

PROVIDING INFORMATION COMMUNICATION TECHNOLOGY SUPPORT TO DISTANCE EDUCATION STUDENTS: A Case of The University of Ghana, Legon

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ABSTRACT

A study to investigate the current state of Information Communication Technology policy of the University of Ghana Distance Education (DE) programme and the extent of awareness and use of ICTs in general by the DE learners was carried out. The survey methodology was adopted using questionnaire and interview instruments. Respondents were made up of 120 DE students, the coordinator of the DE programme, and 5 workers at the DE unit. The questionnaires were distributed to all the 120 students while the workers responded to a semi-structured interview. The data was analyzed using descriptive statistics (percentage frequency distribution and examining relationships).

The main findings of the study revealed that there was a policy statement on providing ICT-based support to the DE learners; however, this policy has not yet been implemented. Most of the DE students were fully aware of ICT and majority of them use the internet across the regions. The students had positive attitude towards ICTs in that they deemed it necessary in the course of their studies and were willing to pay for ICT services. The main barriers identified that could affect the usefulness of the various ICTs were electricity, cost and accessibility. The study recommends among others, the forging of partnerships between distance education programmes and ICT companies, the networking of DE centres and the use of diverse ICT facilities, among others.

Keywords: Distance education, information communication technology,
University of Ghana

INTRODUCTION

The issue of distance education (DE) has become an educational phenomenon worldwide. Different countries have their peculiar reasons for adopting distance education as a method of providing education for the citizens (Alemna, 2004). In the UK for instance, the Open University (OU) system caters for those who cannot take advantage of the conventional education system while in Australia, distance education or external studies has developed out of its geographical and demographic peculiarities.

In developing countries such as India, Nigeria, Tunisia, Zambia, Zimbabwe and Ghana, the distance education method has been adopted to circumvent the vacuum created by inadequate formal education systems.

In Africa, more than 200 million adults are illiterate (33 per cent of the adult population), with the gross enrolment figures in sub-Saharan Africa being 73.1 per cent for primary school level, 23.1 per cent for secondary school, with only 3.3 per cent of 18 to 25-year-olds enrolling for tertiary level education (Brakel & Chisenga, 2003). Measures to drastically increase the student intake could be effective, if distance learning programmes are well implemented.

Saint (quoted by Brakel and Chisenga, 2003) observes that at least 16 countries will need to double their tertiary enrolments over the coming two decades (that is, increase the intake to 7 per cent) just to enable a constant share of their population to aim at tertiary level qualifications. He emphasized that the HIV/Aids epidemic in Africa, which accounts for 70 per cent of all new Aids cases in the world, will require many of these countries to produce an even higher number of graduates, in order to maintain existing human resource capacities.

The public expenditure per tertiary student is constantly dropping, even falling below the \$1,000 per student (Brakel & Chisenga, 2003), which is believed to be necessary to provide an acceptable level of tertiary education in today's world. It is a given fact that very few countries will be able to maintain current levels of tertiary education using the traditional residential campus model. Distance education therefore, has been recognized as a potential alternative by many countries to provide tertiary education to diverse groups of their citizens. The use of information communication technology (ICT) in distance education provide tremendous potential for meeting the goal of 'Education for All' (EFA), which broadly seeks to meet the learning needs of children, youth, and adults by 2015. In the year 2000 the world re-affirmed its 1990's declaration of 'Education for All' (Kwapong, 2007) to make a collective commitment to expand educational opportunities to the different groups in society. Participants at the World Education Forum in Dakar, Senegal, endorsed a comprehensive vision of education, anchored in human rights affirming the importance of learning at all ages and emphasizing the need for special measures to reach the poorest, most vulnerable and most disadvantaged groups in society (UNESCO, 2007).

DISTANCE EDUCATION IN GHANA

In Ghana, the provision of DE predates to the attainment of independent in 1957 (Kwapong, 2007), when some educated and political elite used what was called Correspondence Courses to further their education and training. Notable among these people were J. B. Danquah and Dr. Kwame Nkrumah. Kwapong (2007) and Alemna (2004) observe that the discussion of distance education as a solution to the inadequate access to tertiary education started when in 1986 a Sub-Committee was set up by the then Academic Board of the University of Ghana to examine the use of distance education to increase access to its programmes.

The government of Ghana in its recent educational reforms set up a committee to review the educational policy of the country to respond to current trends of developments.

The recommendations supported massive promotion of DE, and it proposed the establishment of an Open University and Open colleges in the country.

In line with this, the President's Special Initiative on Distance Learning (PSI-DL) was established in April, 2002 (Kwarteng, 2008), to co-ordinate and make operational in Ghana alternative models of education to complement Government's efforts of ensuring that Ghana attains the target of "Education for All" by 2015.

The PSI-DL provides television lessons in English language, Science and Mathematics to Junior and Senior High students. The programme aims at effectively bridging the educational gap between the well endowed and the poorly endowed schools especially in the rural areas and providing the youth needing remedial tuition the opportunity to improve upon their grades in English, Mathematics and Science.

Currently four (4) of the public universities, University of Ghana (UG), Kwame Nkrumah University of Science and Technology (KUNST), University of Cape Coast (UCC), and University of Education, Winneba (UEW) including one private university, Valley View University (VVU) are offering their academic programmes in a dual mode. Kwapong (2008) observes that the DE programmes that are being offered are mainly print-based supported with occasional face-to-face tutorials.

DISTANCE EDUCATION AT THE UNIVERSITY OF GHANA

The University of Ghana like other tertiary institutions within the West Africa Sub-Region is under pressure to deliver well-trained and skilled workers to meet the increasingly sophisticated demands of the workplace. The university recognizes that traditional training methodology is no longer keeping pace with increasingly diverse groups of students from differing geographic locations, deprived communities, ethnic backgrounds and varied abilities. Notable among these problems are the inadequate facilities at the university to cater for the increasing numbers of students who graduate from the secondary schools every year and the high demand of organizations from workers to upgrade themselves to meet current human resource developments. Hence, the university initiated the Distance Education Programme in 1995 and was launched on November 23, 2007. Currently the programme is offered in 5 centres in Ghana, namely Greater Accra (Legon), Ashanti (Kumasi), Western (Takoradi), Northern (Tamale), and Eastern (Koforidua) regions. The programme is being managed by the Institute of Adult Education (now known as the Institute of Continuing and Distance Education). The teaching and learning are done through occasional face-to-face sessions at the study centers through the use of printed course modules.

Print materials are the major media of communication for assignments and feedback. Assignments are either hand-delivered or mailed by post. During residential school students write their end of semester examinations. The feedback of the tests and assignments are mailed by post to the students as well as published on notice boards at the various centers and the students travel to these centers to access their results. The University of Ghana provides administrative support, academic support and counseling to the DE students. Student support is a major factor in distance education. However, despite the widespread development of ICT and the fact that distance education students have limited access to campus facilities, the DE programme in the University of Ghana is run without ICT facilities, an essential element of student support. For example, the DE centers are not equipped with computers with Internet facilities and students are not encouraged to use the electronic resources in the University library (Balme Library). Additionally, the library does not provide any instructional support to the DE learners as it was not factored in the planning of the DE programme.

The essence of ICT support is to bridge the gap between the instructors and the students as well as the barriers of time and space. The use of ICTs for distance education makes the delivery more widely and evenly distributed than just reliance on printed materials. But due to its absence, students who live far away from the centers are obliged to travel long distances to attend face-to-face sessions with their tutors. Furthermore, students who are workers have to leave their work place to attend tutorials while those who cannot afford to leave their workplace may drop out of the programme. Travelling frequently to the centres for tutorials may also not be cost effective for the students as the sessions are organized fortnightly on Saturdays and Sundays. This situation defeats an essential benefit of distance education whereby students sit in the comfort of their homes and offices to access lecture notes, interact with lecturers as well as submit their assignments online.

RESEARCH OBJECTIVES

The main objective of the study was to investigate the current state of ICT policies/services of the DE programme in the University of Ghana. The specific objectives were to assess knowledge and usage of ICT in general by the DE students, attitudes of DE students towards the utilization of ICTs in the provision of student support; the accessibility of ICTs that the students would need to utilize in the ICT-based student support and factors that would affect the usefulness of ICTs.

SIGNIFICANCE OF THE STUDY

This study is significant at two levels. First, it makes a modest contribution to the distance Education discourse from a developing country's perspective. Second, it offers important insights into how distance education in developing countries can be better managed with ICT to enhance its rapid adoption.

LITERATURE REVIEW

The Use of Icts in Distance Education

The concept of distance education is concerned with a form of educational delivery where the acts of teaching and learning are separated in time and space, and technology plays a significant support role in enabling this form of delivery (UNESCO, 2002). Even though DE depends on information communication technology (ICT), it is much more than just technology. Rather it is a total delivery system. Information and communication technologies is an embracing concept that includes the systems, processes and people (Chifwepa,2008) that are involved with technologically mediated communication. It refers to a diverse set of technological tools and resources used to communicate and to create, disseminate, store and manage information. The evolution of technologies, with specific convergence of ICT, has had tremendous influence on the modern distance education delivery (World Bank, 2002). In information technology, convergence is a term for the combination of personal computers, telecommunication, and television into a user experience that is accessible to everyone (Chifwepa, 2008).

In order to bridge the barriers of time and space, distance education must necessarily use a variety of ICTs to present the learning material and provide for interaction. The advent of the World Wide Web made interaction between learners and teachers easier and more efficient in what UNESCO (2002) referred to as 'third generation distance education'.

ICT has made it possible for learners and teachers to communicate and share information in a synchronous way. ICT-based modes of communication can provide opportunities for this, in terms of communication and interaction between the teacher and learners, and access to resources.

The ability of ICT-based modes to enhance communication between the teacher and learners fortifies the presence of interaction as one of the attributes between the instructor and learner; instructor and peers; learner and content; and learner and peers (Barker et al., 1993). These interactions especially the instructor-learner interaction enhances the learning abilities of DE students. The interaction that transpires between students and faculty is intended to help reinforce student understanding of the material (Thurmond & Wambach, 2004; Moore, 1989). It is therefore, necessary that larger investments in ICT-based support to distance education students should be undertaken by both governments and the private sector.

With ICT-based distance education enrolment from any global distance tertiary institute is now possible (Darkwa and Mazibuko, 2000) – a potential student can now select applicable courses from across the borders of a particular country. New online, hands-on learning techniques can be implemented, with greater emphasis on research, thus enhancing lifelong learning skills. Resources of the many international virtual institutions and links can be shared by current tertiary institutes, thus also simplifying the delivery of material at remote sites. Saint (quoted by Brakel and Chisenga, 2003) noted that with applicable ICT, a stronger distance learning approach can increase educational access by reaching out to four normally excluded groups, namely:

Firstly, secondary school graduates who fail to gain admission to university, Secondly, women with household responsibilities, they estimated that currently women comprise 35 per cent of tertiary enrolments in Africa. This under-representation implies for an increase in the general intake, as home-based study within a flexible schedule is well suited for those who must also fulfill family responsibilities. Again learners in remote rural areas, small towns or refugee camps who do not have convenient access to tertiary institutions will save travel time, travel expenses, as well as the continuation of income while studying can be considerable.

Finally, they argue that distance learning strengthened by basic ICT facilities can reach a portion of the approximately 6 million refugees currently in temporary shelter, as well as for those who may in future be displaced by social and political tensions. Relevant programmes can help refugees to obtain the skills needed for self-sufficiency and responsible citizenship. One such programme is already very successful. They noted that since 1994 refugees from Burundi who lived in camps in Western Tanzania could enroll for courses in Basic English, as well as mathematics, history, geography and Swahili.

With impoverished or socially marginalized communities if governments can effectively address their budgets with regard to distance learning, it can benefit these communities (Kwapong, 2007), as the approach allows students to work and study simultaneously. ICTs are also being used for OPACS with dial up connections, home videos and home based computers with variety of peripherals and other technology fashioned to provide support to distance learners with regard to the information services. Universities are also using ICTs to enable electronic access to their libraries by the remote student users.

The use of ICT-based modes also promises flexibility (Devi, 2006; Peters, 2002) in terms of access to external resources and combining learning with other activities. It also tends to motivate students as well (Leasure et al., 2000)

Knowledge and usage of ICT among students in the developing world is also encouraging. In comparing knowledge and usage of ICT among male and female distance learners in Ghana Kwapong (2008) reported that 77.5% of the respondents indicated that they knew what ICT was, 72% of men as against 46.2% women said they were aware of search engines such as Google and that 63.3% of the respondents across the regions indicated that they accessed the Internet. Chifwepa,(2008) also reported that 32% of the respondents had skills in word processing, 25% in database searching and 20% in e-mail usage. However, a review of 133 distance education programmes in sub-Saharan African countries by Leary & Berg (2007) has revealed that the print medium continues to be widely used than online and Web-based methods of learning. Similar findings were reported by the World Bank (2002).This may be attributed to poor ICT infrastructural development and unreliability of electricity in most parts of these countries. However, Gulati (2008) noted that this does not imply that developing countries with limited ICT infrastructure should not use online learning methods.

ICT Situation in Ghana

Ghana has been experiencing a growth in ICT usage for the past decade. The major service providers are: six Internet service providers, five mobile service providers, one land line provider, six television broadcasters (three of them covering almost all the country), and about 138 radio broadcasters with the nations broadcaster covering all the 10 regions.

The university of Ghana library has also been fully automated. The library provides access to electronic resources and subscribes to 26 databases. These services would not be of much benefit to students if access is not made available.

METHODOLOGY

This study employed the survey research method. Questionnaire and interview techniques were used to collect primary data. The questionnaire was made up of four sections - A, B, C, and D. Section A consisted of the respondent's demographic information such as sex, age, occupation, and marital status. Section 'B' dealt with student's knowledge and usage of ICTs, section 'C' determined students attitudes towards ICTs while section 'D' sought their opinion on factors that could affect the use of ICTs in the DE programme as well as problems encountered by the DE students due to lack of ICT services. The questionnaire was pre-tested on some of the DE students to determine the level of validity.

The respondents were made up of 120 DE students, the coordinator of the DE programme and 5 workers of the DE unit of the University of Ghana. A combination of convenience and purposive sampling techniques was used in selecting participants. Convenience sampling was used to select the required number of student respondents from the total population of 2,374 2008/2009 academic year DE students. Alreck & Settle (1995) dispute the logic that sample size generally depends on the size of the population in question. They also found that sample response variation changes little in samples over 100. The researcher therefore decided on a sample size of 120 which constitutes 5% of the DE students' population.

Purposive sampling was also used to select the coordinator of the DE programme and 5 workers of the DE unit. The coordinator and workers responded to a semi-structured interview. Out of the 120 questionnaires which were distributed to the DE students, 114 were received giving a response rate of 95%. 110 questionnaires out of the 114 were properly answered while 4 were incomplete. The analysis was based on the 110 well completed questionnaires.

RESULTS AND DISCUSSION

From the demographic results of the survey majority of the students were made up of those from Legon main campus comprising (45) 40.9%, (16) 14.5% were from Kumasi, (19) 17.3% came from Koforidua while Tamale and Takoradi had (15)13.6% respectively. Most of the students that responded (63) 57.2% were in their first year of study while (47) 42.7% was made up of second year students. In terms of gender (66) 60% of the respondents were males while (44) 40% were females. With reference to marriage (74) 67.3% of the respondents were single while (36) 32.7% were married. With regards to age, most of the respondents (63) 57.3% fell within the age range 24-32, (28) 25.5% were between 33 and 40 years, (11) 10% fell within the age range of 18-23, (4) 3.6% were within 41-45, while (4) 3.6% were 46 and above.

With the issue of employment (75) 68.2% of the respondents indicated that they were workers while (35) 31.8% stated that they were full time students. This is an indication that most of the respondents had busy schedules. An ICT-based support to them would be of a great help as it would provide flexibility in combining work with schooling. The benefits of having a flexible schedule under the DE programme is commended by Priebe & Low (cited by Kwapong (2008) and Coffey (1998).

Knowledge and Usage of ICT

Knowledge of ICT was high among all the respondents. In total, (89) 80.9% of respondents indicated that they knew what ICT was, while only (21) 19.1% indicated that they did not know what ICT was. In terms of ownership of a personal computer (60) 54.4% of the respondents indicated that they had personal computers whereas (50) 45.5 % answered "No" to ownership of a personal computer. Nevertheless, (89) 80.9% of the respondents indicated that they used computers. This finding is in conformity with Kwapong (2008) who reported that majority of the respondents in her study knew what ICTs was. Chifwepa (2008) also reported that respondents were aware of ICTs and that most of them were conversant with word processing.

To probe further into the usage of computers, respondents were asked to indicate the average number of hours they spent working with the computer each week. The results showed that majority of the respondents (27) 24.5%, who worked with computer, did that over 10 hours per week. This was followed by those who used it below 3 hours (24) 21.8%, 3-6 hours (24) 21.8% and 7-10 hours (13) 11.8%. However, (22) 20% of the respondents indicated that they did not use the computer. Thus the study showed that most of the respondents used computers although some of them did not have computers. There is therefore an indication that if the DE providers in developing countries incorporated ICTs into the programme, the students would be able to utilize the facilities especially the computer. Also this would provide a good platform for those who do not have knowledge of using the computer to acquire these skills, improve the attitudes toward the computer, and to computer knowledge and unintentional learning outcomes as reported by Carswell (2000) and Collins (2000).

For instance, Hong et al. (2003) reported that a student who took part in ICT-based distance learning admitted, "Before this course, I used the computer only for e-mail and typing test paper. Now I can use the SPSS, the Web and online discussions. I became more familiar with handling the computer. Most of us have come out from our shells and were less nervous. Now we spend most of our time in front of the computer."

Internet Usage

With reference to the use of the Internet, the study showed that (83) 75.5% of the respondents indicated that they used the Internet while (27) 24.5% stated that they did not use the Internet. In terms of gender, the study revealed that (48) 57.8% males used the Internet as against (35) 42.2% females. On the other hand it has also been found out that (18) 66.7% of males did not use the Internet as against (9) 33.3%. It appears that men used the Internet more than females however; the chi square test did not show any significant relationship with a result of chi square value of 0.663 where $p > 0.1$ with a 1 degree of freedom. There are however, different views reported on internet usage. For instance, Markwei (2001) reported that male respondents in the case of staff use the Internet more than their female counterparts. However, her study indicated that female respondents with respect to students used the Internet more than the males. The study further indicated that there was an insignificant relationship between Internet use and gender with regard to academic Internet use which is in conformity with this study. Boudette (cited by Markwei 2001) however, reported that males used the Internet more than females. White (cited by Lazinger et al. 1997), on the other hand reported that females used the Internet more than males.

Ford and Miller (1996) explained that the gender difference in Internet use might be due to the traditional male bias towards technology in general and computing in particular. Furthermore, they reported that men seemed to enjoy browsing around the internet, often with no clear plan, happy to plough through the irrelevant in search for personal interest (as opposed to work-related) material (Ford & Miller, 1996).

Women on the other hand, seemed relatively disoriented by and disenchanted with the Internet and generally are unable to find their way around effectively. They also tend to use it for work purposes as opposed to personal interest.

Internet Use by Age

The relationship between age and Internet use was also investigated. It was postulated that, the young use the Internet more than the old. The results clearly showed that, among the age groups of 24-32 years, 33-40 years, 41-45 years, 46 and above years, the young age (age 24-32) use the internet more than the old, that is, the rate of Internet use decreased with age. For example, percentage users of 24-32 years were 61.4% almost 40.9% more than ages 33-40 years with percentage usage of 20.5%.

However, the chi square test did not show any significant relationship between Internet use and age of respondents with a result of chi square 7.131 where $p > 0.1$ with 4 degrees of freedom. This finding corroborates that of Markwei (2001) who stated that the young used the Internet more than the old, but is inconsistent with that of Chu (as cited in Lazinger et al. 1997). Perry et al. (1998) also reported a regular Internet use by University students with no differences among age groups.

Time Spent Browsing the Internet

Time spent browsing the Internet was also investigated. The study showed that majority of those who used the Internet (36) 32.7% could browse it up to 1 hour to one and a half hours, followed by 1hour 30 minutes--2hours (16) 14.5%, above 2 hours (14) 12.7%, 0-30 minutes (9) 8.2%, and 31minutes--1hour (8) 7.3%. Some of the respondents (27) 24.5% on the other hand indicated that they did not browse the Internet.

Uses of the Internet

It was assumed that because the Internet has a lot of information for research, respondents who engaged in research activity would use the Internet more than those who were not doing any research. The results showed that respondents who were engaged in research activities used the Internet more (50) 45.5% than those who were not doing any research.

Table: 1
Uses of Internet

Frequency	Percentage (%)	Uses of the Internet
19	17.3	Send e-mails
6	5.5	Chat with friends
50	45.5	For research
3	2.7	Others
7	6.4	All the above
25	22.7	None

Further investigation into the relationship between research and number of hours spent using a computer showed a positive relationship, that is, those who spent more hours a week using a computer also used the Internet for research more than those who spent less hours a week with the computer. For example 66.7% of those who spent over 10 hours using computer engaged in research activity. The chi square test also showed a significant relationship between time spent using a computer and research activity with a chi square value of 79.002, at a level of $p < 0.0001$ with 20 degrees of freedom. Similarly, Markwei (2001) reported that students who spent longer hours with the computer engaged in research activity and that they used the Internet more often than those who were not doing any research.

Investigation into Internet use across the regions also showed that majority of the respondents within each region used the Internet. For instance, in the Northern region which is a deprived region one might have thought that Internet use would be low, however, (9) 60% out of the 15 respondents from the region used the Internet. In the case of Greater Accra region (35) 42.2% out of 45 of the respondents used the Internet, with the Eastern region having (13) 15.7% out of 19 respondents, Ashanti region (14) 16.9% out of 16 respondents and Western region (12) 1.4% out of 15 respondents who used the Internet. Similar findings were reported by (Kwapong, 2008).

Awareness of Search Engines and Databases

Regarding awareness of search engines such as Google, most of the respondents (88) 80% indicated that they were aware of the search engine, while (22) 20% said they were not aware of them. This finding is in conformity with Kwapong (2008) who stated that 72% of men as against 46.2% of women stated that they were aware of Google.

In terms of how often the search engines were used per week , the study showed that most of the respondents (42) 38.2% indicated that they used them occasionally, followed by those who used them for over three times (15) 13.6% , twice (9) 8.2%, once (8) 7.3% and three times (7) 6.4% per week in that order. However, (29) 26.4% of the respondents indicated that they did not access these search engines at all.

With reference to awareness of databases such as Emerald, JSTOR, Agora, EBSCOhost etc; it is interesting to know that (102) 92.7% of the respondents indicated that they were not aware of these database while (8) 7.3% of the respondents indicated that they were aware of them. Among those who were aware of the databases only 1 (0.9) respondent indicated that he used Emerald occasionally. This was not surprising in that during the interview with the coordinator of the DE programme it was revealed that there was no rapport between the DE unit and the Balme Library which would enable the DE students to access these databases to supplement the printed modules.

Similarly, Tenkorang (2001) stated that there was a complete absence of cooperation between the institutions that provide DE in Ghana and the public libraries. This in itself is an indication that the DE providers did not consider the importance of libraries during the planning stages.

Attitudes Towards Icts

The respondents were asked to indicate whether they felt that they needed to use television, fax, computer, Internet, radio and telephone in the course of their studies. The study revealed that the positive order of responses was computers, Internet, telephone, television, radio and fax. Computer and the Internet emerged as the major ICT tool respondents would like to use in their studies. Similar findings were reported by Chifwepa (2008).

Accessibility to Icts

The study revealed that most of the respondents (39) 35.5% had ready access to television followed by radio (34) 30.9%, computer (22) 20% and Internet (13) 11.8%. The least ICT available to the respondents was the radio cassette recorder (2) 1.8%.

Further investigation into accessibility to the ICTs in the various regions indicated that the internet was not readily accessible to most of the respondents in all the regions however; this did not prevent them from accessing it. For instance, in the deprived northern region, although only (1) 6.6% of the respondents indicated ready accessibility to the Internet, (9) 60% of them used the Internet. Accessibility to these ICTs had reflected in respondents' preference of formats of course materials. Chifwepa (2008) also reported that most of the respondents did not have ready access to the Internet.

Usefulness of the Various Icts

Respondents were asked to indicate how useful the various ICTs would be in the course of their studies. The answers given were:

- Computers--for writing assignments, for accessing course materials on the Internet and on C-D ROMS
- Telephonefor direct communication with lectures and colleagues.

- RadioFor urgent communication as this can reach many students, it can also be used to broadcast some lectures, some of the respondents suggested that 'Radio Universe,' the University of Ghana's FM could be used but they also added that since it did not cover all the regions the authorities could arrange for it to have affiliation with Radio Ghana branches in the regions.
- Television...for recorded lectures and urgent information about the DE programme.
- Internetfor sending e-mails to lecturers and sometimes colleagues. Some students stated that they communicate with some of their lecturers through e-mails. Others indicated that lecture notes could be put on the Internet for easy access instead of going to the course centers all the time.

Medium of Interaction with Colleagues And Lecturers

On the preferred ICTs respondents would like to use to interact with their colleagues, the order of responses was telephone (64)58.2%, e-mail (27) 24.5%, Internet (18) 16.4%, and fax (1) 0.9%. The choice of the telephone by majority of the students as a means of interacting with their friends showed that the telephone is now the common means of communication in the Ghanaian society.

With reference to ICTs that respondents would like to use in order to communicate with their lecturers, most of the respondents (62) 56.4% chose e-mail with reasons such as "the e-mail is fast, it is cheaper when compared to telephone calls, lecturers can read it at their own pace as they are sometimes too busy to receive telephone calls'. Others are "lecturers can give feedback through the same means". Those who opted for telephone (28) 25.5% also gave reasons such as "the telephone gives prompt response", (14) 12.7% of the respondents chose the Internet, while (4) 3.6% and (2) 1.8% opted for fax and mail respectively. Kelsey & D'souza (2004) stated that the mode of interaction between faculty and learners was e-mail-- 89.3%, telephone—89.3%, letters—17.5% and meetings—71.4%. The study supported Holmberg's and Moore's contention that interaction may be a predicating factor for the success of distance education courses. The choice of the e-mail by majority of the students as a means of interacting with their lecturers can enhance interaction between learners and teachers as well as the submission of assignments electronically (Cravener, cited by Mattheos et al. 2000).

Mode of Course Delivery

On the issue of whether students would like to have lectures to be broadcast on radio, television, or the Internet, (49) 44.5% of the respondents answered yes. However, there were some anxieties that ICTs could do away with face-to-face meeting with lecturers hence (61) 55.5% of the respondents answered no with reasons such as "we need to see the lecturers, the physical touch is important; we need to ask questions for the lecturers to clarify concepts that we do not understand". This finding is in conformity with Chifwepa (2008), who noted that most of the DE students indicated that Internet removes the personal touch in contacts and that ICT may not be good for asking some questions, but is in contrast with Restauri (2001) who reported that (61.3%) of the students were more willing to respond and partake in the online course than in their traditional face-to-face classes.

Preference of Course Materials

Respondents were also asked to indicate the formats of course materials they preferred and the reasons for their choices.

Most of the respondents (53) 48.2% indicated that they preferred the print format of course materials, (26) 22.7% chose C-D ROM, (17) 15.5 % opted for the Web, (10) 9.6% chose audio, and (4) 3.6% chose diskette. The opinions of the respondents on these formats could be explained by the level of ICTs they would need in order to utilize the various formats of the materials. The study revealed that those who chose the print format gave reasons such as "the print materials are easily accessible and can be read anywhere, anytime with or without electricity, it does not need equipment and special skills to use it". Others indicated that the print format is cheaper when compared to the other formats. However, some of the respondents also added that sometimes there were delays in the provision of these materials.

The study showed that 25.4% of the respondents who opted for the print format were from deprived areas; therefore their choice of material might probably be attributed to their inability to have access to the equipment needed to utilize the other formats. In fact 2 (3.8%) of the respondents indicated specifically that they did not have access to computers and Internet to access C-D ROM and the web. Similarly, Chifwepa (2008) reported that most of the respondents chose the print formats, and that inaccessibility to the ICTs had been a contributing factor in the choice of the print formats by the respondents.

This study also revealed that (6) 11.3% of those who chose the print indicated that they were comfortable learning from the print medium than the others. This finding is consistent with Usun's (2004) who reported that many of the first-year Open Education Faculty students described the textbooks as the most useful instructional aspect. Others, however, found that learning solely from textbooks posed challenges and restricted interaction with the content. Patterson et al. (cited by Matteos et al., 2000) reported that majority of medical practitioners preferred the printed format to that of other formats. For those who chose C-D ROM, they indicated that it was convenient and portable to carry and that it also provided variety which eliminates boredom.

In order to assess the importance attached to the use of ICTs respondents were asked to indicate their willingness to pay for the use of ICTs for educational purposes. Majority of the respondents 83.3% indicated "yes". On the other hand 7.8% of the students answered "No". Their reason was that the course fee is expensive and that they cannot afford additional cost. The positive response about willingness to pay shows that respondents know the value of ICTs and how it can assist them in their studies. Similarly, Kwapong (2008) noted that over 66% respondents from even the in deprived regions Ghana were willing to pay for Internet connectivity. Chifwepa (2008) also reported that the positive order of students willingness to pay for the use of ICTs were, 78.3%-Internet, 78.2%- printers, 75.4%-computers and 47.6%-television.

Factors That Could Affect the Usefulness of Icts

When asked to state some factors that could affect the usefulness of the various ICTs, the respondents gave various factors. These were accessibility (41) 37.3%, cost (39) 35.5% electricity (30) 27.3%. Some respondents also mentioned that they did not have the skills of accessing the internet while others indicated that they did not have easy access to computers and the Internet. Others stated lack of resources and technical knowledge. Similar barriers were reported by Katz & Aspden (1992) and Adele et al. (1992) who noted that cost was a barrier to Internet use. Chifwepa (2008) also reported that accessibility and electricity were identified as the main limitations on the use of these ICTs.

Problems Encountered By the DE Learners Due To Lack Of ICT Facilities

With reference to problems encountered by the respondents due to lack of ICT facilities, 78.95% of them indicated difficulty in interaction with lecturers, submission of assignments, delay in the provision of course materials and sometimes incomplete modules. The problems listed seem to be in conformity with Barker et al., (1993) findings where they reported the problems recounted by DE students in the print-based DE programme was delay in the provision of course materials. Vrasidas and McIsaac (1999), Dzakira and Idrus (2003) and Soon et al. (2000) also mentioned the problem of untimely feedback from lectures.

RECOMMENDATIONS

From the experience of the University of Ghana the following recommendations are made which will benefit DE learning experiences in other African countries and provide a more effective way of supporting the DE students.

- *Forging partnership.* Universities running distance education programmes should explore the possibility of establishing links with ICT companies to have the DE centers networked. This is because initial capital infrastructure for networking is so huge that most universities may not have the financial resources to support this venture. At the University of Ghana it is recommended that the Institute of Continuing and Distance Education works closely with the ICT directorate of the University of Ghana to enable the DE students have access to the Internet at the various centres. The ICT directorate is responsible for the development and implementation of ICT policies, strategies and standards and support of the University's ICT infrastructure.
- *Networking DE centers.* All centers running DE programmes should be equipped with various ICTs especially Internet connectivity for the students to have easy access to the Internet. A well-maintained website should be available to provide detailed information about the programme, application and registration, uploading and downloading of lecture notes, and supplementary materials, submission of assignments as well as other services. DE learners who do not have ICT facilities at home or at their workplaces will be able to use the centers to access the necessary information.
- *Diverse ICT facilities.* Since print materials may remain the main format for some years, there will be the need to complement them with audio, audiovisuals, multimedia CD ROM and the Internet. Using a combination of formats will be in conformity with the suggestion made by Peters (2002) that the benefit of a combination of media in a dual mode of distance education is that students would have several choices.
- *Cost-sharing.* The cost of ICTs could be shared with the students by including it in their fees for purpose of sustainability. However, in order not to make the fees too high and therefore, affordable to the students, the Universities would need to provide budgetary allocation for ICTs and their maintenance for the DE programme.

CONCLUSION

Even though there was a written policy on providing ICT support to the DE students, the students were not provided with ICT facilities.

The major beneficiaries, that is, the DE students had high knowledge and usage of the Internet as well as positive attitudes towards ICTs. They indicated willingness to pay for ICTs because they were convinced that these were necessary for their studies. The ICT profile of the distance learners will no doubt serve as a good starting point for the utilization of the basic ICTs especially the e-mail to facilitate interaction between lecturers and students.

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