Students Access to Information Communication Technologies in Open and Distance Learning mode in Tanzania: A case of The Open University of Tanzania

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Abstract: The success of open and distance learning programmes relies heavily on having an efficient and reliable delivery channel to reach out students. The utilization of Information Communication Technology (ICT) as a tool to deliver services to the students provides efficient and reliable delivery channel which is also cost effective. A study was undertaken to assess the utilization of ICT facilities existing in the Open University of Tanzania (OUT). A sample of 97 from The University of Tanzania at Dar es Salaam, Mbeya and Arusha regional centers were interviewed. The study adopted a cross sectional survey design by using open and closed ended questionnaires and focus group discussion (FGD). Analysis was done using Statistical Package for Social Science (SPSS) software. The study found out that a number of admitted students who access computers at OUT computer labs is very small, and those who do visit the labs at most visit it once a week. Internet access was also found to be a problem. Majority ranked Yahoo their favourite wesite, followed by OUT website, and Google as favoured websites. In the OUT website the most surfed/used resources were Students Academic Registration System (SARIS). The resources which focus more on academic issues were visited less frequently. It is recommended that ICT knowledge and skills to be encouraged to OUT staff and students in order to ensure both stakeholders benefit in improving the quality of education offered through ODL Programmes at OUT.

INTRODUCTION

Education is inevitable for human resource development and national development at large. It is a human right and a prerequisite for development as it gives people the power to transform their lives and work their way out of poverty (Short, 2001). However, due to the limitation of resources in most of the developing countries, it is almost impossible to educate all of their citizens through on-campus teaching. Huge amount of money is required to establish the infrastructure for on-campus teaching. Quite often such sums are out of the reach of the developing countries. Under this circumstance open learning and distance education systems are crucial (Sadia,

2008). In this regard ICT needs to play an important role to transform the communications environment and have the potential to deliver educational services more efficiently (Selinger *et al*, 2001). In Sub-Saharan Africa, long distance training by correspondence has been practiced for decades (Brakel and Chisenga, 2003).

Information Communication Technologies - both new and old, have great potentials to aid the effort to spread education. Radio and television are already used to supplement learning in many countries. Satellite and the internet can extend the reach of information from anywhere in the world even to remote rural areas. The internet can be used to access information which can improve the quality of education in countries where learning materials are scarce (Blair, 2001). Today, distance education programmes are able to make full use of information and communication technology through the application of a wide range of media: print, audio-visual, CD-ROM, computers and the Internet (Komba, 2009).

The role and the use of the Information Communication Technology (ICT) in Learners Support Services in Open and Distance Learning (ODL) is a proven fact now. The distance education system responded positively and quickly to the revolution in ICT. It is because of three reasons – the need to reduce the cost of imparting education, to introduce need based educational programmes to a large number of people and to reduce time required for sanctioning new programmes by adopting new flexible nature of administration. ICT tools have fundamentally changed the way people communicate. They have produced significant transformations in education and still have the potential to transform the nature of education where and how learning takes place, and the roles of students and teachers in the learning process. Embedding ICT in teaching-learning process is a major initiative in all branches of education (Baruah and Handique, 2009).

ICT can offer several benefits to ODL students as follows:
> Through the Internet and worldwide web, new and enlarged sources of information and knowledge that offer teachers and students opportunities for self-development.
> Through e-mail and other Internet related feedback mechanisms, greater opportunity to reduce the isolation and time delay associated with distance education.
> Through the extraordinary pace of software development, enriched teaching and learning with enhanced graphics, interaction, animation and visualization.
> Through lowering telecommunications bandwidth costs and emergence of enhanced cable, wireless and satellite systems, greater opportunities for basic access, video conferencing, on-line interactive learning, and live interaction with the central place of a distance education programme.

According to Swarts and Mwiyeria (2010), higher education sector is also challenged by issues of access, quality and relevance for which ICT could play an

important role. The higher education sector in Tanzania has taken and continues to take concrete steps to use ICT to address the main challenges that the sector faces. To react to this the sector is also making investments in ICT, for example, it has been reported in a status report for higher education institutions in Tanzania (2008), that most universities have dedicated computer centres, as it is the case with The Open University of Tanzania keeping in mind that it is an ODL institution.

Given favourable access and control conditions among facilitators and students, ICTs can improve significantly teaching and learning in ODL. However, ODL institutions need to grapple with formidable access and control challenges in promoting effective use of ICTs among students and facilitators in Tanzania. The objective of this study was therefore to assess the availability, accessibility and utilization of ICT facilities already installed and existing in The Open University of Tanzania focusing on students only due to shortage of funds.

DEFINITIONS
Open and Distance Learning (ODL)
Open learning is defined as an approach to learning that allows learners flexibility and choice over what, when, at what pace, where, and how they learn. Open learning tends to be delivered via distance education that is characterized by separation of geographic distance and time to study.

Distance education is an approach that takes education to the many learners who are separated, by time and space, from those who are teaching. It is a mode that has a high potential for transcending barriers that are caused by distance, time, and age; thus facilitating lifelong learning. Its more popular formats are print, audio, video, broadcast radio, television, and of course computers and the Internet. It is characterized by separation of geographic distance and time. Through distance education the learner enjoys a high degree of autonomy in deciding what, when and how to learn. Open and Distance Learning (ODL) is therefore a term used to describe learning that uses ICTs to provide or enhance learning (Komba, 2009).

Information Communication Technology (ICT)
The term Information Communication Technology (ICT) refers to forms of technology that are used for communication and to transmit, store, create, share or exchange information.(Source?) This broad definition of ICT includes technologies such as: radio, television, video, telephone (both fixed line and mobile), computer and network hardware and software; as well as the equipment and services associated with these technologies, such as electronic mail, text messaging and radio broadcasts (URT, 2007). In this study, ICT as independent variable focused on computer and network hardware and software alone as inclusion of ICTs facilities like radio, TV, mobile phones etc. would need a bigger study which was not possible at that particular time due to shortage of funds.

RESEARCH METHODOLOGY

A cross sectional survey was conducted at The Open University of Tanzania focusing on students. The university has about 26 centers in various regions in Tanzania. The sampling unit was OUT centers with computer laboratory. A sample of 92 students was selected from Mbeya, Arusha and Dar es salaam. The selection of these regions was purposeful in order to capture students from different zones to try to avoid biasness, simple random sampling was employed. The interviewed students were those from first year onwards regardless of the programme they are in. The main tool for data collection was structured questionnaire and this was supplemented by Focus Group Discussion (FGD). Collected data were analyzed using Statistical Package for Social Science (SPSS). Descriptive statistics such as mean, frequency and percentages were computed.

RESULTS AND DISCUSSION

Respondents Characteristics

The surveyed students were grouped by age into three categories; lowest being 20-30 years old and highest being 50-60 years old. Mean age was 36.7 years.

62.9% of respondents were aged less than 40yrs with the majority of these (33.9%) having less than 30 years. Only 8.1% were aged above 50 years. Majority of respondents (62.5%) were male, this indicates that male students visit regional centers more often than their female counterparts. Nearly a half of respondent (48.4%) came from programmes offered by the Faculty of Education (FED) i.e Bachelor of Arts in Education (BA Education) 23.4%, Masters of Education in Administration, Policy, Planning Studies (MEd. APPS) 1.6%, Bachelor of Science in Education (BSc.Ed) 1.6%, Bachelor of education (BED) 18% and Bachelor of Business Administration with Education (BBA.ED) 6.2%, the rest were from Faculty of Arts and Social Sciences (FASS), Faculty of Business Management (FBM), Faculty of Science, Technology and Environmental Studies (FSTES). This could be due to a high number of students enrolled in the Faculty of Education as compared to other faculties. Majority of respondents (51.4%) were in their second and third years of their studies. Strangely the number of postgraduate students was very low comparing to undergraduates, and unfortunately there was no student from Institute of Continuing Education.

Information Communication Technology's awareness levels

The study revealed that, there is a high level of ICT awareness among the Open University of Tanzania students as the majority of respondents (70%) showed high degree of ICT awareness, though a good number of respondents (20%) had a low level of awareness. The University needs to do more to create more awareness among students as well as to give more encouragement to the students to use ICT. There may be some degree of resistance to change from traditional learning methods to more advanced technologically based learning. This situation may lead to lack of acceptance to change or even discouragement as found out by Liu (2011).

Awareness of ICT in relation to gender and age

Generally male were more aware of ICT use (54%) than female who were about 41.2% . The trend was different for medium level of awareness where females were many (5.9%) as compared to 2.9% males (Table 3). A study conducted in Malaysia revealed that there is no gender difference towards ICT and use of computers. (Hashim, 2010).

In general respondents with less than 31 years were more aware of ICT (39%) and those above 51 years (6.1%), their awareness level was rather low (Table 1). Specifically, respondents below 40 years had a high level of awareness (48.4%) compared to those aged above 50 years. This observation concurs with those of Jegede (2009) who asserts that older educators and learners are naturally wary of ICT use in general.

Table 1: Awareness Level to ICT in relation to gender and age (%)

|	Awareness Level			
Variable	**High**	**Medium**	**Low**	**Total**
Gender				
Male	58.3	33.3	71.4	58.8
Female	41.7	66.7	28.6	41.2
Age				
20-30	34.8	33.3	57.1	39.4
31-40	34.8	00.0	14.3	27.3
41-50	26.1	66.7	14.3	27.3
51-60	4.3	00.0	14.3	6.1

ICT training

Results show that over two third (66.7%) of respondents reported to have attended formal ICT training ranging from one to three months. Of these, 17.5% received training at the Open University of Tanzania as shown in Table 1, Figure 1 and Figure 2.

Table 1: Source of ICT knowledge (%)

Variable	Distribution
Formal Training	
OUT	17.5
Elsewhere	49.2
Informal Training	
Friends	23.4
Colleagues	18.8
Fellow students	18.8
Internet Café staffs	23.4
Self taught	23.4
Others	1.6

About 62% of students who did not receive formal training received training from friends (23.4%), Internet Café staff (23.4%) and self-training (23.4%) as indicated in Figure 2. A study conducted at the University of the South Pacific (USP) indicated that lack of computer literacy and appropriate training were the main barrier to ICTs use for ODL (Hashim, 2010). This situation is also likely to affect some of OUT students. In this study 98.1% of respondents reported English language which is commonly used in most websites to be a hindrance to grasping the instructional materials.
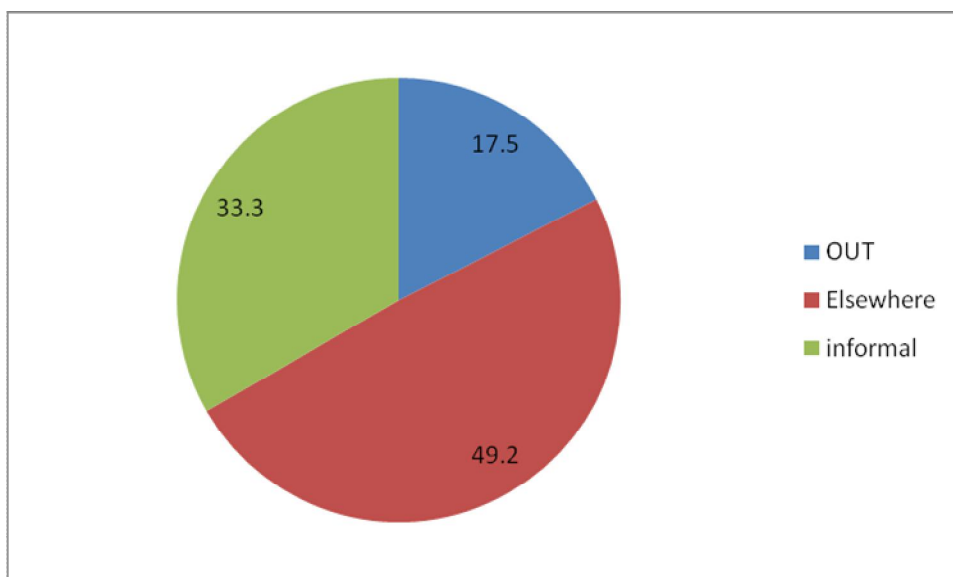
Figure 1: Source of ICT knowledge (%)
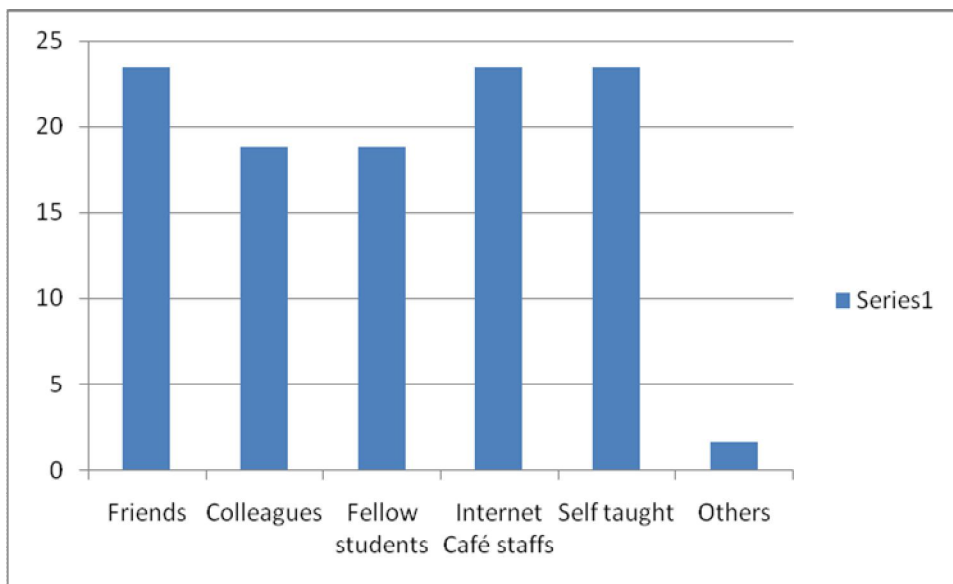
Figure 2: Percentage distribution of informal ICT training sources

Awareness of ICT in relation to gender and age

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AVAILABILITY, ACCESSING AND UTILIZATION OF ICT FACILITIES AT OUT

Availability and Accessibility to ICT Facilities

Nearly a third of respondents in this study (31.2%) were reported to accessing own desktop computer whenever they visited the lab. In a study conducted in Sri Lanka an attempt was made to solve the issue of lack of equipment through the use of study centers, but even access to the equipment in the study centers was still problematic due to a combination of factors including difficulties of reaching the center and lack of accessing time. Most barriers to the availability of technology are particularly acute in remote and rural areas. Other usage barriers include high costs, lack of skills and information (Hashim, 2010).

Chaplain (2002), contend that lack of technology or of an adequate technical infrastructure is a significant barrier to the use of ICTs for ODL, both for the more traditional ICTs such as audio and video, and radio and television broadcasting as well as for the newer computer based ICTs.

The student visits to OUT computer lab was found to be not pleasing despite the nature of open and distance learners. That is 40% of the students who admitted to access their own computers whenever they visit, reported to visit at least once every week, 37.2% on a monthly basis and 14.3% once per term. This indicates that majority of respondents who reported to be using OUT lab were not utilizing the lab as effectively as it should have been.

At OUT labs respondents who reported to access computers were 21.5% whilst nearly a half 48.9% reported access to Internet whenever they visit the lab. This could mean that, though the number of students visiting the lab is nearly a half and still there is sharing of computers connected to internet. This means also owning a computer is one thing but having a computer which is connected to the Internet is a different matter.

Regarding ICT assistance, 46.8% reported to get assistance from available staff whenever they visit the labs, and the labs were accessible all the time during working hours as reported by 43% of respondents. Even if internet access is free as is the case in public libraries, not everybody can be 'socially included'. There are issues over opening times, staff training, low ICT skills of particular groups and quality of connection (DTI, 2000).

Extent of ICT Utilization

The study found out that majority of respondents (64%) started using computer for the first time well before 2006. More than a quarter of respondents started using computer in 2000 and majority (68%) were using computers for the first time by accessing the Internet. Nearly 70% of respondents had e-mail addresses and 70% reported as using the computer daily at least once while the remaining use computer about once per week. Computer programmes which were being used by the majority of respondents were Word (60.3%) and Excel (31.7%). The least used programmes

were Adobe and Graphics (1.6%). This could be associated with lack of skill in those ICT programmes.

Internet Use
Majority of the respondents accessed the Internet through Internet Cafés (40.7%), followed by those who accessed it at OUT (17.2%) and only 4.4% of respondents accessed Internet at their friends' home. These findings are supported by Chou *et al* (2011) who in a study of attitudes among college students in Taiwan found that majority of students appreciated the role of the Internet as a source of knowledge and information. Further, it was found that Taiwanese students felt that Internet sources can facilitate their school work requirements, creativity, and leisure. This however, does not agree with the global trend since Mikropoulos and Natsis (2011) - in their review of various global studies in this area, found that virtual learning environments are appropriate for pedagogical use. This is indicative of a gap, where students have not been sensitised fully on the available Internet resources and the potential they create for Open Distance Learners.

Looking into frequency of use, 44.9% of respondents reported to be using Internet at least daily as expected, followed by 39.6% who reported to be using Internet at least once in a week. The rest of the respondents were using it on a monthly basis. Accessibility has a direct bearing on the learners' efficacy in the use of computer and internet technology. This in turn has a bearing on the use of this technology for educational purposes (Papastergiou, 2010). This relationship has a cyclical effect since other studies have found that increased computer efficacy leads to increased computer use too (Wagner, Hassanein, and Head, 2010).

Majority of respondents (32.6%) reported to use internet for receiving and sending emails followed by 29.1% who use it for various search engine. The least reported use was instant messaging (8.5) and Skype/Internet telephone (7.8%) as many students lack awareness on these as reported in focus group discussions.

Email Use
Majority of respondents (80%) reported to having e-mail address. Most respondents reported to email friends (19.6%), fellow students (15.8%) and colleagues (15.3%). Least reported was emailing lecturers (10%). This means the level of communication between students and lecturers is not as expected for open and distance learners (ODL. Since in ODL the learners are separated from the lectures, there was expected more emails to be sent to lectures may be for certain clarity purposes. These findings are supported by a study conducted in Ethiopia to college students which revealed that the main purposes of using the Internet was for emails (Biru, 2002).

Web Use
Students who reported to be visiting educational websites were 50.5% and news websites 23.1%. The lowest visited website was Culture, 3.3%. Respondents who reported to visiting OUT website were 81.5% and of all who reported to visit OUT

website 17.8% opened SARIS followed by 17.4% who visited Examination Registration Information System (ERIS) and OUT News and Events (15%). The least opened site as reported by respondents was OUT AVU courseware (2.8%).

Search engines most used by respondents were Google (68.9%) and Yahoo (31.1%). Materials related to learning were reported to be searched by the majority (69.4%). This means that, OUT students use various websites to search for learning materials as is expected for ODL learners. Yahoo, Google and OUT were most favoured websites by respondents (21.4%, 19.4% and 17.5%) respectively.

CONCLUSION AND RECOMMENDATION

Conclusion
The effort by OUT to open computer laboratories in many of its regional centers in order to assist students to have access to such important technology cannot be ignored. Efforts are under way to tackle constrains of availability, access and control of modern ICTs. It should be noted that, apart from these efforts different mechanisms should also be sought in order to improve the issue of availability, accessibility and utilization of computers in these labs, without forgetting the emphasis of ICT knowledge for better ODL. It is not easy for OUT to cater for all the students as the students are scattered all over the country even in remote areas where electricity is a problem leave alone network connectivity but the effort is appreciated.

Recommendations
The following are recommended to be done by OUT, students and ICT providers:

The Open University of Tanzania
(i)   Concentrate more on the already available computer labs in terms of Internet connections, computer availability as well as qualified staff to offer the service.
  - Find a way of encouraging its students to get ICT training at OUT through its centers.
  - Consider increasing the availability of computers in the centers as a long-term plan.
  - Provide printers in these labs so that students can be able to download and print the needed materials at a reduced cost for accessibility wherever they are.
  - Find ways of helping its students to acquire laptops at subsidize cost. We know the process is under way, but students need to be sensitized.

The Open University of Tanzania Students
(ii) Should make deliberate efforts to expand their ICT knowledge by attending various ICT courses offered by OUT and other recognized institutions.

(iii) For a university student having a computer is not a luxury rather it is a way of simplifying studies. Students are therefore encouraged to buy laptops whenever

they can, so that they can be able to access downloaded material at their own time as well as being able to do assignments timely.

(iv) Students are advised to make use of modems availed by mobile phones service providers like VODACOM, TIGO, AIRTEL, ZANTEL, TTCL, etc for Internet connectivity.

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