TUTORS' TECHNOLOGICAL ORIENTATION CONTRIBUTIONS ON CHOICE OF INSTRUCTIONAL APPROACHES IN PRIMARY TEACHERS' TRAINING COLLEGES IN KENYA

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Abstract
The study was conducted to investigate contributions of tutors' technological orientation on the choice of instructional approaches they use in teaching-learning process in primary teacher training colleges in Kenya. Curriculum Meta orientation theory guided the study. Mixed methods approach that utilized correlational and phenomenological research designs was employed in the study. The target population was five primary teacher training colleges, 199 tutors and 35 Heads of Departments. Total population was used for the study as the number was found manageable. Data was collected using questionnaire, interview schedule and observation checklist. Cronbach Alpha Coefficient and Constant data comparison were used to test reliability of the research instruments. Content Validity Index, data triangulation, repeated observation and longevity of observation were used to test validity of research instruments. Data was analyzed using descriptive and inferential statistics. The findings revealed that tutors' technological orientation contributes positively to the choice of instructional approaches they use. The study further revealed that tutors experienced technological challenges in curriculum implementation due to limited skills and knowledge in technology integration, inadequate technology equipment and unavailability of modern technological devices in primary teacher training colleges. Owing to the vital role technology plays in development of dynamic, professionally multi-skilled 21st century teacher, the study concluded that these shortcomings should be addressed so as to improve on the quality of teacher education. The study recommended for tutor professional development, equipping colleges with adequate and modern technology devices by Teachers Service Commission and Ministry of Education respectively.

Keywords: Technological orientation, Instructional Approaches, Tutors, Technological devices

1.1 Introduction

Technological orientation focuses on the 'how of education.' Therefore, the technology and process by which knowledge is communicated and facilitated and the strategies used to initiate development of skills is of major concern (Nathan, 2016). According to Theodore and Ping (2013), a tutor with a technological orientation interrelates knowledge and skills using a variety of strategies and resources such as technology integration and computer assisted instruction; clearly stated and relevant objectives and well organized learning experiences to guide students to define problems, make observations, form hypothesis, control variables, perform experiments, analyze data and draw conclusions. As a result, students will retain the skills and abilities learnt even when the particular content used to learn the skills or gain the abilities become obsolete as students are able to apply thinking skills to a wide range of situations. A study conducted by Salleh, Hamdan, Yahya and Jantha (2015) in teachers training colleges in Malaysia revealed that lectures believed that a curriculum that focuses more on the learning process had a higher capability of developing students' critical thinking as compared to one that focused more on the teaching of content knowledge.

Tutors technological orientation is vital in addressing emerging issues of curriculum reform in line with competency based teacher education. This is more so in the utilization of available technology tools and in technology integration which is emphasized in the Competency based teacher education curriculum in enhancing the development of various skills such as problem solving, creativity, critical thinking, co-operation and collaboration (KICD, 2019). Otunga, Odero and Barasa (2011) argue that tutor's innovativeness and ability to embrace change and institutionalize the changes will highly be influenced by their beliefs in relation to the content, objectives, available resources and context within which they implement the curriculum. Meaningful, interactive technology integration into teaching and learning process and skill acquisition depends highly on the level of complexity or simplicity, adaptability and practicability on the use of technology tools and materials (Mukuna,2013).

The growing need on the use of multi-disciplinary approach in primary teacher training colleges warrants technology integration into teaching and learning. Technology integration is fundamental in enhancing teaching methodologies and in facilitating acquisition of a wide range of skill sets. Some African Countries such as South Africa and Rwanda have greatly achieved on technology integration in their teacher education systems (Smaldino,Lowther,Mims& Smith, 2012). On the other hand, studies conducted in primary teacher training colleges in Kenya show that technology integration by tutors in these colleges lag behind due to inadequate modern technology equipment, lack of expertise, commitment and dedication and low exposure on the use of modern technology (Kafu, 2011; Nkonge,2015;Omariba, Oyot, Ondigi, 2016). The Kenyan primary teacher education curriculum focuses on teaching of ICT as a core subject and not as an integration tool for other subjects (Omariba, 2012). This is despite Kenya's policy guidelines on technology integration as a means of improving the quality of teaching and learning (MoEST, 2014). Kenya Institute of Curriculum Development would achieve its aim in transforming teacher education sector through the proposed new curriculum by considering tutors' technological orientation to curriculum.

Technological orientation perceives development of high order thinking skills to be logical and therefore the objectives and learning experiences should be carefully and systematically selected and stated. Well organized, relevant, coherent and progressive learning experiences facilitate construction of personal knowledge and meaningful student learning by allowing integration of concepts (Alba, 2016). According to Nulty (2012) and Ndifon and Cornelius (2018) successful teaching and learning depends on curriculum that is effectively organized and designed. Muhlise (2016) conducted a study in Trakya University in Turkey on the impact of previous and current learning experiences on student teachers' teaching experiences and found that learning experiences acquired by student teachers through micro teaching helped them to develop their instructional approaches by putting theory into practice.

Educational reforms such as the proposed competency based teacher education (CBTE) in primary teacher training colleges calls for a shift away from organizing instruction around teacher centered instructional approaches to that of learner centered instructional approaches. The emphasis is on engaging students in long term meaningful learning (KICD, 2019). Technological orientation to curriculum can provide significant support for long life learning as it lays emphasis on a systematic process of enhancing the acquisition of basic and high order skills through the use of appropriate instructional approaches. Therefore this study was conducted with a purpose to investigate the contributions of tutors' technological orientation on the choice of instructional approaches as they are key determinants on the successful implementation of teacher education curriculum.

1.2 Research Objectives

This study was guided by the following objectives:

i). To determine tutors' level of use of instructional approaches in primary teachers' training colleges in Kenya.

ii). To determine tutors' level of technological orientation in primary teachers' training colleges in Kenya.

iii). To establish the relationship between tutors' technological orientation and choice of instructional approaches in primary teachers' training colleges in Kenya.

1.3 Null Hypothesis

i) $H0_1$: There is no significant relationship between tutors' technological orientation and choice of instructional approaches in primary teachers' training colleges**.**

1.4 Theoretical Framework

This study is based on Curriculum Meta- Orientations theory by Miller& Seller, (1990) who posit that curriculum practices are grounded on three major curriculum meta- orientations which include transmission, transaction and transformation. According to Miller & seller, (1990), each of these curriculum meta orientations are linked to an individual's particular belief. In addition, these meta orientations determine the roles of the teacher as well as that of the student. Miller & Seller (1990) further postulate that each curriculum fits into single orientation and as such these orientations should be used to evaluate the existing curriculum. Miller & Seller (1990) argued that successful

curriculum implementation depended on whether teachers were familiar with its framework and believed it would produce desirable outcomes. Teacher beliefs are a major and controlling attractor for a teacher's preferred teaching style that they believe can be the best way to communicate that subject matter to their students (Lee, 2015).

The transmission meta orientation is anchored on the belief that there is knowledge that is most worth and that facts, concepts, rules and cultural norms is what needs to be transmitted to students (Miller & Seller, 1990).Mastery of traditional disciplines is emphasized. The transaction meta-orientation puts emphasis on learning and individual's cognitive growth as they interact with the environment. Learners construct their own knowledge as they participate in the teaching learning process. However, according to Miller& Seller (1990), the teacher oversees and directs the learning process and encourages inquiry based learning by providing topics for debates and discussion. The transformation meta-orientation focuses on promoting personal discovery, interconnectedness, behavior change and social awareness as students take responsibility in the activities of the society (Miller & Seller,1990).The teacher facilitates learning to help build on social competence and learners' self-concept.

2.0 Methodology
2.1 Research Design
This study used a convergent parallel mixed methods approach. According to Creswell (2014), convergent parallel mixed methods approach entails concurrently collecting quantitative and qualitative data, weighing quantitative and qualitative data equally, analyzing the two types of data separately and interpreting the results together. This was appropriate in comparing and contrasting data obtained so as to provide a better and holistic in-depth understanding of tutors' technological orientation as well as how this contributes to the choice of instructional approaches in use in teaching and learning process. The mixed methods approached considered the use of correlational research design for quantitative data and phenomenological research design for the qualitative data. According to Creswell (2012), correlational research design is appropriate when the researcher wants to describe and measure the degree of association between two or more variables without manipulating any of the variables. The lived experiences of tutors' in relation to their technological orientation were studied and hence the phenomenological design (Creswell, 2013).

2.2 Sampling Techniques and Sample Size
The entire population of 199 tutors and 35 HODs of the academic departments of primary teacher training colleges of the five primary teacher training colleges used for the study were purposively sampled as respondents of the study. This was because this group of respondents was found to be manageable and homogeneous. Laerd (2018) avers that considering entire population is ideal depending on the size of the population, time, resources and homogeneity level of the population. Twenty classrooms were sampled for observation using stratified and simple random sampling. Proportionate stratified sampling and random sampling ensured a high degree of representativeness by decreasing the likelihood of committing a sampling error (Babbie and Mouton, 2011).

2.3 Research Instruments

A semi structured questionnaire for tutors and a semi structured interview for HODs, classroom observation were used in conducting this study. The use of multiple research instruments was necessary so as to augment the validity and reliability of the data collected and also for in-depth understanding and interpretation of the study variables. Mohammad (2013) argues that the use of different types of instruments for collecting data and obtaining the information from different sources helps to augment the validity and reliability of the data and their interpretation.

2.4 Piloting of the Instruments

A pilot study was conducted before the actual study to help in tracing any discrepancies in the design of the questionnaire and interview guide. The pilot study sought to establish the consistency of the internal data, reliability of the measurement scales for the variables used in the questionnaire and the goodness of the data. According to Arain, Campbell, Cooper & Lancaster (2010), piloting the questionnaire helps to ensure clarity of the questions and instructions and identifies sensitive questions that respondents are reluctant to answer. The interview guide was piloted to determine flaws and weakness within the interview design. Any flaws or ambiguity noted from the pilot study response were corrected to ensure true reflection of the intended study.

2.5 Validity of the Research Instruments

Content validity was established by computing Content Validity Index (CVI) based on experts' judgement (Oso & Onen, 2011). A panel of five experts who included two course panelists at Kenya Institute of Curriculum Development (KICD) and three Quality Assurance and Standards Officers in the Ministry of Education were asked to check on item sampling as well as sampling validity based on the checklist provided. Ratings of relevance by the experts were averaged to obtain the content validity index (Zhong, 2012). Content validity Index of 0.88 was achieved and hence was found relevant for the study.

The validity of qualitative data such as data collected through interview guide and observation was determined through data triangulation, repeated observation and longevity of observation (Punch, Noble &Smith, 2014). Data triangulation involved using other sources to gather information about the study variables such as internet sources and books (Punch, 2014). According to Noble &Smith (2014), data triangulation checks on the validity of data collected by cross checking with other sources of data. Repeated observation involved interacting with the data sources such as tutors, documents and visiting the location of the study several times in the course of the study. The researcher took adequate period of time to collect data from May 2019 to March 2020. The prolonged stay in the field was necessary in testing for consistency and trustworthiness of the data collected as guided by the study variables. The longevity of observation also ensured that more comprehensive information was obtained.

2.6 Reliability of the Research Instruments

Cronbach Coefficient Alpha (Cronbach, 1951) was used to estimate reliability of the questionnaire and hence enabled the researcher to modify; restructure and remove any items which were

ambiguous. Cronbach Alpha Coefficient is suitable since it has internal consistency and does not require splitting the questions. The instrument was accepted as reliable at an alpha level of 0.755 as generated from SPSS. Oladimeji, (2015) advises that an alpha of 0.7 or higher is deemed satisfactory. Questions scoring below this value were either revised or dealt away with depending on their significance to the study.

Constant data comparison was used to check on the reliability of the interview guide (Punch, 2014). Each finding from the interview was analyzed and interpreted and then compared with the existing findings. The process was repeated until saturation of data was arrived at.

2.7 Data Analysis

The unit of analysis was technological orientation which was related to instructional approaches. Codes were created based on the different aspects of the study variables. Data collected was cleaned to ensure it was free from incomplete and irrelevant information that may lead to inefficiency of the data analysis results (Leo, 2018). Statistical Package for Social Science (SPSS) version 24 was used to analyze data. Both descriptive and inferential statistics was used for data analysis. Descriptive statistics in this study comprised frequencies, percentages, mean and standard deviation. Descriptive statistics were important in summarizing data related to choice of instructional approaches and technological orientation among the respondents. Inferential statistics (Chi-square test) was important in testing the hypothesis and drawing conclusion in relation to the study variables. Analysis was done at 95% confidence interval such that p values less than 0.05 were used to reject the null hypothesis

The research utilized thematic analysis for qualitative data. Braun and Clarke (2016) argued that thematic analysis should be seen as the foundational method for qualitative analysis due to its flexibility. It is a practical and widely used method for identifying, analyzing and reporting patterns or themes within the data. In addition, thematic analysis can carry the data even further, for it can interpret various aspects of the research topic. In this study, themes emerging from the qualitative data were identified and presented. Transcribed interviews were analyzed along observational field notes from classroom observation and document analysis for purposes of corroboration and converging evidence. Relevant direct quotations from respondents were also presented. Theoretical and conceptual frameworks were synchronized in data analysis so as to capture emerging trends of the study variables.

3.0 Results and Discussion

3.1 Tutors' Choice of Instructional Approaches

Tutors were asked to rate the extent to which they used the given instructional approaches. The instructional approaches were categorized into two; teacher centered and learner centered instructional purposes in this study. This information was important so as to understand instructional approaches most preferred by tutors in teaching the teacher trainees. A score of a mean of between 1 and 3.4 meant low preference while that between 3.5 and 5 meant high preference of the instructional approach. Data obtained is summarized as illustrated in Table 1 and Table 2 respectively.

Table 1: Teacher Centered Instructional Approaches

Teaching Approaches	Never	Rarely	Sometimes	Often	Always	Mean	Std. Deviation
Lecture			2.8%	58.4%	38.8%	**4.1**	**.704**
Drill and practice	6.8%	29%	27.8%	29%	7.4%	**3.0**	**1.074**
Asking and answering factual questions		0.6%	8.4%	48.9%	42.1%	**4.3**	**.651**
Demonstration		0.6%	22%	37.9%	37.9%	**3.2**	**.831**
Group assignment		1.7%	12.4%	62.4%	23.6%	**4.1**	**.650**
Tutor led whole class discussion	0.6%	8.4%	20.2%	55.6%	15.2%	**3.8**	**.830**
Dictation	11.3%	41.6%	39.3%	7.3%	0.6%	**2.4**	**.809**

As presented in Table 1, majority 111 (62.4%) of the tutors indicated that they used group assignments often while 104 (58.4%) indicated to use lecture often and 99 (55.7%) indicated to use tutor led whole class discussions often. However, asking and answering factual questions was reported by 75 (42.1%) tutors to be used always, some 69 (38.8%) of tutors used lecture always and 67 (37.9%) of tutors used demonstration always. The results show that asking and answering factual questions (M=4.3; SD= 0.651); lecture(M=4.1;SD=0.704) ; group assignment(M=4.1;SD=0.650) and tutor led whole class discussion(M=3.8;SD=0.830) were reported to be most often used teacher centered instructional approaches. On the other hand, dictation (M=2.4; SD=0.809) and drill and practice (M=3.0; SD=1.074) were reported to be the rarely used teacher centered instructional approaches. Majority of the items in the scale (4 out of the 7 items) scored a mean of above 3.5 implying that teacher centered instructional approaches were the most preferred in teacher training colleges. Low standard deviations in the items that had high means, suggested low variations in tutors' responses.

Table 2: Learner Centered Instructional Approaches

Teaching approaches	Never	Rarely	Sometimes	Often	Always	Mean	Std. Deviation
Role Play	11.2%	41.6%	39.3%	7.3%	0.6%	2.7	0.882
Debate	20.2%	21.3%	36.0%	20.2%	2.2%	2.6	1.088
Essay writing	32.2%	25.3%	33.7%	7.3%	1.7%	2.2	1.030
Project based individual assignment	7.3%	14.6%	40.4%	31.5%	6.2%	3.2	0.992
Experimentation	13.5%	24.7%	30.9%	28.1%	2.8%	2.8	1.074
Visits and field trips	20.8%	27.5%	43.8%	7.9%		2.4	0.903
Drama	27.5%	24.5%	42.1%	5.6%		2.3	0.927
Story telling	23.6%	24.7%	41.6%	9.0%	1.7%	2.4	0.995

Results in Table 2 show that project based individual assignment was often used by 56 (31.5%) of the tutors, experimentation was often used by 50 (28.1%) of the tutors while 36 (20.2%) of the tutors indicated to use debate often. Other learner centered instructional approaches were role play, storytelling, drama, visits and field trips, essay writing all of which were found to be minimally used with the least used being essay writing where 57 (32.2%) tutors indicated to never have used the instructional approach. These results show low preference to the use of learner centered instructional approaches in teaching of teachers trainees as all items scored a mean of less than 3.5. Classroom observation revealed that tutors attempt to use learner centered instructional approaches were not fruitful. For instance, in one lesson where tutor engaged teacher trainees in an experiment, it was observed that very few teacher trainees participated in carrying out the experiment. Similarly, where a tutor was demonstrating a mosaic pattern in an Art lesson, the lesson ended before the teacher trainees could demonstrate their own understanding. Generally, in most of the lessons observed, teacher trainee engagement was minimal. This contradicted the principle of learner centered instructional approaches whose requirement is active and participatory learner engagement.

During the interview, the researcher probed to find out which instructional approaches worked best for tutors and the reasons they felt so. One of the Head of Department (HOD) who was also a tutor of Science subject had the following to say:

> I am allocated three lessons per week each of one hour. I have seventeen topics to cover in a year each with several sub units. I also do not teach continuously because students break for teaching practice in between. The only way I can cover the syllabus, is by dictating what I want the students to understand. If I allow, so many activities in between, I will not cover the content am supposed to cover.

This finding was supported by other participants who confirmed that they had a lot of theory work to cover and limited time given to cover the work could not allow them engage the student teachers with a lot of activities since by so doing they will be spending time that they felt could be utilized to

cover the syllabus. Another HOD in response to the question explained that the entry behavior of the teacher trainees was another factor that guided them on the choices they made with regard to instructional approaches. The participant argued:

> Some of the students we receive have no sound background on the subjects they are supposed to train in. In our creative arts department, we have so many students who did not study either Music or Art and design in primary and secondary schools. So for them it is totally a new subject with new concepts. I have to bring them on board by explaining and asking questions to confirm whether they really understand. That for me is the best method I can use given my students background and time available.

The variation in the use of teacher centered instructional approaches could be explained by the fact that different subjects may facilitate the use of a particular method and disregard the use of another one depending on what is being taught (Dorgu, 2015). For example dictation can be used to teach some aspects of the languages and social studies while the same method cannot be used to teach Mathematics or Sciences because they are practical oriented.

The results of this study are consistent with the findings of Daudi (2017), Kagoda (2013), Kititia (2015) and Williter et.al (2013) whose studies revealed that tutors preferred the use of teacher centered instructional approaches. These studies cited the use of lecture, question and answer, presentation and class discussions as the most preferred methods that tutors used. The study findings were also in agreement with the findings of Maina (2013) where tutors indicated to use group discussion and lecture methods most. From the findings, questioning and answering questions were found to be used by tutors always and Nnenna and Blessing (2014) are in support of continuous use of questioning strategy in the teaching and learning process as it enhances communication between the teacher and the student.

The researcher probed through interviews with heads of departments to get their views on why teacher trainees were less active during lessons. This was necessary in finding out the convictions tutors have with regard to use of learner centered instructional approaches. One of the HODs interviewed responded:

> We give these students some topics to research on prior to the lesson. They hardly do it and the next time you meet them in class, they will not answer you back. Personally, I tried to engage them by grouping them in manageable groups and assigning each group a task related to what we would cover in our next lesson. I would expect them to make a reasonable presentation. But they do not do it; and those who attempt do it in a hurry. Very few students are committed in their work; that is why you saw only the few who are serious want to participate.

These sentiments were gathered from majority of the HODS who were interviewed. Tutors believed that teacher trainees reluctance in taking up assignments and in class participation was an impediment to their use of learner centered instructional approaches. The failure of taking

assignments seriously is contrary to Al- Humaidi (2015) whose report show that take home assignments are a good starting point for group work activities and active class presentations.
 Other than teacher trainees' laxity in lesson involvement, the participants expressed inadequacy of time to supervise students in the various activities as well as cover the syllabus. Lack of adequate resources to facilitate such learner engagements as in projects and experiments and also the testing policy that did not include evaluating practical work were also cited as some of the reasons tutors did not give a high preference to learner centered instructional approaches.

3.2 Technological Orientation

The second objective was to determine tutors' level of technological orientation. Tutors were given a number of statements against which they were to indicate their level of agreement. Responses are as presented in Table 3.

Table 3: Tutors' Level of Technological Orientation

Technology Orientation	Strongly disagree	Disagree	Not sure	Agree	Strongly Agree	Mean
Use of technological devices stimulate high order thinking skills in teacher trainees	1.1% 2	16.9% 30	14% 25	60.7% 108	7.3% 13	**3.7**
Demonstrating the correct way to solve a problem using digital learning devices makes teaching effective	1.1 2%	10.1% 18	7.9% 14	55.6% 99	25.3% 45	**3.9**
Finding solutions to problems by using teaching learning materials on their own enhances students learning	2.2 4	7.9% 14	2.8% 5	51.7% 92	35.4% 63	**4.1**
Teachers trainees should effectively carry out the teaching practice exercise using varied technological devices with minimal guidance of the tutor	8.4% 15	12.9% 23	5.6% 10	51.7% 92	21.3% 38	**3.7**
Concepts should be taught systematically after tutors have	2.2% 4	13.5% 24	1.1% 2	52.8% 94	30.3% 54	**4.0**

established that teacher trainees have sufficient cognitive skills						
The teaching procedures and resources tutors use dictate how much teacher trainees understand content taught	0.6% 1	12.4% 22	3.9% 7	60.7% 108	22.5% 40	**3.9**
Teaching -learning materials should be determined by the learning style	1.7% 3	6.2% 11	2.2% 4	54.5% 97	35.4% 63	**4.1**
Learning is facilitated through integration of technology in teaching	2.8% 5	7.3% 13	1.7% 3	58.4% 104	29.8% 53	**4.2**
The focus of the curriculum should be on the most effective resources to use in the teaching learning process	3.4% 6	4.5% 8	2.2% 4	60.1% 107	29.8% 53	**4.1**

Analysis from Table 3 show that 121 tutors (68%) agreed that technology devices can be used to stimulate high order thinking skills in teacher trainees, while 144 (81%) of the tutors supported that teaching becomes effective if digital learning devices are used to demonstrate how to solve problems. The results also show that 155 (87%) of the tutors agreed to the fact student learning is enhanced if they are allowed to use teaching and learning materials on their own to find solutions to problems. Additionally, 130 (73%) of the tutors agreed that teacher trainees should effectively carry out the teaching practice exercise using varied technological devices with minimal guidance of the tutor. Further, 148 (83%) of the tutors were in agreement that once tutors have established the cognitive skills of the teacher trainees, then they should teach concepts systematically. Similarly, 148 (83%) of the tutors agreed that teaching procedures and resources dictate how trainees understand content. An overwhelming majority 160 (90%) of tutors agreed that teaching-learning materials should be determined by the learning styles while 157 (88%) agreed that the curriculum should focus on the most effective resources to use in the teaching of learning process. Generally, tutors agreed to the nine items on technology orientation to curriculum. All items scored high mean of between 3.7 and 4.2 implying that tutors had a high technological orientation.

A follow up question indicated that majority of the tutors were aware that for effective teaching they needed to use technology in curriculum implementation. However, they cited scarcity of teaching and learning materials as the main factor affecting their teaching styles. Among the resources that they indicated to lack were adequate and technology compliant infrastructure, lack of laboratories and science apparatus and equipment, lack of modern libraries that are equipped with

relevant textbooks and e-learning resources and lack of rooms and workshops for creative arts and home science lessons.

 Heads of department were asked their views on how to improve their competences on use of technology. Twenty seven out of the thirty five (77%) of the participants said that owing to knowledge expansion and growth in technology, tutors needed to be regularly trained on use of technology. One Participant in response to this question observed that:

> The government should provide sustainable and continuous in service
> training for tutors. A lot has changed with use of technology and with
> the proposed curriculum changes; I think it is only important that we
> are properly trained on this.

 In addition to training, all 35(100%) of the Interviewed participants mentioned that modern technology infrastructure should be put in place to ensure that teacher training institutions were well equipped with updated technological devices. Similarly, the participants cited regular repair and maintenance of the technological devices was necessary to ensure efficiency and continuity of their use. In response to the question on how technology integration in colleges could be enhanced for effective teaching, One Participant answered that:

> The way out is to be provided with updated technological
> infrastructure and sufficient funds for repair and maintenance.
> Without this in place, integrating technology into our teaching will
> continue to be a challenge.

These responses were an indication that tutors believed on technology curriculum. The responses also showed that if technological related challenges were addressed, appropriate use of instructional approaches would be enhanced. The results also showed that tutors believed in a process based curriculum where the teaching procedures and use of technological devices were believed to be the most influencing factors of teaching and learning. This finding supports Miller and Seller (1990) second tenet on transaction meta orientation to curriculum where teachers main objective is to oversee and direct the learning process and encourage inquiry based learning using technology with a view to improve on students high order thinking skills.

The findings of this study agrees to the finding of a study by Ertmer,Otten Briet-Left Wich,Sadik,Sendurur and Sendurur (2012) which established that teacher beliefs were facilitative factors about good teaching and that instructional approaches used by teachers were dependent on whether they were able to overcome technology related barriers. Ertmer *et.al* (2012) in their study found barriers such as lack of access to technological tools, time to use technology, money and state standards interfered with their beliefs in the relevance and benefit of technology for teaching and learning. According to Ertmer *et.a*l (2012), interference with teacher beliefs limited their use of learner centered instructional approaches.

The findings however, differ with those of Shifflet and Weilbacher (2016) whose study found that teacher beliefs about technology use were not enough to ensure the use of learner centered instructional approaches. While the present study found that addressing barriers such as access to technological devices and training of tutors on technology integration would help them improve on

their instructional approaches and enhance teacher trainees acquisition of high order thinking skills, Shifflet& Weilbacher (2016) found that addressing these barriers was not sufficient indicator for tutors' use of effective instructional approaches.

3.3 Technological Orientation and Choice of Instructional Approaches

The third objective was to establish the relationship between tutors' technological orientation and choice of instructional approaches. Chi-square tests were conducted. Results are presented in Table 4.

Table 4: Technological Orientation and Choice of Instructional Approaches

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	98.067[a]	56	.000
Likelihood Ratio	103.672	56	.000
Linear-by-Linear Association	44.410	1	.000
N of Valid Cases	178		

Results in Table 4 show that there was a significant relationship ($\chi2$ =98.067, df=56, p=0.000) between technological orientation and choice of instructional approaches. Therefore the hypothesis (HO_1) is rejected and the study concludes that tutors' technological orientation has a statistical significance relationship on the choice of instructional approaches used in primary teachers training colleges.

The findings of this study are similar to the findings of a study by Gulcin and Ahmet (2012) who found that teachers who were technologically oriented were more inclined to use learner centered approaches to teaching and learning. These findings are similar to the findings of Gulcin and Ahmet (2012); Kamil, Mukminin, Jamin, Yusuf and Idrus (2013) and Salleh, Hamdan, Yahya and Jantha (2015) whose studies found teachers to be technologically oriented to curriculum. Salleh, Hamdan, Yahya and Jantha in their study found that teachers believed in a curriculum meant to develop critical thinking skills and hence focused more on the learning process than the content.

The findings of this study also conform to the findings of Kim, Kim, Lee, Spector & Demeester (2013) whose study found a connection between tutors beliefs about a technology curriculum and instructional approaches they used. Kim et.al (2013) found that the teachers' beliefs concerning their ability to effectively use technology and their beliefs regarding the potential effect of the use of technology had a significant influence on their classroom practices. Those teachers who perceived technology use as means of reinforcing high cognitive skill development and complex thinking skills, used learner centered instructional approaches.

4.0 Conclusion

The findings show that tutors' technological orientation contributes to the choice tutors make with regard to use of instructional approaches. The findings further revealed that wide syllabus, Lack of adequate and modern technological devices and equipment and lack of appropriate training on technology integration are key impediments on the use of appropriate instructional approaches. These shortcomings are likely to affect the application of integrated content and technical

knowledge on the practical process of teaching. Consequently, this is likely to have negative impact on development of a dynamic, professionally, multi-skilled 21st century teacher. Overcoming these shortcomings could be a good starting point for the improvement on the choice of instructional approaches tutors use. This could consequently improve achievement of teacher education curriculum objectives, particularly as the government prepares to implement the competency based teacher education whose mode of transmission will be mostly through technology.

5.0 Recommendations

i. Technology integration is relevant to the growth towards technological advancement, therefore having identified that tutors lacked prerequisite skills and knowledge on technology integration, it is recommended that Teachers Service Commission (TSC) provide tutors with professional development geared towards training them on technology integration.

ii. The ministry of education should ensure that colleges are well equipped with modern technology equipment and devices and enhance infrastructure in favour of improving use of technology in teaching and learning process.

iii. The ministry of education (MOE) should improve budgetary allocation to primary teacher training colleges to improve on the teaching and learning environment.

iv. This study recommends that as Kenya Institute of Curriculum Development (KICD) designs the competency based teacher education curriculum in line with the proposed curriculum reforms, more hands on learning experiences should be included to provide opportunities for tutor-trainee interactive engagement through integration of theory into practice.

v. Further research should be conducted to explore the primary teacher education curriculum with a focus on its design issues such as relevance and content coverage. This will help to address pertinent issues in these areas particularly after the implementation of competency based teacher education (CBTE).This will be necessary in order to inform policies on the implications of these areas and therefore guide on future teacher education reforms.

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