

USING MOBILE PHONES IN TEACHING AND LEARNING IN SECONDARY SCHOOLS IN TANZANIA

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Abstract

This paper discusses some of the findings from a recent cross-sectional survey that examined how secondary schools' teachers use their mobile phones in teaching and learning. The participants were drawn from Mwanga and Chamwino districts in Kilimanjaro and Dodoma regions respectively in Tanzania. A large area of the study location enjoys a reliable mobile phones' coverage network, many mobile phones' service providers and reliable wireless internet. This study involved 100 teachers from public and private secondary schools obtained using purposive sampling. These teachers were only those who owned smart phones. The study used likert-type questionnaires and semi-structured interview to collect data for understanding the contribution of teachers' mobile phones in teaching and learning process in secondary schools. The 90 (90%) questionnaires were filled and returned, while 10 (10%) questionnaires were not returned.

The study found that most of the teachers had little knowledge on the use of mobile phones as a tool for ICT pedagogical uses. It was also revealed that the teachers were competent in the basic uses of mobile phones, but were not able to create upload, download and share academic resources through their smart phones; while others were not aware of the capacity of their mobile phones. It was revealed that mobile phones were relevant in teaching and learning in secondary schools. Moreover, majority of the secondary school teachers were not using their smart phones for educational purposes; instead, they used them for other non- educational activities. It was furthermore revealed that teachers were very bitter for allowing their students to carry mobile phones in the classroom.

Keywords: Mobile Phone Teaching & Learning, e-learning, Information and Communication Technology, Teachers' Mobile Phones; Tanzania.

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1. Introduction

Inadequate teaching and learning materials may hamper effective teaching and learning for teachers and students. In most developing countries and Tanzania in particular, most secondary schools have shortage of books, laboratory equipments and other teaching and learning materials (Osaki, 1996). The growing access and use of mobile phones by both teachers and students may be used in teaching and learning as a technological remedy to the chronic scarcity of teaching and learning resources. Mobile phones seem to be, compared to all sorts of mobile devices, the most popular among the younger people; probably the most widely owned handheld devices (Trinder, 2005). Most of the students in secondary schools in Tanzania are teenagers; they have high access, enthusiastic and are capable of using mobile phones for different uses.

The use of mobile phones as one of the information and communications technology (ICT) tools in teaching and learning has been appreciated by various scholars in the field of education (Cui and Wang, 2008; Kajumbula, 2006; Simon, 2008; Utulu, 2012, UNESCO, 2012 & Kompf, 2005). Mobile phones can add a completely new dimension to the teaching and learning process due to a wide range of attributes, such as personal, informal, contextual, ubiquitous, and the functions such as talk, text, still camera, video, radio, and the internet (Kukulska-Hulme et. al., 2005).

The integration of mobile phones' teaching and learning technology into classroom practices can incorporate a broad range of activities from those designed to encourage students to consume knowledge. The increased use of mobile phones at home and in workplaces (Cui and Wang, 2008) presents opportunities for teachers to develop learning environments that encourage students to be more motivated and behave appropriately in the classroom. However, different studies have indicated that teachers tend not to take full advantage of these opportunities (Levin & Wadmany, 2008; Simon, 2008; Sutherland, Robertson & John, 2009). One of the reasons for the unenthusiastic

response to mobile phone teaching and learning might be that, technological knowledge is either absent or lacking in the processes that underpin teachers' planning and career life (Mtega, 2012; Webb & Cox, 2004). This is in line with Mishra and Koehler (2006) and Harris, Mishra and Koehler (2009) who propose that there is a tendency for teachers not to synergize their content and pedagogical knowledge with their technological knowledge, and that this can result in ordinary ways in which mobile phones are used in the classroom. Therefore, the beliefs that teachers hold about teaching, learning and use of mobile phones can affect their decision in using mobile phones in teaching and learning.

The use of mobile phones in teaching and learning is not new around the world. According to UNESCO (2012), mobile phones' teaching and learning is no longer a new technology in the United Kingdom (U.K), Middle East and Africa. In higher education, for example, the use of mobile phones in teaching and learning science subjects like Biology is common in U.K, South Africa, Nigeria, China and Uganda (Cui and Wang, 2008; Kajumbula, 2006; Utulu, 2012 & UNESCO, 2012). With mobile phones, students can access their lessons almost anywhere and at any time (Kobl, 2008). Mobile phones also have the potential to be used in promoting digital literacy.

However, there is scant literature on the uses of mobile phones in teaching and learning in primary and secondary schools in Tanzania (Mtega, 2012 & Nihukia, 2011). Although mobile phones are the most accessible in both urban and rural areas and schools in particular in Tanzania, yet their uses in teaching and learning in secondary schools is limited (Kafyulilo, 2012).

Therefore, this study explored the teachers' level of using mobile phones in teaching and learning in secondary schools in Tanzania.

2. The Study

The aim of this study was to assess the relevance of mobile phones in teaching and learning among teachers in secondary education in Tanzania. The study objectives were to: (i) explore the usage of mobile phones among teachers in secondary schools (ii) examine the attitudes of teachers in using mobile phones in teaching and learning, and (iii) examine the challenges facing teachers in using mobile phones in teaching and learning in Tanzania. The study was conducted in Mwanga and Chamwino districts in Kilimanjaro and Dodoma regions respectively.

A cross-sectional research design was used. The study employed mixed paradigm in which both qualitative and quantitative research approaches were employed. The likerty-type questionnaires and semi-structured interview were used in assessing the relevance of mobile phones in teaching among the 100 secondary school teachers from Mwanga and Chamwino districts. The collected data were analyzed using content, thematic analysis and descriptive statistics.

3. Findings and Discussions

3.1 Socio-demographic Variables

Participants of this study were drawn from different socio-demographic backgrounds. Age, gender and educational level were taken as key variables in this study. A total of 100 questionnaires were distributed: 90 (90%) were returned, while 10 (10%) were not. The participants aged 20-30 were 33.3%, 31-40 were 61.1%, and 41-50 were 4.4%; while 51-60 were only 1.1%. Majority of the participants in this study were teachers aged between 31-40 who were considered young, new in the teaching profession and commonly referred to as “digital generation” in Tanzania.

Majority of the respondents were males (75.6%), while females were only 24.4%. On the other hand, teachers with master’s degree were only 2.2%, first degree holders were 44.4%; while majority (53.3%) were diploma holders.

3.2 Phone Handset Brands’ Used by Teachers in Secondary Schools

Teachers were asked to mention the types of mobile phones (brands) they owned and used in their daily activities. It was found that majority of the teachers (61.1%) were owning and using TECNO smart phones. The 27.8% were using Samsung, 7.8% were using Nokia; while 3.3% were using other brands.

Table 1: Phone Handset Brands

Phone Brand	Number	Percentages (%)
TECNO	55	61.1
Samsung	25	27.8
Nokia	7	7.8
Others	3	3.3

Source: Field Data, 2015

3.3 Usage and Practice

Use of mobile phones in teaching and learning among teachers in secondary schools in Tanzania revealed different uses. In Tanzania, most of the teachers and students own smart phones. These handsets (smart phones) are equipped with cameras, true color displays, stereo sound and external memory cards. They can be used for field data collection, taking samples and specimens. The table below (Table 2) shows the multi-purpose uses of mobile phones by teachers in secondary schools in Tanzania.

Table 2: Handset Usage

Different Uses of Smart Phones	Percentages of Uses (%)
Listening music	66
Chatting in social media	88
Taking video for teaching and learning	13
Taking video for sharing in social media	80
Watching educational movies	30
Calling and sending SMS	70
Surfing Internet	8
Taking Memos	61
Sending Messages	66

Source: Field data 2015

From Table 2 above, it was revealed that teachers used mobile phones mostly for chatting in social media (88%), followed by taking videos for chatting in social media (80%); while taking videos for teaching and learning (13%) and surfing internet (8%) was the least among the uses. These findings reveal high use of smart phones for non-educational activities among the teachers. According to Simon (2008), lack of formal and serious ICT program for pre-service and in-service teachers creates unenthusiastic spirit on the use of mobile phones in teaching and learning in various classes. Moreover, these findings are contrary to Steketee (2005) and Gao, Wong, Choy & Wu (2010) who revealed that many graduate teachers are now entering the teaching profession with just a basic ICT knowledge.

3.4 Attitude of Teachers in Using Mobile Phones in Teaching and Learning

The findings showed that majority (72%) of secondary schools' teachers believed that mobile phones teaching could solve the crisis of shortage of teaching and learning resources in Tanzania. Mobile phones teaching and learning was mentioned as an important means in teaching practical, experiments and observations in science subjects. This was also supported by Simon (2008) who found the use of mobile phones as the basis for improving quality of education in Hong Kong. During the informal interviews, teachers mentioned mobile phones as a tool suitable to be used in the school and home contexts. One of the participants said:

“If we allow students to use mobile phones in teaching and learning, they can integrate school and home environment, hence meaningful learning. Science subjects will be enjoyed by many students as mobile phones' learning can motivate through online group discussion and getting samples and specimen while alive and easy. Students may link what they are familiar with at home and what they learn in the classroom. Home, to most students, remains an important socializing and enriching environment”.

Despite much importance embraced in mobile phones' teaching and learning, teachers were very reluctant for students to carry mobile phones in schools. The 92% of secondary schools' teachers denied the idea of allowing students to use mobile phones in school. This is contrary to the findings of Cui & Wang (2008) who found high acceptance among teachers on decision for students to use mobile phones in schools in U.K, Spain and Italy. According to Plant (2001), the mobile phones have the capacity to allow students to transcend the barriers imposed by a classroom's four walls without losing their ability to gather and process information, by bringing the real world into the classroom and taking the classroom into the real world. In addition, mobile phone teaching provides an alternative to the traditional learning tools such as flash cards.

Table 3: Perceptions of Teachers on Uses of Mobile Phones in Teaching and Learning

Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
Mobile phones can solve the crisis of shortage of teaching and learning resources.	72%	28%	0%	0%
Mobile phones can improve the quality of secondary education.	56%	40%	3%	1%
Mobile phones can simplify the teaching of science subjects like Biology.	83%	17%	0%	0%
Mobile phone teaching can solve the crisis of shortage of professional teachers in different subjects.	76%	20%	4%	0%
Mobile phones can be effective tools in classrooms and at distance learning.	65%	30%	5%	0%
Should secondary school students bring their mobile phones to schools?	2%	6%	10%	82%

Note: N= 90

Source: Field Data, 2015. Analyzed using SPSS Version 21.0

3.5 Relevance of Mobile Phones in Teaching and Learning

This study revealed numerous relevance of using mobile phones in teaching and learning in secondary schools in Tanzania. A large community of teachers and students own mobile phone in Tanzania. This is in line with Dawson (2007) who has noted that many mobile phones are cheaper

to purchase than desktop computers and laptops, and that introducing mobile phone as a low-cost teaching and learning tool is quite possible.

Moreover, mobile devices require less technical support than other ICT tools like computers and laptops. Mobile phones can motivate learners to collaborate and support each other in the learning process. According to Callums and Kinshu (2006), mobile phones allow the learner to learn autonomously, collaboratively and provide opportunities to conduct learning experiences outside the teacher-managed classroom by expanding learning beyond the four walls of the classroom and thus allowing interactions in the real world including new interactions to be brought into the classroom.

Another relevance of the mobile phone is its image capture function allowing teachers and students to bring the outside world into the classroom (Ekamuake & Wishart, 2010). The mobile phones' video camera helps students to capture an event of interest that could otherwise be missed. Mobile phones can be used to connect the lesson content to students' prior knowledge and correct misconceptions during the classroom. Availability of many mobile phones' service providers and reliable network in Tanzania provide an avenue for embarking on mobile teaching and learning.

In addition, mobile phones can minimize the load of exercise books and references carried by students daily. There is a possibility of shifting from traditional teaching and learning to digital learning. A study by Basoglu and Akdemir (2010) established that using vocabulary-learning programs on mobile phones is more effective than using flashcards. In addition, mobile phones offer accessibility and portability that enable students to conduct engaging learning activities anytime and anywhere.

3.6 Challenges of Using Mobile Phones in Teaching and Learning in Tanzania

Many factors were inhibiting the use of mobile phones in teaching and learning in secondary schools in Tanzania. Among the noted problem of the use of mobile phones among teachers in secondary schools in Tanzania was the low capacity of their mobile phones (storage) and their functions. Moreover, it was found that most of the teachers used mobile phones for basic applications, especially calling and sending messages. Most of the teachers did not know other applications supported by their smart phones.

In addition, high cost of buying smart phones, cost related to connections and downloading of video and multimedia hinder the use of mobile phones in the teaching and learning process. In many schools, it was found that most of the students did not own smart phones.

The problem related to wireless access was also mentioned. Availability of reliable stable wireless network is good instead of going through the mobile service providers' signals.

On the other hand, some mobile phones have technical problems with providing content through the phone, because of the small screen size and storage capacity (Taylor & Francis, 2002). However, most of the phones are well suited to such activities as sending SMS reminders to teachers and students about dates, quizzes, video and audio files storage. All of these help both teachers and students to study at anytime and anywhere.

Furthermore, respondents raised doubts regarding the misuse of mobile phones by students. Teachers were worried that students could use mobile phones to access some prohibited sites and share multimedia information which are culturally banned. Respondents believed that the misuse of mobile phones was a major challenge that needed immediate attention so as to implement mobile learning. The respondents believed that such a misuse might discourage the government to support the use of mobile phones in education. Respondents suggested that mobile phones to be used in classroom must have teachers and parental features to control students through limiting some functionality. However, this was perhaps necessary at the lower school secondary level.

On the other hand, Adomi (2006) carried out research on mobile phone usage patterns of library and communication science students at the Delta State University, Abraka, Nigeria. He enumerated some of the shortcomings of mobile phones usage as follows:

- a) Frequent network failure.
- b) High cost of recharge cards/airtime.
- c) Limited area of coverage.
- d) Occasional scarcity of recharge cards.
- e) Power outage.
- f) Lack of privacy in mobile shops/booths/kiosks.
- g) Interconnectivity problem.
- h) Delay in delivery of text messages.
- i) Congestion in mobile phone shops/booths/kiosks.
- j) Handset interception through duplication of SIM cards.

4. Conclusion and Recommendations

The findings of the present study have provided answers to the teachers' uses of mobile phones in teaching and learning in secondary schools in Tanzania. The findings suggest that mobile phones were used for teaching and learning purposes by teachers. However, this differed from one respondent to another. This finding is in line with Mtega (2008) who found the usefulness of mobile phones in teaching and learning in higher learning education in Tanzania. All respondents were using mobile phones for social media communications, while few were using them for teaching and learning purposes. Moreover, majority of the respondents were very bitter to allow students to use mobile phones while in school.

It is recommended that secondary school teachers should be taught the role of mobile phones towards students' learning. Teachers should be aware of the capacity, specifications and function level of mobile phones before buying them. Government and schools in particular should make sure there is a reliable wireless internet connection in the schools' compound. On the other hand, mobile phones' operators should reduce internet service tariffs so that more people can afford and use mobile internet services.

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