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EDUCATION

THE INFLUENCE OF LEARNER CHARACTERISTICS ON THE USE OF ICT ON QUALITY OF DISTANCE LEARNING IN KENYAN UNIVERSITIES

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ABSTRACT

Background of the study: Distance learning is characterised by separation in physical distance between the learner and the lecturers rather than reliance on the conventional pedagogies characterised by interactions between lecturers and students on face-to-face classrooms. With advent of ICTs, distance learning has become an alternative and supplement for face to face learning.

Objective of the study: This study investigated the influence of learner characteristics on use of ICTs on quality of distance teaching and learning in Kenyan Universities. The study was based on Simonson's equivalency theory.

Research Methodology: The study was guided by mixed methods research approach. Specifically, convergent parallel design was used. The target population was universities that offer programmes through open, distance and e-learning (ODeL) targeting ODeL directors, lecturers who taught ODeL students, ICT technical staff and ODeL students from the selected universities that offer programmes through this mode. A sample size comprised of (4) ODeL directors, (78) lecturers, (4) ICT technical staff and (156) ODeL students. Stratified, systematic and purposive sampling was used to sample the respondents. Among all the universities that offer ODeL programmes, four universities were purposively sampled for the study. Data was collected by use of document analysis guide, questionnaires and interview guide. Cronbach alpha correlation method was used to compute reliability co-efficient which was 0.8095 which was above 0.7 as expected in social sciences. To ensure reliability in qualitative data, interview guide with highly structured questions, with the same format and sequence of words was used for each participant. Descriptive statistics involving mainly frequencies, percentages and means were used to analyse the data. Analysis of quantitative data was done using Predictive Analytical Software (PAS) version 20.0. Qualitative data was coded and analyzed in themes emerging from the narratives.

Findings and Conclusion: It was established that learner characteristics on the use of ICT was significant in influencing quality of distance teaching and learning in Kenyan Universities. The study recommended that to enhance quality in ODeL, institutional support on use of ICTs in distance teaching and learning was very critical.

Keywords: *Distance teaching and learning; Quality & Kenyan Universities*

1.1 BACKGROUND OF THE STUDY

The advent of information communication technologies (ICTs) has influenced how people worldwide carry out various tasks. There is no doubt that ICTs have enabled people to share information over long distances more effectively. Information communication technology has been adopted in teaching and learning leading to development of Distance Education (Nyerere, 2016). In the world today, education is experiencing transformation in teaching and learning with the utilization of ICT as an enabling learning environment (Republic of Kenya, 2005). Fu (2013) posits that ICTs are transforming a teacher centered environment into a learner-centered environment where learners actively participate in the learning processes in the ICT classrooms and the teacher allows them to make decisions, plans and construct their own meaning. Fu points out that use of ICT can improve quality of education and associate learning to real life situations.

1.2 STATEMENT OF THE PROBLEM

The issue of quality of distance learning assumes greater attention than in the conventional face to face learning and therefore, it demands for more visible credibility (Mboroki, 2011). The Commission for University Education (2014) posits that universities are supposed to make sure that teaching and learning in ODel academic prograrmmes compare well with those offered through face-to-face learning mode. This implies that quality of teaching and learning should be upheld regardless of the mode of study. Some of the issues related to quality that need to be addressed are content development issues, content delivery issues and learner support system.

Despite the exponential growth of the demand for Distance Education, Braimoh (2010) argued that it is commonly and regularly considered as an inferior type of education acquisition. Programmes offered through distance learning have been criticized on basis of poor quality and not being at par with the traditional face to face programmes (Nyerere, 2016). Enhancing the quality of distance education is a critical issue, particularly at this time of expansion of education and with the advent of ICTs. Utilization of ICT in Open and Distance Learning is a core method of instructional delivery rather than supplementary, as in the case of traditional face to face education system. According to the Commonwealth of Learning and UNESCO (2011), technology has transformed many areas of human life and the world must embrace it in teaching and learning. It is for this reason that Wambua, Mwaniki and Kibaara (2012) argued that information communication technologies have the potential to enhance the quality of teaching, improve efficiency of faculty and students and in the effective management of the universities.

The National Strategy for University Education, 2007-2015 also recommends the expansion of open and distance learning in the delivery of education by leveraging on the ICT infrastructure that is being rolled out within the country. Kenyan universities have actively embraced the use of ICT in ODeL though less attention has been directed on its influence in improving the quality of Distance Education. Some researchers, for instance, Gakuu (2006); Wims and Lawler (2007); Gakuu and Kidombo (2010) and Keiyoro (2010), have addressed issues of integration of ICT in secondary and primary schools and issues of readiness to the use ICT by the university lecturers and students. These studies did not investigate whether the ICT plays a role in influencing the quality of distance teaching and learning. The main question of concern therefore is; what is the influence of ICTs in improving the quality of distance teaching and learning in Kenyan universities? This research study, therefore, has attempted to fill this gap.

1.3 OBJECTIVES OF THE STUDY

To determine the influence of learner characteristics on the use of ICT on quality of distance learning in Kenyan universities.

2.1 LITERATURE REVIEW

Influence of Learner Characteristics on the Use of ICT on Quality of Distance

Teaching and Learning

Distance learning is characterized by separation in physical distance between the learner and the lecturers rather than reliance on the conventional pedagogies characterized by interactions between lecturers and students on face-to-face classrooms. The physical distance is often bridged by ICTs. Many factors affect effective utilization of ICTs in Open and Distance learning. Olusola and Alaba (2011) noted that among the main factors in Nigeria which affected distance learning were poverty, erratic electricity supply and barriers. According to Olusola and Alaba, learner characteristics are another key factor that may affect the use of ICT in distance teaching and learning. Examples of learner characteristics include: learners' attitude, financial status and geographical location of distance learners. Olusola and Alaba (2011) further argue that these factors have to be considered if the potential of ICTs in ODL within developing countries are to be realized.

Influence of Learners' attitude on use of ICTs on quality of distance teaching and learning

Attitudes are the views of a person, whether positive or negative, or a predisposition towards an object, institution, ideas, events or a person (Vogel, Bohner, Wanke, 2014). Gakuu (2006) defines attitudes as enduring dispositions to constantly respond in a given way to different aspects of the world. From the above definitions, it is clear that attitudes help to determine what a person perceives and how they perceive it. Therefore, the attitude a learner has towards use of ICT in distance learning influences acceptance or rejection of its use as a viable means of instructional delivery. Studies carried out by Noreen et al. (2012) showed that distance learning

students had high positive attitude towards use of ICTs. Noreen et al. pointed out that the student's needed more and more new technologies to be used in higher education and proper training to be conducted to enable them to be aware of the benefits of educational technological innovations. Similarly, Gonzalez (2015) carried out a study in Ghana and established that distance learners had positive attitudes towards use of ICTs and students found it necessary to use ICT during their studies. Therefore, they were ready and willing to pay for services. The study identified electricity, cost and accessibility of ICT infrastructure as the main challenges that would affect use of ICT. However, another research carried out by Hashim, Ahmad, and Abdullah (2010), whose objective was to assess distance learner attitudes towards ICT use in learning, the findings established that in K-12 schools, there were still some students who were uncomfortable with using ICT through InED's Learning Management System. Okeyo (2010) held that technical knowledge allows students to adapt to the use of modern technology. However, it is difficult for the students to adapt to modern technology without the right attitude towards the same. According to the Republic of Ghana (2008) the potential of ICT can only be exploited when the end users are competent to use ICT. The users should also have the necessary knowledge and attitudes for using the technology for the intended purpose. Given the reviewed literature on the learner attitudes towards use of ICT in distance learning, it was evident that learners had positive attitudes towards use of ICTs although a few studies have indicated that learners had negative attitudes. Positive attitude alone cannot be sufficient for utilization of ICT by distance learners. This should be coupled with training of students on computer skills and provision of ICT infrastructure.

Influence of financial status of the distant learners on use of ICT

The high incidence of poverty in many African countries and its subsequent effect on the workforce, are major stumbling blocks in the quest to implement ICT's in open and distance learning. The dynamism of ICT infrastructure may lead to low uptake of ICT usage especially in poor countries. Mejiuni and Obilade (2006) point out that the average middle-income earner in Nigeria is not in a position to afford basic ICT devices. Thus, many Nigerians might not find the ICT facilities and infrastructure useful to them because computers are considered a luxury and not a necessity by many people. Mejiuni and Obilade argued that majority of citizens in developing nations are poor and spend most of their income on food and shelter. This situation leaves them with minimal disposable income to allow them to acquire modern ICT devices for facilitating quality education. Lack of internet connectivity, erratic power supply and lack of supporting ICT infrastructure and equipment in majority of the learning institutions located in rural areas, pose a significant challenge. In addition, Internet cafes found within urban centres are highly priced out of the reach of the poor who may be living within the area. According to the ICT in Education Policy (Republic of Ghana, 2008) the impact of ICT on end-users, for instance learners, teachers, managers and administrators will very much depend on affordability and continuous access to hardware, software and internet connectivity. This will further depend on the availability of suitable physical infrastructure, which includes classrooms and power

sources such as electricity or Solar energy. Mbuthia and Seviila (2011) point out that in developing countries, there is lack of vital e-learning components for instance computers, electricity and computer skills. Mejiuni and Obilade (2006) argued that increased poverty, economic exclusion, poorly performing economies and inequitable distribution of essential facilities are a major problem in many parts of the world. Hence, the use of new ICT as a medium to allow access to education through ODL has become impracticable. In Kenya, access to ICT services is limited to a few major towns leaving out the rural areas of the country where most Kenyans live (GoK, 2006). Given the challenges distance learners face in relation to use of new technologies, a blended approach which includes e-learning and face-to-face support to the learners can ensure success and quality of distance learning.

In a research carried out by Awadhiya and Gowthaman, (2014) on ICT usage in distance learning at Indra Gadhi National University (IGNOU) in India, it was observed that a big number of learners were digitally literate and they were equipped with computer devices, therefore, ICT infrastructure is not a problem to them. The study recommended the need for IGNOU to upgrade its study materials and services through the digital medium. However, according to the Ministry of Information and Communication Technology (2006), there is a growing digital divide between the countries that are highly endowed and developed in the field of information technology and those countries which are not endowed with information technology. Similarly, there is a digital divide between rural and urban areas. In a study on the financing practices in distance learning, Rambo and Odundo (2011) carried out a case study of Bachelor of Education students at UoN who were enrolled in the distance learning programme. The results showed that learners paid their fees either from their own finances or through institutional funding. Rambo and Odundo further observed that financing education using personal funds was inadequate and unsustainable, while institutional funding was largely inaccessible, competitive, unaffordable and inadequate.

The study was in line with Nyerere (2016) that funding distance learning programmes was a major challenge to integrating technology into ODL programmes. This could be due to the fact that ODeL programmes do not have independent budgets and have mainly been established as income-generating units of the universities and are thus expected to consume very little resources. In Kenya Higher Education Loans Board (HELB) is tasked with sourcing and providing funds for post-secondary education. According to Rambo and Odundo, distance learners rarely benefit from this opportunity since budgetary allocations from the government are inadequate, and thus the board focuses on students who have been selected through the Kenya Universities and Colleges Central Placement Service (KUCCPS). Rambo and Odundo (2010) and Mungai (2014) recommended an amendment of the HELB Act of 1995 to increase HELB's budgetary allocation and reinforce the Constituency Development Fund (CDF) to support distance learners.

Influence of geographical location of distant learners on use of ICT

Open and Distance Learning provides a learning opportunity for all people in the society. Those who are unable to access conventional institutions due to location and financial challenges are expected to benefit from the same quality education programmes offered through ODeL. The rapid advancement of ICTs such as the Internet has greatly reduced the time and cost of information delivery and these technologies have bridged the geographic distance that separates learners from institutions, lecturers, and other learners (Moore & Kearsley, 2012). Mboroki (2011) argues that given the emerging communication technologies, learners who are geographically isolated are able to access education. However, for students who are based in rural areas which have limited or no access to ICT, learning is severely limited. Mpofu, Chimhenga and Mafa, (2013) conducted a constructive analysis assignment written by candidates in rural areas and found that these students are disadvantaged due to lack of access to ICT, and that they have to rely on printed materials to assist them in writing their assignments. Some of the students who access the internet from cyber-cafes find it very expensive because downloading of learning content takes a long time due to slow internet connections. They further point out that in Zimbabwe Open University (ZOU), the students who are able to access the internet constantly complain of how long it takes to download educational materials.

Theoretical Framework

The equivalency theory was proposed by Simonson in 1995. It states that distance education is not identical to traditional education, but it is equivalent. He argues that for distance education to be successful it should be based on the idea of equivalency. Equivalency means that the more equivalent the learning experiences are for distant learners to those of traditional learners, the more equivalent will be the learning outcomes. However, equivalency does not mean equal. It means that learning experiences produce equivalency in learning (Simonson, 2008). This theory is supported by Keegan (2009) and Pyari (2010). Keegan (2009) argued that distance education is not a distinct field of education. The foundation to this theoretical approach is the concept of equivalency. Pyari argued that though traditional and distant learners have essentially different environments in which they learn, the learning experiences and outcome should not differ. Simonson, Schlosser, and Hanson (2010) assert that distance education should be built on the concept of equivalency, learning experiences, appropriate application, and student's outcomes. The more equivalent the learning experiences of distant learners are to those of traditional learners, the more equivalent will be the outcomes of the educational experiences for all learners. The goal of instructional planning is to make the sum of experiences for each learner equivalent. Instructional design procedures should attempt to anticipate and provide the collection of experiences that will be most suitable for each student or group of students (Simonson, et al. 2010).

The responsibility for those providing distance education is to design learning activities that provide experiences with equal value for learners. The idea of appropriate application implies that learning experiences are suitable to the needs of the individual learner. Learning experiences that are made available to either distant or traditional learners should allow delivery of instructional ideas that fit the expectations and facilities available to them. Instructional design procedures should attempt to anticipate and provide the collection of experiences that will be most suitable for each student or group of students (Simonson, et al., 1999). The authors further state that students should be defined by their enrolment in a course, not by their location. The outcomes of a learning experience should be obvious, measurable, and bring about significant changes that occur cognitively and effectively in learners because of their participation in the course or unit (Keegan, 2009; Lehman & Dewey, 2011).The theory of equivalency bases its strength on the assumption that learning at a distance produces similar results as learning by traditional methods. The theory states that there is parity of standards for both distance and traditional learning. According to Mboroki (2007), Open and Distance learning should produce the same outcome as traditional learning. The only difference between the two is the mode of delivery. Factors that make the two modes similar especially in mixed mode institutions include the same curricular, the same lecturers, the same instructional content, quality assurance and standards and institutional facilities. In some universities, examinations offered are the same for distance learners and traditional learners. Management structures for distance learners are the same for traditional learners.

The theory of equivalency however, does not put into cognizant the different learning environments experienced by distance and face-to-face learners. Distance learning is an independent study and self-paced and, therefore, learners face different challenges from those faced by traditional face-to-face leaners. A distance learner needs to feel motivated to learn and challenges posed about by environment or finances may hinder the learner from achieving equivalency with face-to-face learners. Distance learners are not confined to the classroom like the face-to-face learners. Interactivity with the tutors and other leaners is therefore minimal. Some distance learners are not able to communicate with their lecturers thus hindering necessary feedback which would otherwise enhance their learning outcome. Equivalency of learning experiences are central to the widespread acceptance of distance teaching and learning.

Despite the weakness of equivalency theory, education managers who provide both traditional and distance learning modes have a responsibility to ensure that they design appropriate learning experiences suitable for each category of learners. Equivalent distance learning relies heavily on the use of modern and powerful interactive ICTs for it to be successful. The use of ICT in open and distance learning is changing the instructional delivery and access. However, use of ICT does not only help to facilitate effective delivery of teaching and learning but also enhances equivalency in quality of the distance learning by simulating the traditional learning environment. With the use of ICT, for example, in electronic learning system, lecturers and learners can have desired interactive discussions, questions and answer times, timely feedback

and provide online hands-on instructions where appropriate. Information Communication Technology-based learning promotes constructivist theory and theory of equivalency and that is why the two theories are most appropriate for this study

3.1 RESEARCH METHODOLOGY

This section provides a description of the methods that were used to carry out the study. The chapter is organized under the following subsections; research design, location of the study, target population, sample size and sampling procedure. Other aspects covered include; research instruments, pilot study, data collection procedure, data analysis techniques, as well as, ethical considerations that were observed during the whole study.

Location of the Study

The study was carried out in Kenya and was based in four universities drawn from different counties, which were purposively selected on the basis of offering ODeL programmes. These universities included two public universities; University of Nairobi - School of Continuing and Distance Education, which is located in Kiambu County and Kenyatta University - Digital School, also located in Kiambu County. The other universities included in the study were two private universities; Kenya Methodist University - Digital Campus, which is located in Meru County and Africa Nazarene University - Institute of Open and Distance Learning, which is located in Kajiado County.

Kenya is predominately an agricultural area and it cuts across different climatic and ecological zones. This implies that people are differently endowed with economic resources hence there is digital divide between those endowed with technology and those who are not. Administratively, Kenya is divided into Counties and Nairobi, Kajiado, Meru and Kiambu are among the 47 counties.

Research Design

The researcher used convergent design to concurrently collect quantitative and qualitative data. In such a design, qualitative and quantitative data is collected concurrently, and the results are integrated and then interpretation is made. Creswell (2015) identified three core basic designs in mixed methods approach namely; convergent design, the explanatory sequential design and exploratory sequential design. Creswell (2015) argues that quantitative results yield general trends and relationships while qualitative results provide in-depth individual perspectives. Convergent research design is a design in mixed methods approach. According to Creswell (2009, 2014, 2015), mixed methods approach involves mixing of both qualitative and quantitative approaches. Justification for using mixed methods approach was that combining both quantitative and qualitative approaches allowed the researcher to gather data from large numbers of people and also allows in-depth exploration of a few people.

Creswell (2014) argues that quantitative approach gives an opportunity to gather data from large numbers of people and generalize results while qualitative approach allows an in-depth exploration of a few individuals. The research was based on pragmatism philosophical foundation which holds that ideas are constructed from experience, first comes the practice and then on this basis, principles and ideas are derived (Cohen, Manion, & Morrison, 2011). Creswell (2014) argued that a researcher should use different approaches to understand a research problem. In this case, the qualitative results were used to compare the quantitative results, and this helped in bringing out a better understanding of the research problem.

Target Population

The study targeted four universities in Kenya, that is, two public and two private universities. Data was specifically collected from four ODeL directors. One director from each of the selected universities was targeted. Among all the lecturers who taught in the selected universities, the researcher identified 78 lectures who taught distance learning students in the Department of Education (Arts) with the assistance of ODeL directors. Seventy-eight lecturers from ODeL Campuses in the selected universities were targeted because not all lecturers in the Department of Education were responsible for teaching ODeL students. A total of four ICT technical staff were also targeted. This implies that one ICT technical support staff from each of the ODeL Campuses from the selected universities was targeted. The study also targeted 3,765 ODeL Bachelor of Education (Arts) students in the four universities. Table 1 shows the distribution of the target population per university.

Table 1: Target Population

University	ODeL students B'ed' (Arts)	Lecturers (Department of Education)	ODeL Directors	ICT Technical staff (ODeL office)
University of Nairobi,	1,582	25	1	1
Kenyatta University	1,120	20	1	1
Kenya Methodist University	420	18	1	1
Africa Nazarene University	643	15	1	1
Total	**3,765**	**78**	**4**	**4**

Source: ODeL Directors /Coordinators

Sampling Techniques, Sample Size and Sampling Procedure

Sampling refers to selecting a number of individuals or objects from a population whose characteristics are representative of the entire group (Gillham, 2010; Kumar, 2011). It is a deliberate selection of a predetermined number of subjects from a given study for the purpose of representing the entire group in the study (Cohen, Morrison & Manion, 2007, 2011). Therefore,

the subjects of this study were drawn from the ODeL students and lecturers who taught ODeL students, ODeL directors and ICT technical staff in charge of ODeL.

In this study, both probability and non-probability sampling methods were used to sample the participants. Probability sampling refers to the procedure in which the choice of participants is guided by the probability principle that every unit of the target population has an equal chance of being included in the sample (Kumar, 2011). In this case, stratified and systematic sampling was used. In non-probability sampling, the researcher targets a particular group where a member of the wider group does not have equal chances of being included in the sample (Cohen, Morrison, & Manion, 2007; 2011) and in this case, purposive sampling and census were used. Description of sampling techniques across different categories of population is provided below.

Universities

This study used purposive sampling technique to sample four universities which were the first to offer distance learning programmes in Kenya (See appendix viii). The sampled universities were assumed to have adequate experience in ODeL operations and adequate facilities considering that they had delivered programmes through ODeL for a longer period of time. According to Creswell (2014) the purposive sampling technique enables the researcher to select a sample that is considered to be the most appropriate for the study. The universities included two public universities, College of Education and External Studies of University of Nairobi, and Kenyatta University - Digital School. The other universities that were included in the study were two private universities, Kenya Methodist University - Digital Campus and Africa Nazarene University - Institute of Open and Distance Learning.

Academic programme

Bachelor of Education (Arts) programme in the four universities was purposively sampled. The rationale for sampling Bachelor of Education (Arts) programme was that the four selected universities offered Bachelor of Education (Arts) programme through distance learning.

Directors of open, distance and e-Learning centers

The study used census to enumerate all the four directors of open and distance learning centres to participate in the study because they were directly involved in the implementation of ODeL programmes in their respective universities. According to Bryman (2012), census involves enumeration of the whole population. All units of the population take part in the study instead of sample of units of the population. The directors interact with both instructors and students in the faculty and inform senior management on issues that relate to the implementation of programmes in distance learning. In this case, one director from each of the four universities was included in the study.

Lecturers

Among all the lecturers who taught in the four universities, purposive sampling was used to sample 78 lecturers who taught 4th year ODeL students in the Department of Education (Arts). They were sampled because they had experience in teaching through ODeL and that they were involved in the implementation of distance education programmes in their respective institutions and therefore, were regarded to be appropriate in providing the required information on various phenomena in the study. The sample size comprised of 25 lecturers from University of Nairobi; - School of Continuing and Distance Education, 20 lecturers from Kenyatta University - Digital School, 18 lecturers from Kenya Methodist University - Digital Campus and 15 lecturers from Africa Nazarene University - Institute of Open and Distance Learning. In total, 78 lecturers were sampled from the selected universities.

Students

The researcher used stratified random sampling to sample ODeL students to take part in the study. Stratified sampling involves dividing the population into homogeneous groups, each group containing subjects with similar characteristics (Gillham, 2010; Bryman, 2012). The students were stratified according to universities, the programme of study and the year of study. The use of stratified sampling assured that the numbers of students in the sample were a representative of each of the universities. In addition, the study used purposive sampling technique to select fourth year ODeL students pursuing Bachelor of Education (Arts) to take part in the study. The fourth year ODeL students were the most appropriate because they had stayed in the university longer and they were familiar with operations of ODeL. In addition, students at this level were thought to be more concerned with issues of quality of education which they received and therefore, had invaluable contributions towards this study. As stated by Creswell (2014) the purposive sampling technique enables the researcher to select a sample that he/she considers to be the most appropriate for the study.

Systematic random sampling was used to sample the students who were issued with questionnaires. In systematic random sampling, the subjects were selected from a list in a systematic manner. An element of randomness was introduced into this kind of sampling by using random numbers to pick up the unit with which to start. In this method, for example, the selection process started by picking some random point in a list and then every n^{th} element was selected until the desired number was acquired as advised by (Cohen, Manion and Morrison, 2011). This rule was applied to get a sample from each university. Systematic sampling was found appropriate because in instances where the student was not on-campus and he/she was supposed to be issued with questionnaire; the researcher contacted them through their mobile phones and emails. Bhattacherjee (2012) asserts that the idea in sample size is to ensure representativeness of the characteristics of the population in the sample. According to Bryman (2012), the size of sample should neither be excessively large, nor too small. Babbie (2011) recommends that for descriptive studies, a sample size should be between 10 - 20%. Gay and

Mills (2011) suggest 10% for large populations and 20% for small populations. The sample size of students for this study was 20% as suggested by Babbie (2011). The students' sampling matrix is distributed as shown in Table 2.

Table 2: Students' Sampling Matrix

University	Study Population	%	Sampling Technique	Sample Size
University of Nairobi	278	20	Systematic	56
Kenyatta University	200	20	Systematic	40
Kenya Methodist University	149	20	Systematic	30
Africa Nazarene University	150	20	Systematic	30
Total	**777**			**156**

Source: ODeL Directors/ Coordinators, 2017

4.1 FINDINGS

Influence of Learner Characteristics on the Use of ICTs on Quality of Distance Teaching and Learning

The fourth research objective sought to find out how learner characteristics on the use of ICTs influence quality of distance teaching and learning. To respond to the research objectives, the students were asked to rate their opinion on the level of agreement that ranged from strongly disagree = SD (1), disagree = D (2), not sure = NS (3), agree = A (4) and strongly agree = SA (5). Data collected was analyzed using frequencies, percentages and means. Learner characteristics were measured under learners' attitude towards use of ICTs, the financial status of the distant learner and geographical location of the learner. Table 3 shows students' responses.

Table 3: Learner Characteristics

Learner Characteristics Attitudes	N		SA	A	NS	D	SD
Using ICT will improve quality of my studies.	117	F	71	43	3	-	-
		%	61	37	2.6	-	-
ICT makes distance learning interesting.	117	F	64	47	5	1	-
		%	55	40	4.2	0.9	-
Interacting with the computer system is often frustrating.	117	F	15	31	18	33	20
		%	13	27	15	28	17
Supporting distant learners using ICT is very difficult.	117	F	11	22	20	45	19
		%	9.4	19	17	39	16
ICT provides better learning opportunities than traditional face-to-face learning.	117	F	34	29	20	19	15
		%	29	25	17	16	13
Financial status							
ICT infrastructure is very expensive for me to afford because I have other financial responsibilities.	117	F	30	31	13	31	12
		%	26	27	11	27	10
Browsing at the cybercafé is very expensive for me to afford due to my financial commitments.	117	F	34	48	5	21	9
		%	29	41	4.3	18	7.7
Downloading and printing e-learning instructional materials is expensive for me to afford.	117	F	38	44	6	20	9
		%	33	38	5.1	17	7.7
ICT based learning is cost effective for me as a distance learner.	117	F	34	49	12	16	6
		%	29	42	10	14	5.1
Geographical location							
ICT based learning is convenient for me despite my geographical location.	117	F	49	44	7	11	6
		%	42	38	6	9.4	5.1
Use of ICT in distance learning has greatly reduced time of information delivery hence bridging the gap of geographical distance.	117	F	51	40	12	8	6
		%	44	34	10	6.8	5.5
I have no access to ICT facilities due to my geographical location hence limiting my learning process.	117	F	21	15	10	41	30
		%	18	13	8.7	35	26

From the findings, it was established that majority of the students at 114 (97.4%) agreed that use of ICT improves students' learning. Only 3 (2.6%) indicated that they were not sure. This implies that majority of distance learners from sampled universities had a positive attitude towards the use of ICTs in learning. Almost all the students, 111 (94.9%) agreed that the use of ICT makes distance learning interesting. Information communication technology provides better learning opportunities than traditional face-to-face learning. However, a small number 6 (5.1%) felt that use of ICT does not make distance learning interesting. Majority of students at 53 (46.3%) disagreed with the statement that interacting with the computer system was often frustrating, while 31 (26.5%) and 15 (12.5%) agreed and disagreed respectively. Eighteen (15.4%) were not sure. Technical knowledge allows students to adapt to the use of modern technology. However, it is difficult for the students to adapt to modern technology without the right attitude towards the same (Okeyo, 2010).

Regarding the financial status of distance learners, students were required to indicate whether they could afford ICT infrastructure. Many students at 61 (52.2%) agreed that ICT infrastructure was very expensive for them to afford because they had other financial responsibilities. Forty-three (36.8%) of the respondents were of a contrary opinion, while only 13 (11.1%) were not sure. Students also agreed that browsing at the cybercafé was very expensive because they had other financial obligations. This was indicated by 34 (29 %) of students who strongly agreed, 48 (41%) agreed, 5 (4.3%) were not sure, 2 (17.9%) disagreed, while 9 (7.7%) strongly disagreed. Distance learning students found acquisition of ICT facilities to be very expensive. Although most of them had acquired mobile phones, they were not using them to support instructions. Students would browse at cyber cafes due to lack of internet connectivity in their homes. This hampers quality learning.

The findings agree with Mejiuni and Obilade (2006) that many people in developing countries are poor and hence, they spend most of their financial resources on food and shelter, leaving them with little income for purchasing modern ICT devices for quality education. In addition, lack of internet connectivity, unreliable power supply and lack of ICT infrastructure in learning institutions found in rural areas posed a great challenge to the learners. According to the Ghana ICT Policy (Republic of Ghana, 2008), for ICTs to have impact, the affordability and accessibility of hardware, software and internet connectivity must be assured. Use of ICT in distance teaching and learning could be influenced by geographical location of the learner. To verify this claim, the study sought to find out whether ICT-based learning was convenient despite the geographical location of the learner. Majority, 49 (41.9%) of the students strongly agreed that ICT-based learning was convenient despite geographical location, 44 (37.6%) agreed 7 (6.0%) were not sure, 11 (9.4%) disagreed while 6 (5.1%) strongly disagreed. This implies that use of ICT in distance learning is not affected by the student's geographical distance. Melinda (2007) points out that available technology like emails helps distance teaching institutions to overcome constraints of time, distance and space. Given this situation, the synchronous communication, interaction and orientations sessions are also possible.

The study further sought to find out whether the use of ICT in distance learning had greatly reduced time of information delivery, hence, bridging geographical distance. Majority, 51(43.6%) strongly agreed with the statement, 40 (34.2%) agreed, 12 (10.3%) were not sure, while only 8 (6.8 %) strongly disagreed with the statement. Only 6 (5.5) strongly disagreed with the statement. The findings confirm the study by Moore and Kersley (2012) who reported various ways in which ICTs have greatly reduced the time, distance and cost of information delivery which ultimately helps to bridge the gap of geographic distance that separates learners from institutions, lecturers, and other learners. Asked whether access to ICT facilities was hampered by the geographical location of distance learners, hence, limiting students learning process, 21 (17.9%) strongly agreed with the statement, 15 (12.8%) agreed, 41 (35.0 %) disagreed and 30 (25.6%) strongly disagreed. Only 10 (8.5 %) were not sure. Therefore, majority of students at 81 (69.3%) disagreed with the statement indicating that access to ICT facilities was not limited due to geographical location. Access to ICT infrastructure (both hardware and software) was not affected by geographical location of the learner. The results indicated that students could access ICT facilities anywhere and anytime hence enhancing the learning process.

However, the small percentage 36 (30.7%) who agreed with the statement could be from geographically marginalized and remote areas where access to ICT facilities was a challenge. Currently, the use of technology is omnipresent, though there are a few constraints in a number of geographic areas due to issues such as lack of adequate infrastructure, economic difficulties or civil strife (UNESCO, 2013). Through use of interviews, the directors pointed out that despite the physical distance, ICTs can deliver instruction. However, one of the directors said that;

> *"In geographically remote and marginalized areas, students have good computers and mobile phones. The only challenge is internet availability. Some climb on top of trees or high areas such as mountains to access network."*

Access to ICT facilities by a distance learner is critical as distance learners are separated in space, time or both and, hence, require interactive ICT facilities for learning. Jamtsho and Bullen (2010) established that the cost of setting up telecommunication lines was unaffordable in the rural areas of Zimbabwe. They also pointed out that access to World Wide Web (www) was affected by low internet connectivity. Mpofu, Chimhenge and Mafa (2013) analyzed the assignments written by students who lived in rural areas and had no access to ICT facilities and found that the students were disadvantaged because they only relied on print materials to assist them in writing assignments. On learner characteristics towards use of ICT, the study established that financial status of distance learners (mean = 3.76) and learner attitude (mean = 3.41), on use of ICT influenced quality of distance learning and at a mean of (2.62), the geographical location of the learner did not have any influence on quality of distance learning. This implies that given adequate and effective ICT infrastructure and proper utilization, learning can take place anywhere despite the geographical location. The overall mean was (mean = 3.26) implying that learner characteristics on use of ICT was not very crucial.

5.1 CONCLUSION

The findings established that students' use of ICT will improve their learning. This implies that majority of distance learners from sampled universities had a positive attitude towards the use of ICTs. ICT makes distance learning interesting and provides equivalent learning opportunities to the traditional face-to-face learning. For many students, ICT infrastructure is very expensive, and many would prefer to browse at the cyber cafes which are also equally expensive because they have other financial obligations. Despite their geographical location, ICT-based learning was convenient, and students' learning is not affected. In addition, use of ICT in distance learning had greatly reduced time of information delivery hence bridging the geographical distance.

Recommendations of the study

The study recommends that HELB provides equal opportunities for ODeL and face-to-face students in allocation of loans and bursaries. This can be achieved by setting up an annual loan and bursary fund allocation for distance learners at undergraduate and post graduate levels.

Recommendation for further study

A comparative study can be carried out to investigate the performance and productivity in the workplace of graduates who studied through ODeL mode of study and those who studied through traditional face-to-face mode of study.

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