Journal of Education and Practice
ISSN 2222-1735 (Paper) ISSN 2222-288X (Online)
Vol.9, No.20, 2018

Teachers' ICT Skills and Ict Usage in the Classroom: The Case of Basic School Teachers in Ghana

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Abstract
Integration of ICT into pedagogical practices will seriously be compromised if teachers possess little or no knowledge of ICT. This paper reports on a study which sought to explore basic school teachers' ICT skills and ICT usage in the classroom. In all 20 basic school teachers took part in the study. Three instruments were used to gather data from teachers which include lesson observation, questionnaires, and interview. The study adopted survey research design. Qualitative analysis of the data collected revealed that teachers' ICT skills were at the moderate level. The study also revealed that teachers' uses ICT for general and personal purposes which includes chatting and communicating with friends as well as family members via WhatsApp, Facebook, WeChat. In terms of ICT integration in classroom lessons, it was found that, teachers hardly use technology in their lessons because of not having ICT integration skills as well as lack of resources in the Basic schools. The study recommends the need for regular in-service training programme for teachers with a direct focus on ICT integration and ICT usage for teaching and learning by Ghana Education Service.
Keywords: Teachers, ICT, Skills, Usage, Classroom.

Introduction

Technology (ICT) has become the mother of all inventions since it touches all aspects of human life from production to consumption and waste disposing. "The increasingly pervasive use of Information and Communication Technologies (ICTs) on a global scale has profoundly impacted the way in which societies function and interact with one another" (Castells, 1999). Information and communication technology (ICT) has become, within a very short time, one of the basic building blocks of modern society. Many countries now regard understanding ICT and mastering the basic skills and concepts of ICT as part of the core of education, alongside reading, writing and numeracy.

According to the Ghana ICT for accelerated development (ICT4AD) policy (2003), One of the major ways of realizing the vision to transform Ghana into an information-rich-based knowledge society and economy through development is to promote an improved educational system within which ICTs are widely deployed to facilitate the delivery of educational services at all levels and one of the key strategies in achieving this goal is to mainstream ICTs throughout the entire educational system and across all subject areas to promote life-long learning.

Information and Communication Technology (ICT) is perceived to drive the growth of modern economies. To enhance its ability to achieve fundamental and sustainable improvement, Ghana like other countries has made huge investment and drafted policies that help the country utilize technology for its economic growth (Hitachi, 2009). As a result, ICT is now part of the Strategic Plan of Ghana Education Service. The Government of Ghana (GoG) has also introduced an intervention programme dubbed "One Laptop Per Child Policy "(OLPCP) to sustain the interest of pupils in ICT as well as enhance teaching and learning in basic schools. The programme which started in 2008 has resulted in many basic schools furnished with a number of laptop. Technology is becoming an important part of education and teachers play a crucial role in developing computer literate students (Manternach-Wigans, 1999; Phelps, 2002).

Effective ICT integration into the educational system is a complex task that involves not just technology but also curriculum and pedagogy, institutional readiness, teachers' competencies and long-term financing, government policies relating to ICT in schools and many more. Making a strong case for and ensuring integration of ICT in the curriculum alone does not guarantee the realization of government's vision for embarking on ICT education. The role of the teacher in ensuring integration of technology in the classroom should not be underestimated. Therefore, integration of ICT into pedagogical practices will seriously be compromised if teachers possess little or no knowledge of ICT. However, since the introduction of ICT into the Basic school curriculum much has not been done in terms of research. Mereku, Yidana, Hodzi, Tete- Mensah, and Williams (2009) asserted that for Ghana and Africa to be able to fully integrate ICT into teaching and learning there is the need for frequent collection and analysis of data on ICT usage. The present study therefore sought to explore the level of ICT skills and ICT usage by Basic school teachers in Ghana.

Research questions

The following questions were posed to guide the study:

1. What are the levels of ICT skills of basic school teachers?
2. How are basic school teachers using information and communication technology?

Review of Related Literature

ICTs in Education and for Education

The use of information and communication technology in the education process has been divided into two categories: ICTs in education and ICTs for education.

ICTs in education connote the development of ICT specifically for teaching and learning purposes while ICTs for education involves the adoption of general components of information and communication technology in the teaching process (Olakulehin, 2007). Within education, one of the major teaching challenges has always been assisting students to bridge the gap between knowledge and real-life practice. This is especially important in applied academic disciplines through real practice (Cheethan & Chivens, 2001).

The field of education has been affected by ICTs which have undoubtedly affected teaching, learning and research (Yusuf, 2005). Over the years courses in education have been written around textbooks and conventional teaching has emphasized content. One of the most vital contributions of ICT in the field of education is easy access to learning.

Thomas and Ranga in UNESCO (2004) in their classification divided the application of computers and other communication technologies in education into three broad categories. These

are: Pedagogy, Training and Continuing Education. The pedagogical applicability of the ICTs is concerned essentially with the more effective learning and with the support of the various components of ICTs. Almost all subjects ranging from mathematics (the most structured) to music (the least structured) can be learnt with the help of computers. Olakulehin (2007) emphasized that pedagogic application of ICTs, involves effective learning with the aid of computers and other information technologies, serving the purpose of learning aids, which plays complementary roles in teaching/learning situations, rather than supplements to the teacher/instructor/facilitator.

Computer is regarded as add-on rather than a replacing device. The pedagogic uses of the computer necessitate the development, among teachers as well as students, of skills and attitude related to effective use of information and communications technologies. Aside of literacy, ICTs also facilitates learning to programme, learning in subject areas and learning at home on one's own, and these necessitate the use of new methods like modeling, simulation, use of data bases, guided discovery, closed-word exploration etc. The implications in terms of changes in the teaching strategy, instructional content, role of the teachers and context of the curricula are obvious as well as inevitable. Pedagogy through the application of information and communications technologies has the advantage of heightening the motivation; helping recall previous learning; providing new instructional stimuli; activating the learner's response; providing systematic and steady feedback; facilitating appropriate practice; sequencing learning appropriately; and providing a viable source of information for enhanced learning. Teachers who use this system of instructional strategy would be able to kindle in the hearts of the learners a desirable attitude towards information technology tools in their entire way of life.

ICT Skills and Competencies

Integration of ICT into pedagogical practices will seriously be compromised if teachers possess little or no knowledge of ICT. Kadel (2005) noted that regardless of the quantity and quality of technology available in classroom, the key to how ICTs are used is the teacher; therefore, teachers must have the competence and right attitude towards technology. ICT can do wonders in classroom if used wisely by well –trained teacher.

According to Marija and Palmira (2007) ICT competencies can be classified into two: Basic and educational ICT competence. Competence can be said as having the necessary skills or knowledge or the ability to make use of relevant attributes to particular task. These attributes include; high levels of knowledge, values, skills, personal dispositions, sensitivities, capabilities and the ability to put these attributes into practice in an appropriate way (Commonwealth Department of Education, Science and Training, 2002).

Benefits of ICT use in Education

Technology has played a remarkable role in the learning environment through the provision of more interactive educational materials that increases learners' motivation and facilitate the easy basic skills acquisition. ICT in education has undoubted potential, to be influential in changing teaching methodologies. Studies have also demonstrated that computer use can result in effective literacy gains. There is empirical evidence that students, who are having difficulties with reading, can be motivated and engaged using ICT (Lynch et al 2000; Ó Murchú 2000; Segers and Verhoeven 2002).

Papert (1993) asserts that the computer is a tool, allowing for the construction of higher order thinking, facilitating users to take responsibility for their learning, while Korte and Husing (2007) as cited in Rodden (2010) refer to its ability to motivate learning.

Methodology

Survey research design was adopted for the study. Osuala (2001) stated that when a study centers on individuals and their opinions, belief, attitude, motivation, behaviour, the survey research is most appropriate. The population comprised of all Basic school teachers in Ghana. The sample was made up of 20 teachers drawn through a multi –stage sampling procedure with each stage resting on simple random sampling technique from Komenda Edina Eguafo Abrem Municipality(KEEAM) in the Central Region of Ghana. Questionnaire, Observation and interview were used for data collection. The collection of data involved the following activities:

- Observations of teachers by the researchers. The observation was focused on teachers' ICT usage in the classroom.
- Administration of questionnaires and interviews.

The questionnaire had two sections. Section A was on demographic variables while section B was on items relevant to the research questions raised in the study. Face validity of the instrument was determined by giving the draft copy of the instrument to colleagues for comments. Cronbach alpha was used to determine the internal consistency of the items and a reliability coefficient of 0.76 was found. Data gathered from the study were analyzed qualitatively using descriptive statistics. Qualitative analysis has been recommended in literature because "narratives, accounts and other collections of words are variously described as 'rich', 'full' and 'real' and contrasted with thin abstraction of number" (Robson, 2002).

Results

BASIC SCHOOL TEACHERS LEVEL OF ICT SKILLS

Table 1: Teachers' Levels of ICT Skills

Mean and Standard Deviation for ICT Skills

ICT SKILLS	Mean	S.D
Basics of operating computer	3.62	1.03
Managing files (Delete, move, copy and paste,)	3.43	1.19
Microsoft Word	3.02	1.20
Microsoft Excel	2.53	1.19
Microsoft PowerPoint	2.34	1.20
Relating to ICT integration in teaching and Learning process	2.32	1.28
Average	**2.88**	**1.18**

Majority of the respondents (M = 3.51, SD = 1.11) as shown in Table 1 stated they had basic ICT literacy skills (i.e. Basics of operating computer and Managing files). The total degree for all the level of ICT skills among basic school teachers was moderate; mean (2.88) and standard deviation (1.18).

The study considered six groups of ICT skills and the highest mean was for the skill of Basics of operating computer (M = 3.62, SD = 1.03), followed by skills of managing files (M =3.43, SD = 1.19)

The ICT skill (Microsoft word) came third, a moderate degree with mean (3.02) and standard deviation (1.20). Skills of Microsoft Excel (M=2.53, SD = 1.19), skills of Microsoft PowerPoint (M= 2.34, SD = 1.20) came fourth and fifth respectively, while skill relating to ICT integration in the teaching and learning process was ranked last (M = 2.32, SD = 1.28).

USES OF ICT BY BASIC SCHOOL TEACHERS

Data regarding personal, general and instructional usage of ICT by Basic school teachers were collected to address the research question- *How are basic school teachers using ICT*?

To find answers to the research question, the researchers first observed and recorded pedagogical information on 4 teachers in five days just to find out how teachers integrate ICT in their lessons. The observed teachers did not make use of Information and Communication Technology (ICT) in their lesson. It was surprising to find out that even the ICT teacher didn't use ICT resources in his lesson. Rather he made use of pictures of some of the computer hardware in his lesson. The observation was followed by interview of 8 teachers.

Teachers in all cases were found to be computer literate and had skills to browse the internet. The most dominant answer that emerged from the interview was the notion of using ICT to keep in touch with family members and friends. An extract of a teacher's response is given below:

"I mostly chat my friends and family members via WhatsApp, Facebook, or WeChat. [Kojo]

In terms of pedagogy, when the teachers were asked about how they integrate ICT in their lesson, except for 2 teachers in one case, all others have had no training on ICT literacy and usage for teaching. They revealed that they hardly apply ICT in their lessons mainly because of their own lack of skills and expertise even though ICT is expected to be integrated into the education system of Ghana.

"I *can't integrate ICT in my lessons because, I have no idea on how to do that*". [Ama]

Others explain that lack of ICT equipment's and workload of the syllabus are some of the pitfall to ICT

integration in their lessons.

"The *schools do not have the resources to enable ICT integration, so it is always done in abstract form*" [Phil, the ICT teacher]

Responds given by the teachers were not surprising at all since throughout the 5 days period of class observation by the researchers, none of the teachers observed made use of ICT in their lessons.

Conclusions and Recommendations

The findings of this present study indicated that Basic school teachers in the Komenda Edina Eguafo Abrem Municipality (KEEAM) "have moderate level of ICT skills and uses ICT for chatting and communicating with family members and friends". Teachers in this study noted that they lack the skills to integrate ICT in their teaching. Regular in-service training and capacity building workshops on ICT literacy and its usage for teaching and learning should be organized for these basic school teachers to use ICT as a tool to enhance teaching and learning in the basic school level. In addition, government and other donor organizations should step-up efforts aimed at providing computers and other ICTs in the basic schools.

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