

Tertiary Students' View on Information and Communications Technology Usage in Ghana

Eben Afari-Kumah¹
University of Ghana
Ghana

Hannah Ayaba Tanye²
University of Cape Coast
Ghana

Abstract

Ghana had full Internet connectivity in 1995. Since then Ghana's public Universities Information and Communication Technology (ICT) growth is lagging in comparison to the country's business ICT usage. In this article we present the findings of a project that captured students' views on ICTs usage at the University of Cape Coast using questionnaires. Non-probability methods such as accidental and purposive methods were used in the administration of questionnaires. The data captured was analyzed with SPSS.

Findings reveal that the use of ICTs, such as the interactive whiteboards, is increasing in a number of lecture halls. E-mail is used by most students but is limited to their personal communication with friends and family members. Most students despite their frequent use of e-mail, they do not use it as a conduit for learning. Most lecturers also do not engage their students in the use of ICTs by giving them assignments through e-mail, referring to the online academic resources, web references, referring to CD-ROMs in referenced textbooks, etc.

Empirical induction from the analysis brought to the fore that ICTs are not extensively used in teaching and learning in Ghana's public Universities specifically at the University of Cape Coast.

Keywords: Higher education, educational institutions, learning, academic resources.

Introduction

Modern technologies such as Computer and Telecommunications technologies have been the most remarkable and transformative of the technologies emerging over the past 30 years. The emergence and convergence of these technologies has been termed Information and Communication Technology (ICT), a term sometimes synonymously used with Information Technology (IT). IT is defined as the combination of computer technology with telecommunications technology. The term includes computer hardware and software, data, image, and voice networks (Whitten et al., 2004, p.12).

ICT is regarded as an enabler, which facilitates productivity and enhances quality of output. It also enhances most aspect of human activities in the information era. The power of ICTs

transformation in human activities is in four stages: Automation, Rationalization, Re-engineering and Paradigm Shift (Whitten et al., 2004, p.12).

However, progress in application of ICTs in education has been slow. In the past most initiatives which have led to advancements in ICTs (the Internet, for example) had their origins in the academic community. The achievement of this vision is spelt out in the overall goal of the National ICT in Education Policy (NICTEP, 2004) as well as the National ICT Policy for Development (ICT4D, 2003) respectively as follows:

1. “To enable graduates from Ghanaian educational institutions to confidently and creatively use ICT tools and resources to develop requisite skills and knowledge needed to be active participants in the global knowledge economy by 2015”.
2. “To transform Ghana into information rich, knowledge base, technology driven, high income economy and society”.

Hence, the drive of using modern technologies in education specifically in Ghana’s public Universities cannot be overemphasized. Public Universities in Ghana have incorporated the use of ICTs in teaching and learning. Most Universities are now moving away gradually from depending on lecture notes and textbooks only, to online courses and e-resources. Students’ problems are identified more easily and new strategies adopted to help them overcome such problems with the aid of ICTs. Lecturers have improved on their presentations during lectures by the use of software such as MS Word, PowerPoint, and Publisher etc. The usefulness of ICTs to students cannot be overemphasized.

ICTs serve as an information resource that facilitates learning in the following ways:

1. use of software packages such as Word processing and Spreadsheets, special facilities such as the Braille, and Voice Synthesizers for people with disability and also improve student - lecturer , student-student, and lecturer-lecturer communications;
2. ICT provides a link between Universities so that they can share knowledge, a link between Businesses and also encourage new ways of learning which can also be done repeatedly with ease;
3. it provides a cheap and fast way to have access to a number of resources that can be regularly be updated through the use of the internet;
4. the internet also allows students to continue their work at home. This inculcates in students a culture to spend more time on their studies and facilitate computer literacy which is helpful in a technologically oriented world; and
5. Lecturers can use the internet technology to upload course documents, so that students who absent themselves from class due to grave reasons can download information on the lesson.

Statement of the problem

Academia is not abreast with ICTs as the private and business sectors. The current usage of ICTs in academia is associated with “dubbing” which simply means copying. Most students, who use ICTs specifically the internet, fail to perceive that such resources are to provide a deeper understanding to whatever information sought and are an extension of lecture rooms.

The purpose, role, and nature of ICTs in education are not given the attention that it deserves. Designers of resource tools for teaching therefore need to be able to understand these and to be aware of ICTs that will fit the academic environment. Practice of teaching and learning in the 21st century introduces the roles that digital technologies might play in the changing practices of teaching and learning. This project describes and contextualizes the changes taking place in teaching and learning that is being impacted as a result of ICTs usage in Ghana's public Universities, and identifies the importance of textbooks and lecture notes for teaching and learning.

Students' evaluations of information from the Internet and other ICTs sources are not given the same level of importance as textbooks and lecture notes usage. This project seeks to assess the usage of ICTs for teaching and learning in University of Cape Coast (UCC), which is one of Ghana's public Universities.

Aims of the study

This project seeks to:

1. Identify the ICTs currently in use to support teaching and learning in UCC;
2. Identify the extent of the adoption of ICTs by the University in teaching and learning,
3. Provide a sound theoretical and empirically informed basis for informing policy on the teaching and learning using ICTs;
4. Provide a basis for communication between the educational research community and the commercial sector on the subject of the usage of ICTs in teaching and learning; and
5. Highlight the characteristics of teaching and learning environment based on ICT.

Significance of the study

The use of ICTs is a global and an ongoing issue. This project will be of benefit to the academia, educational policy makers, lecturers, University's administrators and students in the following ways:

1. it will help in the spreading of Technology Education at various levels and different disciplines in Ghana's Universities;
2. Universities' faculties will enhance the impact of knowledge in their teaching emphasizing concept learning leading to the application of knowledge and critical analysis;
3. it will help lecturers to update and improve their skills;
4. it will help students to appreciate web resources which they use to arrive at answers to their problems; and
5. Students will also come to appreciate the evaluation of information sources.

Literature Review

Guglielmo (1998) identifies online education as a third generation of distance education when it employed Internet technologies. First and second generations distance education systems, which were respectively about correspondence (texts) and multimedia (e.g. computer assisted learning),

centred largely on the production of learning material and its delivery to the learning community. Two-way communication with the learners and between learners was kept to the minimum. These types of education did not treat learning as a social process in which priority was given to teacher-learner and learner-learner interaction. This principle was the foundation for the development of third generation distance education systems in the form of the online learning community. The aim was that learners should interact with one another within a learning community where isolation was eliminated and relationships formed in order to foster collective development.

According to Bulach et al (2008), learners cannot be taught, nor can learning be fostered, until they are convinced that the teacher cares for them – learners have a human need to feel cared for. Moller (1998) saw the functions of the community as providing social membership or reinforcement that aimed at satisfying the human need for self-esteem. Shared values, norms and preferences kept the community together. Another function was information exchange. Computer supported communication environment allowing geographically separated learners to create and share knowledge. The exchange allows alternate information and perspectives to be considered.

There was therefore effective and efficient communication and cooperation between teachers and learners. The best learning situations involved real community that was about more than just passing on facts. The efficient communication and the ‘real community reduced the high levels of isolation and alienation that was characteristic of correspondence study. Learning stakeholders needed to show concern for one another, and a feeling of awareness and sensitivity was supported between the teacher and all learners. In such environment learners were more likely to interact with peers, develop friendships and learn along with them.

Learning communities can be defined as ‘small subgroups of learners characterized by a common sense of purpose that can be used to build a sense of group identity, cohesiveness, uniqueness that encourage continuity and the integration of diverse curricular and co-curricular experiences. In addition Lally et al (1999) identified four distinctive features of the online learning community: the role of socio-emotionality, the importance of cooperative approaches to learning, the democratization of participation, and the equalization of community members. An adaptation from Lin (1995) summarizes the nature of efficient online learning communities as environments, which provide learners with opportunities to the following:

1. to plan and execute independent research towards problem solving and resource identification;
2. to work collaboratively and take advantage of distributed expertise from the community;
3. to use various technologies to build their own knowledge rather than using the technologies as ‘knowledge tellers’;
4. to expose themselves to continuous feedback and criticism so that they can revise their own thoughts, assumptions, and arguments; and
5. to improve responsibility, attitude and emotional intelligence in a group context.

Methodology

A survey method was used in this project. The targeted population was public Universities' students. The survey instrument used in this project was a structured questionnaire. Sample frame was a UCC student and sample size of 100 students was selected at random using the accidental and purposive techniques. The questionnaire captured students' views on the present and future use of ICTs in teaching and learning. Secondary data collected was from Administrative records of UCC and National Commission on Tertiary Education Technical Report Series on ICT. Statistical Package for Social Sciences (SPSS) Version 14 was used to analyze the data gathered. Data was gathered from primary and secondary data sources.

Primary data

Non-probability sampling specifically accidental and purposive technique was applied in the collection of primary data through the administration of questionnaire. Public Universities was the target population, University of Cape Coast students were the sample frame and information was captured from a sample size of hundred (100).

The purpose of the questionnaire was to identify the issues and concerns of students concerning the use of ICTs in teaching and learning. One hundred and nine (109) questionnaires were issued randomly and directly to students in Social Science, Education, School of Business, Sciences, and the Arts faculties. The questionnaire was administered in the last week, which was an exam week in the second semester of the 2007/2008 academic year. Of the hundred and nine (109) questionnaires handed out, hundred (100) were returned, a 91.7 % response rate.

The first part was on bio-data and the second part was based on a Yes/No, qualitative and a five point interval-scaling questions.

Qualitative and quantitative methods were used to analyze data. The qualitative methods involved descriptive indicators to evaluate the use of ICTs in teaching and learning in University of Cape Coast. The quantitative methods used were frequency calculations, deduction about sample from population and graphic representation of statistics.

Secondary data

The secondary research took the form of reviewing existing materials on ICT policy in Ghana, ICT policy in University of Cape Coast. Information obtained from the secondary sources was used in designing the questionnaire and this information also formed part of the analysis of the survey results.

A key component of the secondary research activity was literature review. This involved a review of some existing literature on the subject matter.

Materials, especially books that were reviewed have been duly acknowledged in the references.

Data Presentation, Data Analysis and Findings

This section constitutes analysis of data. It also showcases a pictorial, tabular, and graphical presentation of results from the analysis of data. Empirical inductions¹ are made in the context of ICTs usage in UCC.

Qualitative and quantitative methods were used to analyze data. The qualitative methods involved descriptive indicators to evaluate the use of ICTs in teaching and learning in University of Cape Coast. The quantitative methods used were frequency calculations, deduction about sample from population and graphic representation of statistics. Interactive graphs such as the bar charts were also used to illustrate findings.

Demography

Of the hundred (100) respondents, 66 or 66% were from Social Science Faculty, 6 or 6% from Education Faculty, 13 or 13% from School of Business, 13 or 13% from the Science Faculty, and 2 or 2% from the Arts Faculty.

Two were level 100 students, 3 level 200 students, 94 level 300 students, and 1 level 400 student. 64 of the respondents were male, whereas 36 were females. 4% or 4 students were within the age range of 11-20 years, 91% or 91 students in the age range of 21-30 years, and 5% or 5 students in the age range of 31-40 years.

Computer ownership

One survey question was whether respondents owned personal computers. A personal computer ranges from Laptops, Desktops, Tower and any other form of personal computers. Out of the 100 respondents, 59% or 59 had computers and 41% or 41 did not have computers. Out of the 59 respondents who owned personal computers, 18% or 18 had Laptops, 39% or 39 had Desktops, and 2% or 2 had Towers.

Location of computer accessibility

Out of the 100 respondents, 52 do not have a place to access the computer and 48 respondents had a place of access. Out of the 48 who had a place of access 17 had access to computers in Cybercafé, 1 had computer access at the work place, 6 at the University, 8 had access to their roommates' computers, 5 had computer access at the University's ICT centre, 3 had access to a computer either in cybercafé, or at workplace, and the University, and finally 8 had access to computers at home.

The 48% of computer accessibility corresponds to the findings of Okike et al (2001) that 18 out of 37, which is 48.7%, had e-mail or computer access.

¹ Making conclusion from particular to general

Summary

Ghanaian public Universities are yet to build an integrated infrastructure needed to take full advantage of the information age. But unlike their counterparts in the Private Universities, Public Universities are faced with a major challenge to re-invigorate the University in its entirety using the new and rapidly advancing Information and Communication Technologies (ICTs) to build a pathway to the global information revolution. ICTs are formidable and can be cost effective as development tools and can be used to reduce learning difficulties, enrich skills, and inspire new approaches to teaching and learning.

Public Universities are making an impact with the use of ICTs but it is not enough. There is more room for improvement in order for these Universities to glean the full benefits from the use of ICTs in teaching and learning. They are already making an important contribution to enhance the academic life of students. But this contribution can be multiplied several times over.

Because communication and information are at the very heart of the educational process, Ghanaian public Universities would have to integrate fully the usage of ICTs in order to have access to the growing isolation of departments, students and lecturers.

Ghana's public Universities are aware of the tremendous benefits in the long run if they are able to fully and efficiently integrate the use of ICTs in teaching and learning. Notwithstanding these benefits, some departments have either zero or poor usage of ICT tools due to lack of funds and the issue of improper and irregular maintenance is to be looked at in the light of the continuity of the smooth running of ICT centres and computer labs in the Universities.

Universities should really look at these challenges and blockages such as lack of funds, lack of proper maintenance, the issue of value for money in ICT usage, the total integration on Universities campuses, to enable Universities to glean the full benefits of ICTs. A well managed and planned implementation of ICT will pay for itself within some few years and the economic and social impact to be realized can not be overemphasized.

Recommendations

For Ghana's public Universities to fully glean benefits from the use of ICTs in teaching and learning, the following recommendations are worth considering:

1. ICT programmes offered on campuses should be tailored to specific academic discipline. For instance, engineering students can be taught AutoCAD and business students thought business related software applications.
2. There should be collaboration between ICT centres and computer labs in the various departments. With these collaboration, students who need the basics of ICT or literacy could be helped in their departments and students who need specific knowledge in advanced skills or programmes tailored to their academic discipline can be trained at the ICT centres. This strategy will enable the University train more students and allowing every level 100 student to be given literacy programme by the ICT centre as in the case of UCC.

3. In the construction of new lecture theatres, the authorities should consider inbuilt overhead projectors, and the convenient use of whiteboards. For a start old lecture theatres can be provided with moveable projectors to enable the use of whiteboards in such lecture theatres.
4. The University should restructure ICT programmes to encourage participation. It should not be an option left to the students as in the case of UCC. Such programmes should be considered in the designing of academic timetables to induce commitment and ensure a greater number of participation than what is prevailing now.
5. Lecturers should encourage use of CD-ROMs which come with textbooks. This will encourage electronic learning among students. Lecturers should also provide students with academic sites where they can read more on certain topics discussed in class.
6. Institutions that consider going online will have to consider the new learner needs, and the very demanding learning environment a priority. Mass-correspondence Distance Education institutions will have to carefully consider its reasons and commitment for establishing online learning as a second delivery mode, especially in terms of current practices and systems.
7. The implementation of ICTs should not be based on tales of success stories but based on the priority area of need and interest of officials to ensure its success.
8. Universities must streamline their activities to extend the implementation of ICT to more than an automation of current in-effective systems. Universities should redesign their programmes to enable processes go through all the stages of ICT application that is Automation, Rationalization, Re-engineering, and Paradigm Shift (Whitten et al, 2004, p.12)

Conclusions

Teaching in Ghana's public Universities has progressed steadily from the traditional environment to the use of ICT tools. Lecturers have improved their presentation and have provided the basic ICT infrastructure to enable teaching and learning.

Universities can no longer claim to be the ultimate source of knowledge and continue with a content transmission approach. The learner should no longer receive information, but construct knowledge. Multitudes of information sources are available, and it is a lecturers' responsibility to facilitate the construction of knowledge relevant to learners' professional needs and contexts.

Lecturers are moving from the concept of "a sage on the stage" to an interactive learning concept. As such the design of courses should be such that they provide a way for students and instructor to interact. Possible approaches are e-mails, a toll-free number, and lectures should be very interactive.

It is my fervent hope that the findings and recommendations of this study will serve as a useful source of information to University ICT policy makers, lecturers, students, and educational software developers.

References

- Bulach, C. R., Lunenburg, F. C., and Potter, L. (2008). *Creating a culture for high performing schools: A comprehensive approach to school reform and dropout prevention*. Lanham, NY: Rowman and Littlefield Education.
- Guglielmo, T. (1998). Computer conferencing systems as seen by a designer of online courses, *Educational Technology*, 38(3), 36-43.
- ICT for Accelerated Development (ICT4AD) policy. Parliament of Ghana (2003)
- ICT Policy Document. University of Cape Coast
- National ICT in Education Policy (2004). Ministry of Education, Ghana
- Lally, V. & Barrett, E. (1999). Building a learning community online: Towards a socio-academic interaction, *Research Papers in Education: Policy and Practice*, 14(2), 147-163.
- Lin, X., Bransford, J.D., Hmelo, C.E., Kantor, R.J., Hickey, D.T., Secules, T., Petrosino, A.J., Goldman, S.R (1995). Instructional design and development of learning communities: An invitation to a dialogue, *Educational Technology*, 35(5), 53-63.
- Moller, L. (1998). Designing communities of learners for asynchronous distance education, *Educational Technology, Research and Development*, 46(4), 115-122.
- Okike, E. U., Ibezimuoh, F. (2001). The Role of Information Technology and Management in Facilitating Effective Scientific Research and Production. *Topical Issues In Education: Papers in Honour of Prof. C. O. Udoh*. University of Ibadan, Nigeria, 171-181.
- World Bank (n.d.). *Summary Education Profile: Ghana*. Retrieved from <http://devdata.worldbank.org/edstats/SummaryEducationProfiles/CountryData/GetShowData.asp?sCtry=GHA,Ghana>
- Whitten, J. L., Bentley, L. D., Dittman, K.C. (2004). *System Analysis and Design* (6th ed.). McGraw Hill Companies/Irwin.

¹ Mr. Afari-Kumah is a lecturer at the University of Ghana Business School and a Research Scientist with the Council for Scientific and Industrial Research, Ghana. He can be reached at: +233244145161 afari@ug.edu.gh

² Mrs. Tanye is a systems analyst at the University of Cape Coast. She can be reached at: ctanye@yahoo.com

Page left blank