the *Capacity Building through Teacher Education Project* supported by the Higher Education for Development (HED) and USAID, the number of universities offering education degrees has increased from four national universities (Kenyatta University, University of Nairobi, Moi University, and Egerton University) to thirty-six universities and constituent colleges (not counting private universities) in the last 10 years. An overwhelming 800% increase of student teachers with minimal increment in school placements and experienced supervisors to go around! The new universities and university colleges have to share supervisors who originally were very able to handle few student teachers in the four national universities.

The current state of affairs shows that there are not enough supervisors with expertise and skills to carry out effective TP supervisory roles. For example, in 2011 Kenyatta University sent 2,975

students for teaching practice, which is an insurmountable number of student teachers to be supervised by a limited number of supervisors. The data for these students completing the TP exercise showed that while they were supposed to be observed and assessed a minimum of six times, they were only supervised once or twice. Special content areas like foreign language have few supervisors' forcing them to travel long distances to offer their expert feedback to student teachers. These large enrollments lead to compromised excellence and expectations. Debriefing and feedback discussion of observed lessons by the supervisors has become a rare feature of TP given that a supervisor has to observe many student teachers that also happen to be in different schools that are not of close proximity to each other. This forces the supervisor to exit quickly to supervise other student teachers without providing the appropriate support to the observed student teacher.

Placement of student teachers is another challenge facing African universities, given the large number of students to be placed at school across broad geographic areas, usually the entire nation. Thus the location of a school could be urban, suburban, or rural. There exists an unhealthy stigma regarding rural localities. Mukeredzi and Mandrona (2013) looked at opportunities and challenges experienced by undergraduate student teachers posted in the schools within the rural locations. One of their findings was that student teachers felt that the cooperating teachers "offloaded" their responsibilities to them. Secondly, school administrators often request student teachers depending on the staffing needs of their schools. This means that a student teacher ends up in a school that does not have expert host teacher in the student teacher's appropriate subject area. Thirdly, in understaffed schools, some cooperating teachers feel relieved by the incoming student teacher and therefore may not look into his/her lesson preparation nor observe its execution.

Purpose of the Study

Our research study focused on both pedagogical and structural issues associated with the goal of identifying the areas that can be reformed to improve TPs' quality. But in this paper we only dwell on the pedagogical TP issues regarding how the student teacher felt prepared, was able to apply theories learned in a classroom situation and perceived usefulness of feedback provided by the cooperating teacher, head of department, and the university supervisors.

Research Questions

1. To what extent does the teacher preparation program equip student teachers for their teaching performance expectations?
2. How adequately were the student teachers prepared to employ the learned abilities and skills when delivering content in the classroom?
3. To what extent did student teachers value the feedback given to them by the mentor teachers, school administration and TP supervisors? And
4. What were the challenges experienced during the TP exercise?

Methodology

Sampling. Survey data was collected during the student teaching semester in June, July, and August of 2012 in Kenya from the participating university. The school placements were spread all over the country. At this time, the country had eight geographical provinces with a total of forty-seven districts. During this summer semester the TP administrators, subdivided the entire

school placements into 30 TP zones. Each zone was assigned a faculty to serve as its area coordinator.

Strategic sampling was used to identify the zones and schools for data collection. A third of the TP zones were selected leading to 10 zonal areas for this study. In each area, six schools were selected. The distribution of the schools in each TP area was as follows, a national school; a provincial boys' school; a provincial girls' school; a district boys' school; a district girls' school, and a private school. Table 1 below summarizes the sampling grid for one of the TP zone. For each school 6 student teachers were selected. In addition, 4 cooperating teachers and/or Heads of Departments were selected; the school principal was interviewed, and the area supervisor for each area was interviewed too.

Table 1: Sampling grid for one of the TP zone

School Type	**Number of Student teachers**	**Number of Cooperating Teachers/ Head of Department**	**Principals**	**Area Supervisor**
National	6	4	1	1
Provincial Girls	6	4	1	
Provincial Boys	6	4	1	
District Girls	6	4	1	
District Boys	6	4	1	
Private	6	4	1	
TOTAL	**36**	**24**	**6**	**1**

Table 2 summarizes the total sample for all the selected 10 TP zones (10 out of 30 zones were sampled).

Table 2: Total sample grid for the whole TP research.

TP Zone	**No. Schools**	**TP students**	**Cooperating Teachers/ HoDs**	**Area Supervisors**
Nairobi East	6	36	24	1
Nairobi West	6	36	24	1
Kiambu	6	36	24	1
Muranga/ Nyeri	6	36	24	1
Kakamega/ Vihiga	6	36	24	1
Bungoma/ Busia	6	36	24	1
Kisii Area	6	36	24	1
Nyamira Area	6	36	24	1
Mombasa Malindi A	6	36	24	1
Mombasa Malindi B	6	36	24	1
Total	**60**	**360**	**240**	**10**

Instruments. A survey questionnaire was developed for collecting data from the student teachers. The first item dealt with biographic data about the participants including gender, teaching subject areas and type of school where the student teacher was placed. The second, third and fourth sections of the questionnaire focused on a self-evaluation of a range of pedagogical related aspects of teaching based on a 5-point Likert scale questionnaire. For the same range of pedagogical aspects, the student teachers were asked to evaluate how well the teacher education program prepared them in acquiring these skills, the extent to which they were able to apply these skills during their student teaching practice and the extent to which the mentoring and evaluation feedback from their supervisors enhanced their ability to apply these skills in teaching.

A different survey questionnaire was given to cooperating teacher and the Head of Department (HoD). In many cases, the cooperating teacher was also the HoD. The questions in this survey focused on the same pedagogical aspects addressed in the student teacher questionnaire but asked the cooperating teachers and HoDs to indicate the extent to which the student teacher was able to apply these pedagogical skills in their teaching. The survey also included other information such as the frequency of observations they conducted with their student teachers.

The other two instrument used in data collection were interview schedules for the principal and for the area supervisor. The principal interview schedule was on their views about the university's TP program and about the university student teachers at their school. The area supervisor interview schedule covered the number of student teachers in the area, the role of area supervisor, the challenges faced and the strategies adopted to address these challenges. The questionnaire items were selected directly from the pedagogical elements that TP seeks to assess as indicators of teaching performance by the teacher candidates. As such, the validity of the instruments was assumed since the instruments were directly matched with the performance assessment items. The instruments were tested for reliability on a class section of students in the second year of study at the university.

Data Collection. In each school a researcher a) administered TP students questionnaires to all student teachers at the school; b) administered the questionnaire to 4 Cooperating teachers/ Heads of Department (1 Mathematics, 1 Sciences, 1 Languages and 1Social studies); and c) interviewed the principal. The researcher also interviewed the TP area supervisor as shown in Table 1. The questionnaires were completed by paper and pencil by the respondents while the interviews were audiotaped and later transcribed.

Data Analysis. The data were synthesized using *Survey Monkey.* The descriptive statistics were generated and qualitative data grouped by question for further analysis. The student responses provided information on, (1) on the extent to which they were well prepared to with teaching skills; (2) to apply the skills; and (3) usefulness of the feedback from supervisors. These responses were compared to identify areas with high percentage scores versus lower percentage scores. This was a self-rating survey. The scores on the highest level of the Likert's scale were considered "very good" on the scale. Percentage scores above 50% were considered as areas of positive performance, while areas below 50% were considered as areas of weakness. The qualitative data from the interviews and additional comments were read and re-read by the research team members to identify common themes.

Findings from Quantitative Data

Perceptions of how education program prepared student teacher for TP. The percentage of student teachers who checked the "very good" rating scale were generated as seen in Table 3 regarding the self-rating of how the teacher education program prepared the student teachers on the various pedagogical aspects of TP. Scores below 50% are highlighted in bold font. The student teachers felt adequately prepared in 5 out of the 11 pedagogical areas surveyed. The areas where there was satisfaction on how well they are prepared include: creating a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation (66.7%); create learning experiences that make the subject matter meaningful to students (59.1%); fostering relationships with school colleagues, parents, and agencies in the larger community to support students' learning and well-being (58.7%); using a variety of instructional strategies to encourage students' development of critical thinking, problem solving and performance skills (56.6%); and planning instruction based upon knowledge of subject matter, students, and curriculum goals (56.0%).

Table 3: Student teacher perceptions on how well prepared they were for teaching practice.

Teaching Performance Aspect	Extent of Preparedness (n= 177)
Create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation.	66.7 %
Create learning experiences that make the subject matter meaningful to students	59.1 %
To foster relationships with school colleagues, parents, and agencies in the larger community to support students' learning and well-being.	58.7 %
Use a variety of instructional strategies to encourage students' development of critical thinking, problem solving and performance skills.	56.6 %
Plan instruction based upon knowledge of subject matter, students, and curriculum goals.	56.0 %
To be a reflective practitioner who continually evaluates the effects of his/her choices and actions on others (students, parents, and other stakeholders in the learning community) and who actively seeks out opportunities to grow professionally	**49.7%**
Use effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.	**46.9%**
Provide learning opportunities that support students' intellectual, social, and personal development	**45.8%**
Create instructional opportunities that are adapted to diverse learners.	**44.6%**
Use formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social, and physical development of learners.	**44.0%**
Integrate ICT in my teaching.	**15.4%**

The areas where the student teachers perception were low include: the ability to integrate ICT in teaching (15.4%); the use of formal and informal assessment strategies to evaluate and ensure continuous intellectual, social, and physical development of learners (44.0%); the creating of

instructional opportunities that are adapted to diverse learners (44.6%); the planning of learning opportunities that support students' intellectual, social, and personal development (45.8%); the use of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom (46.9%); being a reflective practitioner who continually evaluates the effects of his/her choices and actions on others (students, parents, and other stakeholders in the learning community) and one who actively seeks out opportunities to grow professionally (49.7%).

Perceptions of how student teachers applied theory during TP. On the self-rating of the ability to implement various teaching and learning strategies in their TP, the percentage of student teachers rating the preparation as "very good" were generated as shown in Table 4. On the same list of pedagogical aspects, student teachers ratings show that they were very able to apply all these skills during their teaching practice except in the area of ICT integration in teaching (20.9%).

Table 4: Student teacher perceptions: how well they were able to apply learned skills during TP.

Teaching Performance Aspect	The ability to implement (n=177)
To foster relationships with school colleagues, parents, and agencies in the larger community to support students' learning and well being.	70.1 %
Create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation.	67.8 %
Create learning experiences that make the subject matter meaningful to students	62.7 %
Use effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.	61.6 %
Provide learning opportunities that support students' intellectual, social, and personal development	58.8 %
Plan instruction based upon knowledge of subject matter, students, and curriculum goals.	58.5 %
To be a reflective practitioner who continually evaluates the effects of his/her choices and actions on others (students, parents, and other stakeholders in the learning community) and who actively seeks out opportunities to grow professionally	57.1 %
Use a variety of instructional strategies to encourage students' development of critical thinking, problem solving and performance skills.	55.4 %
Use formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social, and physical development of learners.	53.1 %
Create instructional opportunities that are adapted to diverse learners.	52.1 %
Integrate ICT in my teaching.	**20.9 %**

Perceptions of effectiveness of feedback from cooperating teachers/HoDs. Table 5 is data generated from the self-rating regarding the extent to which the cooperating teachers and/or

HoDs evaluation and feedback enhanced the student teachers' ability to perform on the various pedagogical aspects of TP. The data shows that the teacher candidates found the feedback to be useful in enhancing their abilities on all of the pedagogical aspects of teaching except in three areas. One of the areas where the feedback was found not to be useful was the ability to be a reflective practitioner who continually evaluates the effects of his/her choices and actions on others i.e. students, parents, and other stakeholders in the learning community, and who actively seeks out opportunities to grow professionally (49.4%).

Table 5: Student teacher perceptions effectiveness of cooperating teacher and HoD feedback.

Teaching Performance Aspect	CT/HoD: feedback effectiveness (n=177)
Plan instruction based upon knowledge of subject matter, students, and curriculum goals.	63.8 %
Use effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.	61.1 %
Create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation.	61.0%
Create learning experiences that make the subject matter meaningful to students	60.0 %
Use a variety of instructional strategies to encourage students' development of critical thinking, problem solving and performance skills.	59.1 %
Create instructional opportunities that are adapted to diverse learners.	58.1 %
Provide learning opportunities that support students' intellectual, social, and personal development	57.8 %
To foster relationships with school colleagues, parents, and agencies in the larger community to support students' learning and well-being.	52.0 %
To be a reflective practitioner who continually evaluates the effects of his/her choices and actions on others (students, parents, and other stakeholders in the learning community) and who actively seeks out opportunities to grow professionally	**49.4 %**
Use formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social, and physical development of learners.	**46.6 %**
Integrate ICT in my teaching.	**17.0 %**

A second unhelpful feedback was the use of formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social, and physical development of learners (46.6%). The feedback on ICT integration in teaching was the least useful (17.0%).

Perceptions of effectiveness of feedback from university supervisor. Student teachers ratings on the effectiveness of feedback from university supervisor are in Table 6. The same three areas of

unhelpful feedback from cooperating teacher/HoD are also noted with the university supervisor's data.

Table 6: Student teacher perceptions: effectiveness of university supervisor's feedback.

Teaching Performance Aspect	**US: feedback effectiveness (n=177)**
To foster relationships with school colleagues, parents, and agencies in the larger community to support students' learning and well-being.	59.6 %
Provide learning opportunities that support students' intellectual, social, and personal development	58.0 %
Create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation.	57.1 %
Plan instruction based upon knowledge of subject matter, students, and curriculum goals.	56.0 %
Create learning experiences that make the subject matter meaningful to students	52.0 %
use a variety of instructional strategies to encourage students' development of critical thinking, problem solving and performance skills.	52.0 %
Create instructional opportunities that are adapted to diverse learners.	51.2 %
Use effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.	50.9 %
To be a reflective practitioner who continually evaluates the effects of his/her choices and actions on others (students, parents, and other stakeholders in the learning community) and who actively seeks out opportunities to grow professionally	**47.1 %**
Use formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social, and physical development of learners.	**45.6 %**
Integrate ICT in my teaching.	**17.9 %**

Comparisons of TP teaching performance from Tables 3, 4, 5, and 6, consistently show low ratings for ICT integration. Another area with consistently low rating is the use of formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social, and physical development of learners.

Findings from Qualitative Data

In addition to the surveys ratings data, the student teachers were asked open-ended questions about other aspects of TP that they would like to see improved. Data from these responses were categorized into the following themes: resources, teaching methods, ICT, supervision, feedback and overall TP exercise. Two of these themes, ICT and supervision, are discussed below given the quantitative data are consistent with the qualitative data from interviews.

Information and Communication Technology (ICT). The student teachers consistently cited ICT as an area they would like to see improved in their teacher education program. They suggest

that ICT be made a course requirement that must be taken before being cleared for the TP exercise. One student stated:

> The institution should encompass more ICT integration in TP training and provide material to facilitate improving the ICT in learning.

The student teachers also reported the need for ICT services to be open to all students and not just to a selected group of students, i.e. those participating on grant projects, students teaching math and science subjects. The student teachers called for opportunities to practice ICT skill, a student stated:

> Students should be given opportunity to have an experience in PowerPoint presentation, not just learning about it verbally as this brought us challenges in the school where we had our teaching practice, since it has the facility but we lacked the knowledge.

Other student teachers pointed to the need for subject specific technology support:

> Student teachers should be equipped with the ICT knowledge in order to apply it effectively in their teaching i.e. the teaching of field work in Literature and other disciplines such as Geography requires a lot of ICT.

It is evident from the student observations that they recognize the need and the potential the ICT has to their teaching.

Supervision. The student teachers cited a number of challenges they experienced during TP that were connected to supervision. First issue was the fact that supervisors are assigned by region rather than by subject area. Several student teachers pointed to the need to have supervisors who teach the subject areas they supervised, for example a student teacher stated:

> Lecturers [University supervisors] should be familiar with the subjects he or she is supposed to supervise. Subject experts should be used preferentially for assessment.

Second issue dealt with frequency of the university supervisor's visits. Several respondents pointed to "Frequent supervision of the student teacher" and "the assessors [referring to university supervisors] should visit or see the students as many times as possible." The third issue was about the communication between the university supervisors, the student teachers and the school personnel. Some noted on the need for supervisors to let the student teachers know about when they will be observed, a representative quote was, "The supervisors are supposed to inform student-teachers earlier in advance and not impromptu visits since most of us become tensed." Similar remarks, such as the excerpt below, pointed to communications between area coordinators, supervisors and the student teachers:

> Also communications with the school administrators because the school programs are not fixed but sometimes flexible. That is they are affected by some extra activities like AGM [Annual General Meetings], staff meetings and curriculum activities.

Lastly, several student teachers called for observation by external supervisors. Such comments included:

> Apart from internal supervisors, external supervisors should be encouraged (motivated)
>
> Introduce the use of external examiners during supervision
>
> External supervisors should be involve in supervision.

Discussion and Recommendations

Student Teacher's Preparedness for Teaching. The most critical area that needs to be address in the teacher education program is the integration of ICT in teaching and learning. A number of issues arise from the data with regard to preparation in ICT. It is evident that the student teachers have little or no preparation on ICT integration. There are also no clear expectations for student teachers to integrate ICT during TP. Given the increasing influence that technology has on teaching and learning today, it is critical that this issue is given utmost consideration as part of the teacher education program.

Many African governments identify the ability to use ICT as being critical to the general society and in job markets. Little attention is paid on equipping student teachers with ICT skills since these resources are lacking or inadequate. Clearly then the graduating student teacher will not be sufficiently prepared for the teaching and learning. A survey study by Udeani and Ejikeme (2011) noted, "inadequate preparation in the use of ICT for teaching was recorded for the teachers … [yet] ICTs are having a huge impact on everyday classroom activities … The obvious implication … is that teacher preparation programs must equip teachers with ICT skills needed for knowledge creation and dissemination" (p. 535).

In an investigation of models for preservice teachers' use of technology to support student-centered learning, Chen (2009) found a disconnection between what students' technological learning needs were and the teachers' readiness to support them. This study recommended that teacher education programs need to adequately prepare and empower future educators to become active members of 21st century for teaching and learning.

Any consideration on how to make ICT part of the teacher education program needs to consider that the concept of technological pedagogical content knowledge (TPACK) which has emerged over the last decade. The TPACK framework builds on Shulman (1986 and 1987) conception of pedagogical content knowledge, by explicitly integrating the component of technological knowledge into the model. The framework includes three core categories of knowledge: pedagogical knowledge, content knowledge, and technological knowledge. The TPACK framework proposes that combining these three core types of knowledge results in four

additional types of knowledge including technological pedagogical content knowledge as a part of the model (Akarasriworn & Ku, 2010; Mishra & Koehler, 2006). Apart from teaching about technology integration, teacher education faculty need to model current appropriate technologies in their own classrooms and offer hands-on task so that student teachers not only learn about technology integration but also experience it in their own learning.

The student teachers' high ratings on their ability to perform on the various pedagogical aspects of teaching may indicate the degree of confidence they carry to the field from their coursework. While the rating on how they feel prepared is low, the rating on their ability to perform is much higher. This could be attributed to the fact they were completing these surveys during student teaching, a time when they are also faced with the stress of being evaluated on their performance. It is therefore possible that they want to position themselves as performing strongly, while at the same time pointing to a lack of preparedness in the event that they are thought not to be performing well. The areas of well preparedness are closely tied to the ability to create meaningful leaning environments for students in general. These areas include planning for instruction and engaging students in active learning.

The student teachers felt they were not well prepared in more than half of the teaching performance expectation areas. The areas with low self-ratings are of significance. The areas with low rating on preparedness and ability to teach cut across a range of teaching performance aspects. Because these aspects are taught in general education courses, student teachers may be failing to see how they apply directly to their TP classroom during student teaching.

We recommend a curriculum mapping exercise in which all the student teacher performance expectations are mapped against the teacher education classes. Such reviews of the curricula beyond the pedagogy specific courses need to be carried out to evaluate how well these courses align with the identified areas. Questions need to be asked of particular courses where the student teachers are learning for example, how to reflect on practice as well as strategies they are provided to enable this review to occur. Periodic review of the curriculum is also necessary to ensure that the courses are up to date with the current research on issues of teaching, learning and teacher preparation. Without such a careful correlation between coursework and student teaching, teacher candidates may be taking a many courses where they learn things in the abstract and then tend to forget or not know how to apply much of what they learned by the time they are actually in a classroom. The practices in their student teaching classroom might not resemble those described in their courses. That antiquated, fragmented program is becoming a thing of the past (Scherer, 2012). Many teacher education programs have changed so that they offer strong clinical experience connected to coursework. Many also have strengthened their preparation for curriculum development, assessment, and differentiated instruction.

We know that teachers who are fully prepared stay in teaching at much higher rates than those who lack key elements of preparation. Those who have done student teaching are less than half as likely to leave after the first year as those who have not student taught. Those who have had coaching, been observed in their classrooms, and seen other people teach are less than half as likely to leave within the first year. Those who have had a chance to study child development, learning, and curriculum are less than half as likely to leave as those who have not had those

opportunities (Darling-Hammond, 2003). Being in the classroom of an effective mentor teacher for a long enough period of time, with graduated responsibilities, has a huge impact as well as a carefully managed student teaching placement.

Another area of the curriculum that needs addressing in the education classes is how to handle students with diverse needs. It is important for student teachers to develop skills of supporting all learners in their classrooms, because they are often placed in schools where the host teacher does not provide much needed guidance. Mukeredzi and Mandrona (2013) propose that teacher preparatory programs should include a course that covers student teachers' ability to persevere, and have "resilience, stress management and most importantly creativity and flexibility" (p. 151), and such a course is to be taken before the TP exercise.

Issues related to Supervision. According to the participant's Student Handbook, student teachers are initially to be observed by the pedagogy faculty to examine the student teachers' schemes of work and lesson plans before they start teaching and be supervised at least six times, that is a minimum of three observations per teaching subject (major and minor). The grade given at the end of teaching practice becomes part of the student teacher's classification. This structure faces a number of challenges when it comes to the actual assignment of supervisors during TP. There are not enough supervisors to observe a total of six observations per student teacher.

Another issue with supervision was about communication between and among the participants in the TP exercise ranging from the TP placement office, the area coordinators, the university supervisors, the school administrators and student teachers. During TP supervisors are supposed to inform student teachers earlier in advance about the visitation and not make impromptu visits as this often make students tense. On supervision, the institutions offering teacher education should plan to have adequate staff in respective teaching areas to offer expertise feedback during TP. The TP exercise will not be meaningful if reports are not reflective and feedback does not help the student teacher improve in the areas of weakness.

Ayot and Wanga (1987) enumerated in their book, fifteen principles "of effective supervisory feedback." The first principle is in agreement with what Nguyen (2009) points out that mentors or supervisors to be supportive of student teachers to enable them reflect-in and reflect-on practice by being "clear in their expectations of self and other" (p. 660). These principles should be made accessible to the supervisors. Moreover, the student teachers should be provided with a reflection guidelines or tools tied to the essential elements of instruction (Hunter, 1986). Ochanji (in press) suggested several guiding questions for helping student teachers reflect on the essential elements of their teaching, including:

> 1) What goals did you have for your students for this lesson?
> 2) What learning activities did you engage your students with in order to help them make progress towards the leaning goals?
> 3) How effective were these strategies in helping your students to make progress towards the learning goals?
> 4) What evidence of student learning and/or learning difficulties did you collect from your students?

The supervisors should have a good understanding of the relevant resources used in teaching in order to guide the student teachers towards the resources available for them in school and beyond as they consider how to adjust their lesson plans for better student learning. The purpose for the TP is not meaningful to student teachers unless the feedback is reflective of their abilities and is informative.

The issue with supervision raised by student teachers about the need for subject area specific supervisors assessing them during teaching practice is a difficult one to overcome given the number of students going for TP at a given time and the vast area in which the postings occur. One possibility to ensure that the supervisors are versed with the subject content is to group them by the subject panel area such as Mathematics and Science Education, Social Studies Education supervisors, Language Education, Creative Art Education and Physical and Health Education. Any specialist in the subject panel areas should supervise a group of subjects, e.g. Chemistry, Biology, Physics and Mathematics. When these supervisors visit a school site, they should be allowed to assess any student at that site who is teaching within the subject group of their specialty. Student teacher should keep a visitation log in which the supervisors sign in to identify what subject areas they observed and assessed in during each supervisor visit. The idea of using cooperating teachers (CT) as mentors is sound, as long as, the responsibility does not go beyond mentoring the student teacher and does not involve writing a supervision report to the university for grading and classifying the student teacher for graduation.

Notes

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