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AN ASSESSMENT OF TUTOR CHARACTERISTICS AND STUDENT ICT COMPETENCIES IN COLLEGES OF EDUCATION IN GHANA

William Yeboah[1],
Pious Akwasi Sarpong[2],
Bright Appiah[3]
[1]Mount Mary College of Education, Department of Maths, Science& ICT, Ghana
[2]SDA College of Education, Department of Maths, Science &ICT, Ghana
[3]Presbyterian College of Education, Department of Maths, Science & ICT, Ghana

Abstract:
The rapid growth of the global economy and the information-based society has pressurized education systems around the world to use ICTs to teach the knowledge and skills students need in the 21st Century. The growth of the ICT sector has challenged teachers to prepare for effective use of new teaching and learning tools in their profession. This study sought to examine teacher experience and qualifications as well as student ICT competencies (skills and knowledge). The mixed method approach was employed for the study. A total of 352 respondents made up of 8 principals, 24 tutors and 320 teacher trainees from all the eight colleges were sampled. Data is gathered through open-ended questions that provide direct quotations with the interviewer as an integral part of the investigation. Three research questions guided the study. The research questions were answered using charts, frequency and percentages. The findings established that that the intensive use of ICT and the process-oriented learning environment supported the development of students' expertise in ICT and enhanced students in critical thinking skills. The study recommends that students should be involved in using ICT in learning activities such as doing assignments, taking quizzes, and searching the internet for learning resources among others.

Keywords: integration, pedagogy, questionnaire, software, student-centered teaching

1. Introduction

The inclusion of ICT in teaching and learning helps to play a powerful role in enhancing teaching and learning in schools and preparing teacher trainees to acquire skills, knowledge, and competencies to enable them to compete in the emerging global 'knowledge' economy as professional teachers. Data and information obtained in this study would hopefully be used to provide various education stakeholders with information that ICT integration in most subjects in University Colleges of Education held a great promise in developing economies like Ghana. The findings could also help the Ministry of Education (MOE) in the formulation of policies and strategies that can be used to enhance the academic standards in our University Colleges of Education. The study will also make possible recommendations for increasing the use of ICTs in enhancing teaching and learning processes.

2. Problem Specification

According to (MOEST, 2003), if schools in Ghana provide access to ICTs, there would be an improvement in quality education that would improve the productivity and competitiveness of Ghana's human resource pool by developing a highly-skilled human resource base to respond to social and economic challenges. However, it was noted that teacher trainees in Colleges of Education in the Eastern Region of Ghana like many others in the country were still limited to computer use when learning in school. Therefore, the researcher intended to find out how the use of computers in the teaching and learning process and its subsequent effects among students in Colleges of Education in the Eastern Region of Ghana.

The use of Information and Communication Technology (ICTs) in education and training has been a priority in most European countries during the past decades, but progress has been uneven (Pelgrum, 2004). In most developed countries such as the United Kingdom (UK), schools have embedded the use of ICT in teaching and learning into the curriculum and demonstrated a high level of effective and appropriate use to support teaching and learning. (Organization for Economic Cooperation and Development, 2004). Furthermore, (UNESCO, 2005) reiterates that those countries have integrated ICT into their education system because of its profound implications such as enabling teachers and students to construct rich multi-sensory, interactive environments with almost unlimited teaching and learning potential.

Mugenda (2006) also notes that ICT is supposed to add value to education and to support more effective pedagogy to provide knowledge for learners and by enhancing communication that promotes learning. Also, as ICT becomes more pervasive, computer-based equipment is integrated into every aspect of school operation, having thus an influence on the student's performance. Several researchers including (Iding et al., 2002) among others assert that the use of ICT in teaching and learning can help learners become more knowledgeable. In addition to efforts to employ ICT to improve learning, the

emergence of the knowledge economy has also brought a much greater emphasis on education (Wong, 2006). Underwood (2006) argues that there are significant benefits of using ICT as part of the teaching and learning process as long as teachers recognize the relationship between the use of ICT and the overall curriculum. Russel et al (1999) point out that different ICTs do make some valuable contributions to various parts of educational development and effective learning through expanding access, promoting efficiency, improving the quality of learning, enhancing quality teaching, and improving management systems.

On the contrary, many developing countries in Africa are living in a world of technological deficiency, that is, lack of access to knowledge that is learned via the internet (Organization for Economic Cooperation and Development, 2004). Additionally, if Africa aims to better prepare its citizens for the challenges of the 21st century, it must also foster thorough integration of ICT to tap new, attractive, promising, and diversified potentials. In cognizance of the critical opportunities accorded by ICT in service delivery as well as teaching and learning, the governments of many African countries have over the years invested heavily in the requisite ICT infrastructure.

New partnership for African Development, (NEPAD, 2006), Grabe and Grabe, (2007) emphasizes that technologies can play an important role in enabling students to gain skills and knowledge in the teaching and learning process. As a result, the government recognized that an ICT literate workforce is a foundation on which Ghana can acquire the status of knowledge and economy.

The Government as a result has made education the avenue for equipping the nation with ICT skills to create vibrant and sustainable economic growth. The National ICT policy was meant to ensure the nation achieves part of the Millennium Development Goals (MDGs). The policy framework of the Ministry of Education indicates that there are many challenges concerning access to and use of ICT in Ghana, including a high level of poverty, limited rural electrification, and power disruption. Most schools have some computer equipment. However, this could consist of a few computers in the school's operations. Very few schools have sufficient ICT tools for teachers and pupils. Even the schools, which have computers, the students-computers ratio is 150:1 (Pelgrum, 2004)

Integrating ICT into teaching and learning is not a new concept. It may be as old as other technologies such as radios or televisions. However, with the rapid development of emerging technologies, such as web technology, ICT integration has increasingly attracted the attention of educators. Technology should be used not because it is available, or it has been shown effective in some cases. It should be used to enable the process and enhance learning because inappropriate use of technology can lead to negative effects. (Russel, 1999).

The use of ICT in schools should have a positive impact on students in terms of supporting their learning and providing them with relevant technological literacy. Besides, ICT should increase the engagement of students and in most cases increase their independence, so that students are not only required to use ICT completely but may also be required to adjust to change in their role. In many cases, the students' role becomes

more; independent and responsible, co-operative and collaborative, and directive and negotiable. It follows from the above that there is a need to develop students' computer literacy because research studies indicate that students assume greater responsibility for their learning when they use computers, working more independently and effectively, (British Educational Communications and Technology Agency 2006).

Eurydice (2005) argues that students' ICT skills cannot only be learned in school but also informal content, at home, and with friends. It is emphasized that students' informal learning and experiences in using ICT are far more attractive than the school can offer. As a result, students face a few challenges using ICT in school. Potosky and Bobko, (2001) found in their studies that students' computer literacy improves their academic achievements and positive attitudes in learning.

Research studies further indicate that learners participate more actively when ICT is used in learning. However, some students may become frustrated when they perceive that their ICT skills are being under-estimated and under-utilized, (British Educational Communications and Technology Agency, 2006). Therefore, teachers are required to use ICT integration in teaching and learning effectively to realize the objective of ICT integration. According to Comber, (2002), and Higgins et al, (2005) increased motivation goes together with positive learning and leads for example to more attention during lessons with students being involved in learning activities. Potosky and Bobko, (2001) indicates that learners with special needs or behavioral difficulties also gain in different ways from the use of ICT. Finally, there can be a positive impact on students when ICT is used appropriately in learning.

Haggins et al, (2005) note that while in many ministries of education around the world have committed to computerize schools, few have developed coherent strategies to fully integrate the use of computers as a pedagogical tool in the classroom. Educational institutions are required to develop an ICT strategy that incorporates the goals of the institution and how this will be met using ICTs, provide a supporting framework for the development of ICT in the institution and outline how the full potential of ICT is to be exploited to support all aspects of teaching and learning. (Chisenga, 2006).

2.1 Aim and objectives of the study

The main aim of the study is to assess tutor characteristics and student ICT competencies in Colleges of Education in Ghana. Specifically, the objectives of the study are to:

1) find out the professional qualifications of the Principals in Ghanaian Colleges of Education.
2) tutors experience in using ICT in Ghanaian Colleges of Education.
3) determine the students' ICT skills and knowledge in Ghanaian Colleges of Education.

4. Research questions

The following research questions guided the study:

1) What are the professional qualifications of the Principals in Ghanaian Colleges of Education?
2) What are the tutors' experiences in using ICT in Ghanaian Colleges of Education?
3) How might we describe the students' ICT skills and knowledge in Ghanaian Colleges of Education?

5. Methodology

5.1 Research design

Research design according to Burns (2004) and Cohen, Mahion, and Morrison (2012), is essentially a plan illustrating the strategy for investigation by the researcher. In this, the kind of data needed, the method used for data collection, the procedures for obtaining data, and the analysis plan are clearly outlined (Burns 2004; Cohen, Mahion & Morrison 2012). In this study, the mixed method design was used. Seidu (2006) sees a qualitative approach to a study as an approach in which the researcher decides what to study, asks specific narrow questions, collects numeric data, analyzes the numbers using statistics, and conducts the inquiry in an unbiased and objective manner. According to Best and Khan (1998), qualitative research is a generic term to describe an ethnographic, naturalistic, field, or participant observer research.

5.2 Participants

The total population comprises of all the principals (8), tutors (263) and teacher trainees (2842) in the eight Colleges of Education in the Eastern Region of Ghana. The principals were purposively selected while the tutors and student teachers were conveniently selected. A total of 352 respondents made up of 8 principals, 24 tutors and 320 teacher trainees from all the eight colleges were sampled.

5.3 Instrumentation

Data is gathered through open-ended questions that provide direct quotations with the interviewer as an integral part of the investigation.

5.4 Procedure for data collection

5.4.1 Method of data analysis

The research questions were answered using charts, frequency and percentages.

6. Findings/Results

6.1 Professional qualification of principals

To find out the professional qualifications of the principals, they were asked to indicate the same. Table 1 represents the data.

Table 1: Professional qualification of the principals

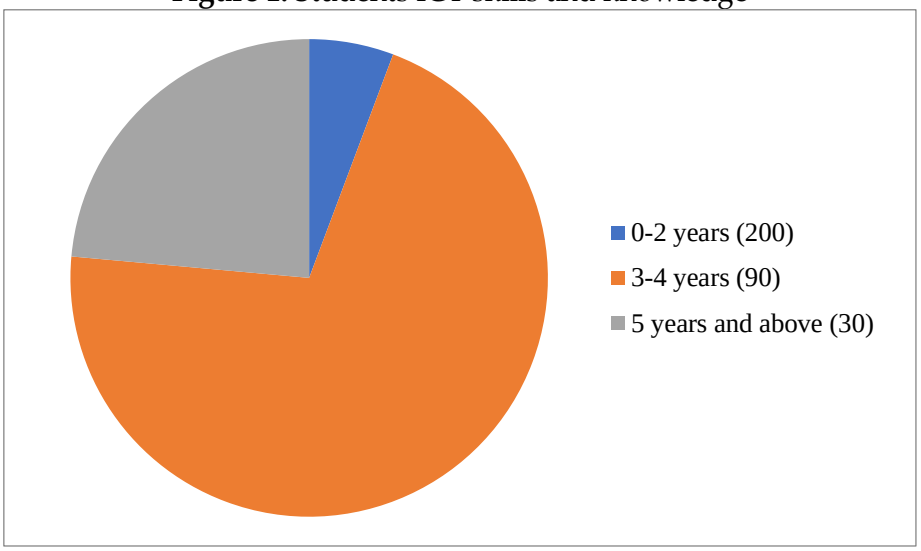
Professional Qualification	Frequency	Percentage
M'Phil/M.ed/Msc/M.A/Bsc	7	87.5
Ph.D.	1	12.5
Total	8	100

Information in Table 1 reveals that the majority of Principals were Master of Philosophy in Education graduates with only one principal reported to have a Doctor of Philosophy degree. These findings indicate that Colleges of Education are run and managed by principals who have relevant professional qualifications and can, therefore, adapt to the changes posed by ICT integration in the school

6.2 Students' ICT skills and knowledge

The students were asked to indicate their experience in using ICT. Their response is as indicated in figure 1

Figure 1: Students ICT skills and knowledge



Data in Figure 1 show that majority of students had 0-2 years' experience in using computers, a few students had 3-4 years using computers and others had 5 and above years' experience in using computers. Implications of the findings are that students have not been exposed to using computers for a long time. This concurs (Pedesen et al 2006) who points out that there is a cultural gap between students and tutors in term of the digital world. This differentiation and student's ICT competencies are challenges for tutors because digital skills are today's basic skills in teaching and learning.

Tutors were asked to indicate their experience in using ICT. Their responses are summarized in Table 2.

Table 2: Tutors experience in using ICT

Experience in Years	Frequency	Percentage
1-2 years	4	16.7
3-4 years	13	54.2
5-6 years	4	16.7
7 years and above	3	12.5
Total	24	100

Data from Table 2 indicate that majority of tutors had an experience of 3-4 years, a few tutors had an experience of 1-2 years and other tutors had an experience of 5-6 years. However, three tutors representing 12.5% of the respondents were having an experience of 7 years and above.

7. Discussion

7.1 Professional qualification of principals

The results indicated that Colleges of Education are run and managed by principals who have relevant professional qualifications and can therefore adapt to the changes posed by ICT integration in the Colleges. Information from Table 1 shows that majority of Principals were Master degree graduates with only one principal reported to have a Doctor of Philosophy degree.

7.2 Teachers' experience on the use of ICT

The results revealed that the majority of tutors were very good in word processors and in using PowerPoint presentations in the classroom. This is an important achievement in the use of ICT in teaching and learning because both have educational potential (Organization for Economic Cooperation and Development, 2004). The results revealed that tutors and principals indicated that the availability of a sufficient number of computers was a major challenge hindering the successful integration of ICT in teaching and learning. As often shown the availability of technology alone is not the only factor for the successful integration of ICT, but its maintenance is a crucial hindrance. Colleges without sufficient ICT resources are missing out on the extra educational opportunities ICT can offer.

7.3 Knowledge of students on ICT

The results of the study indicated that the intensive use of ICT and the process-oriented learning environment supported the development of students' expertise in ICT and enhanced students' critical thinking skills, teacher, and student intervention and increase students' learning motivation. Furthermore, ICT can offer opportunities to teachers for obtaining educational resources from the internet to enrich course content. The results indicated that the majority of tutors involved students in using computers every day. This result is in agreement with (Chapman, 2003) who found that most teachers have embraced the integration of ICT in their teaching.

The analysis revealed that the majority of the respondents reported that lack of motivation and confidence was a major factor that hinders the successful implementation of ICT integration in schools.

8. Conclusion

The findings show that majority of the respondents identified a lack of ICT skills as a major challenge that hinders the full integration of ICT in teaching and learning. Also, inappropriate tutor training was a major challenge hindering the full implementation of ICT in teaching and learning. Unsuitable teacher training programs fail to engage pre-service teachers in using ICT both during their lessons and also in the preparation of the lesson beforehand. This result is in agreement with (British Educational Communications and Technology Agency, 2006) study which found that although some teachers have good ICT skills in terms of their personal use, they are unable to transfer those skills to using ICT in classrooms.

It is also evident that the absence and poor quality of ICT infrastructure in Colleges of Education is a major hindrance to the implementation of ICT. Colleges face the problem of unsuccessful organizational implementation of ICT in teaching and learning because ICT is not seen as part of the general strategy at the College level; it is just seen as a small program of study. Even if some Colleges have developed ICT strategies, these are not integrated into the Colleges' overall strategy. Further, the analysis revealed that the lack of internet connection in Colleges of Education was a major challenge. The results revealed that the majority of tutors identified a lack of internet connection in school as a major challenge. Therefore, tutors should also be provided with adequate technological resources, technical support, and administrative support to encourage them to successfully use ICT in teaching and learning.

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