

In-service teachers' perceptions towards classroom technology intergration in Zambia: a pilot study

Gabriel Walubita^{a*} and Felesia Mulauzi^b

^a Educational Psychology Department, University of Zambia, P.O.Box 32379, Lusaka, Zambia

^b Library & Information Studies Department, University of Zambia, P.O.Box 32379, Lusaka, Zambia

* Corresponding author. Tel.: +260 977 394552

E-mail address: easygabby@gmail.com (G.Walubita).

Abstract

The purpose of this study is to explore the perceptions towards integrating information and communication technologies (ICTs) in teaching and learning programs among in-service primary school teachers in Zambia. The study explored investigated 8 government primary schools in Lusaka province from which 10 teachers who participated in the study were drawn. The study was quantitative in nature owing to the fix interval questionnaires that were used. The results indicate that the majority of the teachers were optimistic about the use of ICTs in the teaching and learning setting. The results indicate that there was a strong, positive correlation between attitude and belief towards using ICTs in the teaching and learning process ($r = .89, n = 10, p < .01$), thus, there was evidence that teachers who had positive attitudes also had strong beliefs about the use of ICTs in the teaching and learning process. There was also strong agreement on the importance of “the use of ICTs in the teaching-learning process” and that “studying with ICTs makes teaching-learning process more enjoyable”. The teachers also confirmed the need to “participate in in-service training seminars about the use of ICTs “ as the strategy most strongly agreed upon. The results suggest that the teachers’ positive attitude towards ICTs integration in the teaching and learning process requires not only institutional and financial support, but also provision of access to computers, technical support and in-service teacher technology training.

Keywords: *ICTs, educational technology, teachers, education, Zambia, learners, training, teacher attitudes.*

1. INTRODUCTION

Information and communication technologies (ICTs) defined as tools that can be used to develop the human possibilities and to organize the world (Seymour, 1993), have claimed some space in every sphere of society today. Valdez (2005) observes that technology is part of our lives. The current generation of people is encircled by digital technology (Prensky 2001). These technologies allow them to communicate instantly and access any information regardless of time and space simply by a few clicks on a technology enhanced device (Autry & Berge, 2011). Within the education context in particular, it is becoming increasingly crucial for teachers to use technology owing to the digital school environment they are exposed to which utilises computers, printers, scanners, digital cameras and the internet and it is not uncommon to find that teachers have access to communication software mounted on their mobile phones (Hsu 2013).

Among the numerous expectations for the modern 21st century teachers is to make learning more interesting and meaningful to students and to teach students to solve complex problems across several subject areas. One of the fundamental question for teachers is how they can meet these expectations. In responding to this question, educators are encouraged to recognize the emerging potential of ICTs to enhance the students' potential to learn and teachers' ability to teach effectively.

Potential of ICTs in the classroom

As the use of technology continues to develop both at home and at school, the perceptions of teachers towards technology has to shift as well. There is adequate evidence that support the use of technology as a tool which can be applied to enhance conventional teaching rather than replace it (Lam, 2016). Walubita and colleagues (2015) found that sufficient practice with GraphoGame tablet technology has the potential not only to increase initial literacy skills but could also be used as a remediating intervention for early grade learners for whom low literacy is a limiting factor for their academic performance. Ojanen et.al. (2015) also found that with appropriate GraphoGame mobile technology word reading skills improved for learners. Darling-Hammond, Zielesinski and Goldman (2014) have documented the significant gains in student achievement and engagement, particularly among students most at risk when technology is properly implemented. Vernadakis, Avgerinos, Tsitskari, and Zachopoulou (2005) observed that computer-assisted instruction (CAI) offers pictures and sounds to support the natural ways that young children learn. Arrowood and Overall's study (2004) found that using computers improved the motivation of young elementary children in the writing process. show to improve learning outcomes in the classroom with the help of technology. Other studies also support the application of technology to improve motivation and engagement among primary-aged children during learning (Chung & Walsh, 2006; Schmid, Miodrag, & DiFrancesco, 2008). Children who use computers have been found to show greater gains in intelligence, structural knowledge, problem solving, and language skills compared with those who do not use technology in their learning (Clements & Sarama, 2003).

The cost of technology

Although there is support for the use of technology in education, the adverse effects of technology have equally recieved scientific attention. Aguilar-Roca, Williams & O'Dowd, (2012) found low performance among laptop users compared to pen users. Students who use computers very frequently at school do a lot worse in most learning outcomes and no appreciable improvements in student achievement in reading, mathematics or science (OECD,2015). Despite the negative effects of technology in the learning context noted, enough evidence to support technology use has been widely documented.

ICT and teacher attitudes

Previous studies have found that although ICT has the potential of improving the quality of teaching and learning, relatively few teachers intend to integrate ICTs into their teaching activities (Sánchez, Marcos & GuanLin, 2012). The majority of teachers are quite optimistic about the opportunities that ICT integration in their teaching could avail them. However, there seems to be mismatch between this optimism about educational technology use and the current level of ICT integration into educational settings. This gap has inspired research to now direct attention towards the factors that influence teachers to integrate ICT tools into their classroom practices. (Fu, 2013; Jones, 2004; Butler & Sellbom, 2002; Pelgrum, 2001; Mumtaz, 2000;

Pelgrum, 2001). These factors have recently been found to be often related to teachers' attitudes and beliefs (Baş, Kubiato & Sünbül, 2016; Kaleli-Yilmaz, 2015; Farrukh & Singh, 2014; Hsu, 2013, Player-Koro, 2012).According Kaleli-Yilmaz (2015) the most outstanding view was that all of the teachers in this study confirmed that teachers' attitude to technology and willingness to use technology was fundamental to successful technology integration.

Why is this study necessary?

The absence of empirical evidence to show the teachers' perception of technology integration in the Zambian classroom raises the fundamental question for educators to consider the extent to which technology has been appropriated within primary school context. Since the introduction of ICTs in the Zambia primary school curriculum, there has been little effort to investigate the teachers' perspective of this major education reform.

There is consensus that to adequately address the literacy challenges in primary schools in Zambia, there is need to introduce a wide range of ecologically valid information and communication technology (ICT) interventions (Jere-Folotiya et.al.,2014). With this mind, there has been a number of ICT interventions in Zambian primary schools which have yielded positive outcomes (Walubita, Nieminen, Serpell, Ojanen, Lyytinen, Choopa & Nakawala-Maumbi, 2015; Ojanen, Jere-Folotiya, Yalukanda, Sampa, Nshimbi, Katongo & Lyytinen, 2015; Jere-Folotiya, Chansa-Kabali, Munachaka, Sampa, Yalukanda, Westerholm, & Lyytinen 2014; Haßler, Hennessy & Lubasi, 2011). However, none of these previous studies have examined the teachers' perception towards ICT teaching and learning which is central to technology integration in education. This study is particularly relevant in this regard.

Zambian teachers face a dilemma in the light of research findings (Harvey-Woodall, 2009) that traditional methods of teaching can no longer attract learners raised in a digital world. It can be argued that the use of traditional teacher-centered methods has contributed to the poor literacy levels (Jere-Folotiya et.al.,2014) recorded among Zambian primary school learners. As a result, the use of technology in the classroom will help to sort out this problem. Thus, the present study is a step to promote the use of technology in literacy instruction.

It is expected that pre-service teachers are conversant with Information communication technologies therefore the use of ICT as their instructional tool is well accepted whereas the in-service teachers may or may not be well informed of the use of ICTs in the classroom and therefore for these teachers it can be a challenge to adjust to the use of ICT as their instructional resource. Hence the current investigation is necessary to explore the attitudes and beliefs of in-service teachers towards ICTs in the teaching and learning process.

1.1 The Zambian perspective

ICTs have become a way of life in almost every sector of the economy, education inclusive. This is particularly true in western countries. The Zambian government recognizes the strategic role ICT can play in the education sector. For this reason, the government formulated the draft Information and Telecommunications Policy for education as a follow up to the National Information Communications Policy of 2006. One of the policy's objectives is to *deploy ICTs at all levels of the Zambian educational system in order to improve and expand access to education, training and research facilities* (Chisunka-Mwila et al, 2011). This is also evident from the Ministry of Education's ICT policy on education whose vision is "to contribute

towards reaching innovative and lifelong education and training through provision of ICT infrastructure to education institutions, content development, curriculum integration, teacher training, distance education, administration and support services as well as finance (Mtanga et al, 2012).”

Integration of ICTs in education is critical in addressing a number of quality concerns in the education currently being offered. These quality concerns range from curriculum to staffing, teaching styles, quality of education, and infrastructure (Chisunka-Mwila et al, 2011). Mulima (2014) argues that gone are the days when ICTs were a luxury. The current times according to Mulima have called for integration of ICTs in education which are creating new teaching and learning possibilities. Mulima argues that the debate therefore, should no longer be on whether to use ICTs in education in Zambia, but how to do so and ensure equitable access for teachers and learners both in urban and rural settings. The Zambian government has made tremendous strides towards integration of ICTs in education. For instance, the Ministry, has embarked on several initiatives in collaboration with various partners, aimed at promoting the use of ICT in schools such as the Computers for Zambia Schools Trust, SchoolNet, UNESCO Distance Learning Telecentres, eBrain Forum and One World Africa (Mtanga et al, 2012). The Ministry of Education also introduced computer studies in schools to train manpower. In fact, Mulima (2014) claims that learners are already engaging extensively with technology (i.e. Internet, mobile phones, computers, ipads, satellite media television, smart boards and projectors) outside school and it expected that it should be used in teaching and learning in schools.

In spite of all these developments, very little is known on the perceptions of in-service teachers towards classroom technology intergration. It is against this background that investigating the perceptions of in-service teachers towards classroom technology intergration was imperative.

1.2 Problem statment

Although in-service teachers in Zambia report to have extensively benefited from training in basic ICT skills, their supervisors reveal that these teachers are not constructively integrating technology into their teaching activities. Among the many reasons for such a gap are the teachers’ attitudes towards computer technology whether positive or negative. Thus, the present study aims at investigating the perceptions towards integrating information and communication technologies (ICTs) in teaching and learning among in-service primary school teachers in Zambia.

1.3 Research Objectives

The present investigation was aimed at exploring the following guiding objectives:

1. To explore the Teachers’ attitudes and beliefs specifically related to ICT as a useful tool for teaching and learning
2. To examine the relationship between teachers’ attitude and belief towards ICTs for teaching and learning
3. To find out the extent to which ICTs were used by teachers in their classrooms

1.4 Significance of the study

Given that there are very few published studies regarding the beliefs of perceptions of in-service teachers towards classroom technology in Zambia, this study signify an initial step towards a better understanding of the content and influence of in-service teachers’ prior experiences,attitudes and beliefs on pedagogical technology intergration.

Since the main aim of this research is to investigate teachers' prior experiences, attitudes and beliefs on pedagogical technology use, the outcomes of this research will enable both teachers and students to tap into the power of educational technology, resulting in interesting and meaningful teaching and learning. This study contributes to new understandings of how teacher dispositions can influence technology use in educational settings. Therefore, it is expected that the new knowledge generated by this research will inform educational policy and practice in Zambia.

1.5 Theoretical framework

Empirical evidence in teachers' integration of technology in the classroom recognizes a set of factors that are assumed to determine the successful use of ICT in the teaching and learning process. The factors that make it possible (or act as barriers to) to use ICT in the classroom by teachers are classified as either external or internal factors. External barriers (environmental factors) include those issues related to access to the technologies, training, and local support while the Internal barriers (personal factors) are related to a teacher's beliefs and attitudes about teaching and learning (Ertmer, 2005). For instance, internal barriers included teacher beliefs, self-efficacy and attitudes.

Ertmer (2005) argued that even if the external factors were resolved, 'teachers do not automatically use technology to achieve advocated meaningful outcomes' (p. 51). Because of this, there was need to consider the internal factors that impact ICT integration by teachers. In research where the personal characteristics of individual teachers are considered, attitude-behaviour relations' theory (Doll & Ajzen, 1992; Fazio & Williams, 1986; Glasman & Albarracín, 2006) from social psychological research is utilised. This theory was used in relation to prior studies by Player-Koro (2012) which investigated factors influencing teachers' use of ICT in education.

According to Player-Koro (2012) attitudes to have either a direct or indirect influence on a teachers' use of technology in classrooms. The direct influence of attitudes can be categorised into two groups: *attitudes to technology* (Delcourt et al., 1993; Russel, 1995) and *attitudes to ICT use* in education (Al-Zaidiyeen, Mei and Fook., 2010; Albrini, 2006; Dogan; 2010; Herman et al., 2008; Pelgrum 1993). The present study come across *attitudes to ICT use* in education rather than the general *attitudes to technology*. The study focussed on the specific attitude to using ICT in daily work with students in classrooms. Player-Koro, (2012) observed that positive attitudes to ICTs and/or their use in education are often regarded as enabling factors and negative attitudes are considered disabling factors (Kiridis et al., 2006; Drent et al., 2008; Pelgrum, 1993).

2. METHODS

2.1 Sample

A pilot study was undertaken in 8 government primary schools to investigate the perceptions of in-service teachers towards classroom technology intergration, in Lusaka, Zambia. The study was quantitative in nature. Ten female in-service teachers purposively selected participate in the study.

2.2 Data collection instrument

The English version of questionnaire that was used to collect data in this study had three sections. The first section covered standard questions such as age, gender, teaching experience, educational level and prior formal training in computers. The second section consisted of fixed-alternative questions about teachers' attitudes (ATT), the use (US) of ICTs and the teachers' beliefs (BEL) towards ICT use in the classroom. These questions were fixed interval items where the respondents were asked to agree or disagree with a series of statements. A five-point Likert scale made up of 25 statements was used, ranging from 1= *totally disagree* to 5= *strongly agree*. In a study by Baş, Kubiato, & Sünbül (2016) who are the developers of this scale (Perceptions towards ICTs in teaching-learning process scale), the Cronbach's Alpha internal consistency coefficients were 0.88, 0.85 and 0.72 for the attitude (ATT), usage (US) and belief (BEL) respectively and the general reliability coefficient value for the scale was found to be 0.92 in the study (Baş, Kubiato, & Sünbül, 2016). Reliability coefficients in reliability studies values between 0.60 and 0.70 are accepted as sufficient (Cronbach (1990).

2.3 Procedure

The study proceeded in three steps. First, a list of primary school teachers and their personal mobile contacts that had actively participated in a prior large scale ICT intervention study was obtained from the University of Zambia principal investigators and were asked to volunteer for the current study. The personal contacts were established by explaining the study aims to the participant before the self administered questionnaires were delivered to them at the respective schools where the teacher served by the first author. Second, the questionnaires were delivered by one of the researchers who visited the primary schools during the working time. Permission from their head teachers was granted and all the participants were administered the questionnaires. The instruction on the question "please indicate by circling how much you agree or disagree with each statement in the questionnaire" was presented to the participants and the questionnaires took approximately 15 minutes to be completed by each participant. After the application of the questionnaires, they were retained by the same researcher. The questionnaires did not contain any missing data. Finally, each questionnaire was numbered and then entered in MS 2010 excel and SPSS® 16.0 where further statistical analyses were performed.

2.4 Data analysis

Data analysis was performed in two ways. The Likert scale data that assessed the attitudes and beliefs was not adequate to run higher order statistical tests (parametric tests). Thus, data was analysed using excel formulae (=COUNTIF (rows, "*totally agree* or *totally disagree*") by calculating the frequency and converting the scores into ranks and percentiles for each of the 25 positive statements that were in the questionnaire in order to identify the statements which were highly rated as either agreed or disagreed. In order to further explore the structure of the teachers' attitudes to ICT use in teaching and learning process, the statements were ranked in descending order to see the statements that the teachers mostly and least agreed with. Second, using SPSS version 16.0, a *bivariate correlation analysis* was used in order to investigate the interrelations among the different the teacher variables such as computer experience, attitude and their belief towards ICTs in the teaching and learning process.

3. FINDINGS AND DISCUSSION

3.1 Background information of respondents

The 10 participants who took part in the study were in-service primary school teachers conversant in English language that taught first graders from 8 urban schools centrally located in the capital city of Zambia. Most of the participants were from diverse ethnic groups in Zambia. All the participants had acquired a General Certificate of Education (GCE) or its equivalent but they had varied levels of professional education. 5 (50%) had certificates, 3 (30%) had diplomas and only 2 (20%) possessed university degrees. The participants' age ranged from 32 to 48 years ($M= 39.2, SD= 5.61$). Teaching experience of teachers also ranged from 2 to 18 years. The older participants had more years of teaching experience in this study. The volunteering participants were selected according to the purposive sampling method. Regarding computer confidence most of the participants rated themselves as moderately comfortable with computers. All the participants in the study were female to indicate that most of the teachers found in Zambian primary schools are female. Differences exist between gender and teacher ICT attitude (Tondeur, Van Braak, & Valcke, 2007).

3.2 Teachers' attitudes and beliefs specifically related to ICT as a useful tool for teaching and learning

Table 1 shows that the respondents consistently agreed with the items 1 to 3 which revealed a positive attitude towards the integration of ICT into teaching. It was found that 100 percent of the respondents agreed that studying with ICTs was enjoyable. Furthermore, 92 percent of the respondents agreed with the statement that the use of ICTs in the teaching and learning process was important and they were eager to participate in ICT in-service teacher training seminars. Regarding beliefs, 75 percent of the respondents specifically strongly believed that ICTs are powerful tools that help students' to understand abstract content. The level of agreement was the same (75%) for items 4 to 7. Similarly, items 8 to 11 showed same level of agreement (58%).

Table 1 : Teachers' level of agreement towards ICT use in teaching and learning process

<i>Items</i>	<i>Rank</i>	<i>Percent</i>
1. Studying with ICTs makes teaching-learning process more enjoyable.	1	100.00%
2. The use of ICTs in teaching-learning process is important.	2	91.60%
3. I am eager to participate in in-service training seminars about the use of ICTs.	2	91.60%
4. The use of ICTs makes teaching-learning process more interesting.	4	75.00%
5. The use of ICTs in teaching-learning process makes students more motivated.	4	75.00%
6. I consider the use of ICTs a suitable tool for teaching-learning process.	4	75.00%
7. I believe ICTs as powerful tools helping students' understanding of abstract content.	4	75.00%
8. I reinforce my colleagues to use ICTs in teaching-learning process.	8	58.30%
9. I believe that ICTs enhance students' learning in teaching-learning process.	8	58.30%
10. ICTs present students life-like applications in teaching-learning process.	8	58.30%
11. I think all students should use ICTs in teaching-learning process in their classrooms.	8	58.30%
12. The use of ICTs in teaching-learning process is valuable.	12	33.30%
13. The use of ICTs in teaching-learning process makes communication more functional.	12	33.30%
14. The use of ICTs in teaching-learning process makes curriculum more functional.	12	33.30%
15. The use of ICTs in teaching-learning process makes save energy.	12	33.30%
16. The use of ICTs in teaching-learning process makes save time.	12	33.30%

17. The use of ICTs helps me organise teaching-learning process better.	12	33.30%
18. I consider ICTs as valuable tools in students' learning in the classroom	18	29.10%
19. The use of ICTs helps me integrate the curriculum and teaching-learning process.	19	20.80%
20. I reinforce my students to use ICTs in teaching-learning process.	19	20.80%
21. I give priority to use ICTs more than textbooks in teaching-learning process.	21	8.30%
22. I try to use educational software through the use of ICTs in teaching-learning process.	21	8.30%
23. I am satisfied with using ICTs in teaching-learning process in the classroom.	21	8.30%
24. I try to use ICTs in teaching-learning process in the classroom.	24	0.00%
25. The use of ICTs assists me design teaching-learning process in the classroom.	24	0.00%

We can safely conclude from these findings that teachers hold positive attitudes towards the use of ICT in teaching and learning. On the other hand, the findings suggest that ICTs are hardly used in teaching-learning process and this is evident from the low ranking of items that touch upon the actual usage of ICTs. While the findings above concur with those of Vera Quest, Inc (2013), Al-Zaidiyeen, Mei and Fook (2010) Al-Sulaimani (2010), and Jimoyiannis and Komis (2007), they are contrary to the findings of Mtanga et al (2012). In their study, Mtanga et al on use of ICTs in selected urban based high schools in Lusaka, the findings revealed low teacher perception on use of ICTs in education. Most of the respondents in this study were not aware of the ways in which ICTs can be applied in teaching and learning since they failed to indicate any benefits when asked. According to Mtanga et al, this can be attributed to the low ICT competence levels among the teachers. Teachers lack adequate training and experience to use technology in their teaching. Most findings show that teachers with computer knowledge and experience have a more positive attitude toward the potential of ICT in education. Additionally, training is a key factor in promoting positive attitudes towards computers. The impact of effective teacher training about ICT could be measured in terms of changes in attitudes on the part of the teachers and their students also (2006). Evidently, Mtanga et al (2012) argue that teachers have not integrated the technology in their work and thus find it difficult to discuss the matter or express any view on something they have not done. The few teachers who valued the contribution of ICTs to education expressed views that everyone needs to access and should be able to use ICTs in their work for tasks such as preparation of tests and reports. Another reason they advocated for use of ICTs is that they can facilitate easy research and preparation of teaching materials (Mtanga et al, 2012). It is important to note that Mtanga et al study was done much earlier than Mulima's (2014) study. The findings above suggest that the situation is improving in as far as attitudes of teachers on ICTs are concerned. This is evident from a recent study by Mulima (2014) on perceptions of teachers and learners on the role of ICTs in teaching and learning RE in selected secondary schools in Kabwe. Teachers in this study perceived that ICTs promote participation, ambiance, transformation in class, creativity, motivation, easier understanding and higher retention levels among learners. Overall, the study established that teachers consider ICTs as beneficial as they create a more enabling environment that best fits the present social scenario of increased ICTs in Zambia.

Studies have shown that successful integration of ICT in the teaching-learning process, among other things, is dependent on teachers' attitudes towards technology use (Al-Zaidiyeen, Mei and Fook, 2010 and Albirini, 2006, Mwalongo, 2011, Chisunka-Mwila et al, 2011). Teachers constitute the critical factor in ICT adoption in schools (Jimoyiannis and Komis, 2006) as well as in the implementation of ICT programmes. Teachers must be able, not only to use ICTs and access new technology resources, but also to principally reorganize their instruction and to plan learner-centered activities using available ICT applications. This effort needs a new type of

skills determined by ICT (Jimoyiannis and Komis, 2006). Affirming the importance of teachers' attitudes in ICT adoption, Jimoyiannis & Komis (2007), argue that both teachers' personal theories and perceptions about teaching and learning processes and their level of competence with ICT play a major role in how they implement ICT and how they motivate themselves to use ICTs in the classroom. According to Jimoyiannis & Komis, teachers' pedagogical cultures shape their representations of ICT use in the classroom and they are likely to adopt practices with computers that reflect their beliefs about teaching and learning and it has been shown that teachers with the most constructivist teaching philosophies regarded the role of computers in their instruction as very important. This could also be true with the findings presented above. The authors further argue that the most effective teachers not only have a positive attitude towards ICT but have good ICT skills and use computers as a part of a stimulating environment favouring pupils' inquiry and collaboration. Thus, teachers' perceptions of ICT usefulness are significant in determining intentions to use ICT in their instruction.

Albirini (2006) further amplifies by stating that teachers play an important role in the implementation of ICT into schools and their attitudes have proved to be significant predictors of technology use in educational settings. Teachers' attitudes, according to Al-Zaidiyeen, Mei and Fook (2010), toward ICTs can determine the extent to which technologies are used in the process of teaching and learning. The attitude towards computer use is generated by an individual's salient beliefs about the consequences of continued use and his evaluation of these consequences. The authors observed that the teachers' existing attitudes, skills, and working habits will have great influence on their acceptance, style of implementation, and outcome of using computers for teaching.

Jimoyiannis and Komis (2006) in their study revealed five interrelated factors which influence teachers' perceptions about technology and professional development aimed at integrating ICT in their instruction and these include (i) continuous ICT support and coordination; (ii) ICT pedagogical development enabling teachers to use technology in everyday classroom practice; (iii) partnership -collaboration with specialist teachers and colleagues in the school; (iv) availability of sophisticated educational software in schools; and (v) ICT infrastructure development in schools.

Successful integration of ICT in the teaching-learning process, among other things, is dependent on the preparation of teachers in all the above items. Technological developments, according to Al-Sulaimani (2010), contribute to the emergence of new educational concepts and methodologies. This in turn can change the traditional methods of learning, in which a teacher was the only source of knowledge in the classroom, to modern methods of learning, in which there are multiple sources of knowledge and the teacher acts as a guide or facilitator of the learning process. The roles and tasks of teachers should therefore change. In this way teachers may vary their teaching style and encourage changes in teaching methods so that new pedagogy, supported by ICT, can enrich and facilitate teaching and subject knowledge.

3.3 Association between teachers' attitude and belief towards ICT for teaching and learning

A correlation matrix was generated to explore relationships among the teachers' computer experience, attitude and belief in ICTs as a useful tool for teaching and learning. The matrix is shown in Table 2. The Spearman Rho's coefficient was calculated for the teacher dispositions because the sample size was small. Coakes and Steed (1999) recommend that a non-parametric correlation such as Spearman Rho's coefficient should be used for small sample sizes. The

results indicate that there was a strong, positive correlation between attitude and belief towards using ICTs in the teaching and learning process ($r = .89, n = 10, p < .01$), and no association was found for computer experience. Thus, there was evidence that teachers who had positive attitudes also had strong beliefs about the use of ICTs in the teaching and learning process.

Table 2 : Spearman Correlations among teacher dispositions

Variable	Computer experience	Total attitude	Total belief
Computer experience	-		
Total attitude	-.18	-	
Total belief	-.07	.89**	-

(2-tailed), ** $p < .01, n = 10$

Attitudes play an important role in determining peoples' reactions to situations. They are key factors in whether teachers accept computer as a teaching tool in their teaching practices (Al-Zaidiyeen, Mei and Fook, 2010). The findings above suggest that a positive attitude towards ICT use correlates strongly with belief in the potential of ICT use.

3.4 Teachers use of ICTs in their classrooms

There was limited use of ICTs in the classroom situation. Table 3 shows that teachers totally disagreed with statements 13,14,18,19 and 20 (0-8%) that measured the amount of ICT use in the teaching and learning process. Specifically, the teachers stated that they do not have access to ICTs in their classroom so there was no way they would agree with the statements that assessed the use of ICT in the classroom.

Table 3: Teachers' level of disagreement towards ICT use in their classrooms

Items	Percent
14. I give priority to use ICTs more than textbooks in teaching-learning process.	8.30%
19. I try to use educational software through the use of ICTs in teaching-learning process.	8.30%
20. I am satisfied with using ICTs in teaching-learning process in the classroom.	8.30%
13. I try to use ICTs in teaching-learning process in the classroom.	0.00%
18. The use of ICTs assists me design teaching-learning process in the classroom.	0.00%

These findings are similar to those of Al-Zaidiyeen, Mei and Fook (2010) who found out that ICT are only rarely used for educational purposes by teachers. This is supported by Mwalongo (2011), whose study was conducted in Tanzania and observed that ICTs were rarely used as a teaching-learning tool in classrooms. Several other studies have shown that ICTs are hardly used in classroom environment. Jimoyiannis and Komis (2006) points out that although teachers recognize the importance of introducing ICT in education, they tend to be less positive about extensive use of ICT in the classroom and far less convinced about

its potential to improve instruction. This is due to the reluctance of some teachers to make ICT an integral part of classroom teaching and learning, at least partly, a consequence of several factors beyond their control (Jones, 2012). This reluctance, according to Jones occurs even though most teachers use one more forms of social networking as part of their out of classroom lifestyle. Jones study which was carried out in Australia, revealed three issues that both experienced and beginning teachers reported as being root causes of problems with using and integrating ICT into teaching are:

- i) These teachers did not learn with ICT when they were school students
- ii) Pre-service teacher courses focus on techniques for teaching whole classes in face - to-face mode, and never on teaching individuals online.
- iii) Educational hardware and software available is continually changing.

Although teachers show great interest in and motivation to learn or use ICT as observed above, their use of ICT tools is limited and focused on a narrow range of applications, mainly for personal purposes (Mtanga et al, 2012; Al-Sulaimani, 2010; and Jimoyiannis and Komis, 2007). These studies revealed that most teachers use computers for low-level supplemental tasks such as word processing (lesson plans, worksheets, assessment tests, registration of grades, etc.) or getting information from the Internet. Relatively few teachers routinely use ICT for instructional purposes and even fewer are integrating ICT into subject teaching in a way that motivates pupils, enriches learning and stimulates higher-level thinking and reasoning. Jimoyiannis and Komis further argue that many teachers have positive attitudes toward technology but they do not consider themselves qualified to effectively integrate ICT into their instruction. Lack of adequate training and experience is considered one of the main reasons why teachers have negative attitudes toward computers and do not use technology in their teaching.

Chisunka-Mwila et al (2011), reveal major problems for low ICT integration in Zambia and Africa as a whole. According to Chisunka-Mwila et al, most African countries are still struggling to fully integrate ICTs in their education system on the whole due to a number of factors. Chisunka-Mwila et al argues that while some have acquired various technologies and are using them regularly, others are barely able to meet their budget requirements. Conversely, while some countries have been able to provide the appropriate, habitual and sufficiently regular use of ICTs, others are still at the stage where they are introducing and deploying these technologies as well as equipping the teachers and learners with the basic skills on how to use them. This is supported by Mwalongo (2011) whose study in Tanzania revealed that access and cost are some of the factors that limit ICT integration in schools. Mwalongo further argued that other infrastructural and personnel challenges include: limited schools with ICT facilities, costly Internet access, limited information sharing, limited skills for ICT integration, shortage of labour force due the failure of training institutions to produce ICT technicians and professionals needed for the labour market, limited electricity supply, fixed telephone networks and number of computers, few people have heard of or used computers, lack of policy framework, inadequate infrastructure and cost of bandwidth, and inadequate in-service training on ICT integration in education (Mwalongo, 2011).

However, it is important to note that when integrated in education, ICTs can do more good than harm in teaching and learning. According to Mtanga et al (2012), teachers can also benefit from the use of ICTs in education through integrating different ICTs into the various teaching activities. They can easily prepare, modify and distribute course material to pupils through email or Content Management Systems (CMS) that allow one to place documents in a pre-

defined area so that pupils can access such information. Mtanga et al further argue that non-teaching tasks such as calculating continuous assessments and assessing individual pupil's performance over time and other administrative tasks like compiling pupil's attendance hours in a particular school term can be easily managed by use of software applications designed to perform such tasks. Further, teachers can use multi-media such as projectors, audio-video and so on to present their lessons in different ways and have students make presentations using different multi-media (Mtanga et al, 2012).

4. CONCLUSION

The study has revealed positive attitudes of teachers towards integration of ICTs in education and also there was a strong, positive correlation between attitude and belief towards using ICTs in the teaching and learning process. However, limited use of ICTs in the classroom situation was noted in the study due to a number of factors such as cost and limited infrastructure.

5. RECOMMENDATIONS

- (i) In order to increase the integration of ICTs in teaching and learning, regular training programs should be conducted in all primary schools for teachers that focus not only on basic ICT skills but also how to integrate ICT into the teaching and learning activities.
- (ii) There is need for school authorities to acquire adequate ICT infrastructure to cater for the learning needs.
- (iii) Teachers should take the lead in integrating ICTs in their teaching using multimedia technology as it promotes motivation and engagement.

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