ICT Based Support for Rural Students of the Open University of Tanzania: Perceptions, Challenges and Prospects

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Abstract: This paper is a report on qualitative study conducted on rural students of the Open University of Tanzania in a sub-Saharan Africa. The study explored the use of Information and Communication Technology (ICT) and the challenges experienced by students in their learning. The study employed interviews and documentary review for data collection. The findings revealed that poor infrastructure in rural Tanzania hindered the effective application of ICT in teaching. The costs of Internet services, poor interaction between students and their peers and teachers, inadequate computer skills, and lack of access to ICT facilities were among the challenges facing rural students in Tanzania. However, students appreciated the role of ICT in enhancing interaction and supporting their learning at a distance. It was found imperative to equip regional centres with ICT facilities, establish study centres close to where students are located and encourage interaction and learning through mobile facilities.

Introduction

This study was conducted in Tanzania, a developing country in sub Saharan Africa with an estimated population of more than 43,000,000 (URT, 2011) in an area of 945,087 km². Its designated capital city is Dodoma, and Dar es Salaam is the main commercial city. There are more than 120 ethnic groups, who share Swahili as their common language. English is used as an official language, and as medium of instruction in secondary, tertiary, and university education. According to several indicators, the country currently lags behind many other developing nations. More than 35% of Tanzanians live below the poverty line. More than 80% live in rural areas and are dependant upon agriculture for their livelihood.

Education (particularly higher education) could potentially be a vehicle to help bring the population out of poverty. In order to effect change, education as a social resource needs to be accessible and equally distributed among all people in the country. Currently that is not the case: the demand for secondary, tertiary and higher education far outpaces the supply (SEDP, 2010). There are, however, efforts to expand secondary and primary education, with the recent establishment of secondary schools at each ward standing as a case in point. But, to reduce existing social and economic problems, the country needs to put more emphasis on the provision of low-cost quality education. This is in line with the government of Tanzania’s plan for development, “Vision 2025,” which places great emphasis on the life and the creation of a well-educated and learned society (URT, 1999).

Distance education provided at the university level could be one plausible solution to these current problems. However, in order for distance education to be used as a tool for bringing about social and economic development, it requires a blend of teaching pedagogies, interactive media, and support mechanisms. Merely relying on traditional methods in teaching alone will not suffice. Hence, the use of ICT is essential if the country is to attain quality education for the majority of its people. Because the majority of Tanzanians live in rural areas, it is all the more important that universities (particularly those with a mission directed toward distance education) begin to fully employ ICT in the provision of education.

This report on the current state of ICT in the country explores the experiences of rural students of the Open University of Tanzania and the impact of ICT on their learning.

Global Technology and its Application in Distance Education

Advancements in technology have made it possible for ICT to contribute significantly to distance higher education around the world (Moore and Anderson, 2003; Bates, 2005). These developments provide access and make it possible for students, mentors and course tutors to interact synchronously and asynchronously. This is a breakthrough in distance education; tutors and institutions are now capable of providing ICT-based support to their students. This is enhanced through online discussion forums, tele-interaction and emails. For example, studies conducted in the developed world demonstrate that distance education students have access to computers and boundless Internet facilities within their homes and in the distance universities (Owens, Harcastle and Richardson, 2009; Macintyre and Macdonald, 2011). This current development enables students to plan their time and interact with others or with their institutions based on their pace and space. Flexibility imposed by ICT has enabled teachers to respond to students’ needs and provide immediate feedback on
course assignments. Moreover, technology has empowered students across the world in engaging in online discussions, sharing experiences, supporting each other in the learning process and even forming social forums.

Tait (2000, 2003) argued that providing support services to students’ serves cognitive, affective, and systematic functions. These aspects guide the use of ICT in teaching. It is up to the educational providers to create a learning environment that is user friendly, adopt teaching strategies that develop problem-solving skills, and provide access to information and administrative support. ICT as a tool for learning has the power to transform educational pedagogies by empowering teachers with interaction skills, assessment procedures, and the ability to utilise modern ways of teaching in distance education. Mobile learning, Internet services, the World Wide Web and computer programmes can all be used to reach students. However, developing countries like Tanzania have yet to reap the advantages of ICT because roadblocks like poor infrastructure hinder their implementation.

Global Technology and ICT Challenges in the Rural Developing Countries

In developing countries, the high costs of technology, lack of access to equipment, poor infrastructure, lack of skilled human resources, and lack of policies and inadequate access to Internet services all ultimately hinder effective application of ICT in distance education (Wright et al, 2008; Komba, 2009; IFAD; 2010).

Without electricity, modern technology obviously cannot be used. Wright et al (2009) found that many people in the developing world lack electricity and are still using candles and kerosene lamps for learning. Many people in the developing world also cannot afford and do not have access to personal computers, Internet service, or learner-friendly mobile phone. (Kumar et al, 2011).

This lack of connectedness between students and teachers, and between students and the larger world, may cause feelings of isolation and remoteness and lead to a lack of socialization among students (Dzakaria, 2008). Additionally, the dependence on print media and written feedback leads to delays and miscommunication between students and their tutors.

ICT can help offset these issues. Studies have shown that the use of mobile services, emails, and SMS in learning programmes in developing countries supports students learning wherever they are located (Kumar et al, 2011). For example, the Open University of Malaysia uses SMS for counselling services, information giving and learner development support (Lim et al, 2011).

Yet teaching in developing countries, particularly in Africa, seems to be dominated by traditional media like print, radio, and television (Aderinoye, Siacewena & Wright, 2009). This dependence on print media and written feedback through assignments can lead to delays and miscommunication between students and their tutors.

Studies in Tanzania reveal that urban students have more access to ICT and other forms of support services than those in rural areas (Mcharazo and Oden, 2000; Bhalalusesa, 2001; Msuya and Maro, 2002). One could associate this state of affairs with availability of learning resources and Internet services in the towns/urban centres. Internet providers are generally more urban and town based for more customers with sustainable income and energy (fairly stable electricity).

Although governmental policy in Tanzania seems to favour the practice of distance education as it emphasises the need for universal access to ICT services in the country, to date the resources available are not enough to implement the proposed policies (URT: 2003).

Need for the Study

Conventional systems and delivery of education in Tanzania have proven inadequate in developing a well-educated population and progressive socioeconomic environment. The provision of education at the university level can be a staging ground for creating the human capital that will drive the country’s social and economic development. The Open University of Tanzania is pushing this movement forward by widening access to higher education to the majority of the people who live in rural and urban areas. Meeting their educational needs requires a well-established mechanism for delivering education within this context. ICT based support service could prove to enhance students’ effective learning. However, in order to provide appropriate ICT for the students, we must explore and identify the types of facilities that are available and accessible within these areas.

Little research has been conducted on learning and ICT-based support services for rural distance students at the university level. Most of the literature on remote populations examines developed countries like the UK, USA and Australia (Owens et al, 2009; Glomb et al, 2009; Macintyre and Macdonald, 2010). Even in those studies, the gap between rural and urban provision is enormous, as exemplified by varying policies, levels of development, programmes offered, and context. Hence it is imperative to conduct relevant studies in rural contexts in less developed countries like Tanzania.
Research Aims

The main purpose of the study is to explore the use of ICT in the learning of rural distance students in Tanzania, and to suggest areas that need improvement.

Research Questions

1. How do rural students of the Open University of Tanzania perceive and experience the use of ICT in their learning?
2. What recommendations are in place to improve the use of ICT in distance education in the rural context in Tanzania?

Area of the Study

The study was carried out at the Open University of Tanzania (OUT), the only mandated distance education provider in the country. The university provides access to education to the rural and urban people through its established regional centres. Three regional centres (Rukwa, Tabora and Ruvuma) were purposefully sampled in this study. The centres are located in a far distance from the headquarter which in Dar es Salaam. The travelling time from Dar es Salaam to any of these regional centres ranges from nine to 18 hours by public bus. The regions selected are less developed compared to other regions within the country, and also have some of the lowest enrolment and graduation rates (OUT, 2010).

Sample

Purposeful sampling was adopted for the study. A total of 18 students (six from each region) were included in the study. Three tutors, three regional directors, and two top officials at the OUT were also interviewed for the study. The purpose of including informant other than students was to clarify issues emanating from the conversation with students and compare their perceptions to that of students. Continuing undergraduate students from second year onwards were included as I believed that they were more experienced than first years with the process of distance education. Students were selected from the register book from the regional centres. The book showed their year of study, location was based on the postal address and mobile numbers. Interview sessions were arranged and students were approached in their homes and office places as per their wishes.

Methodology

The study used qualitative approaches for getting information on the experiences of rural students. Interviews and documentary reviews were used as data collection methods. Student consent was obtained and they were free to withdraw from the study at any time. Interview sessions lasted between 60 and 90 minutes for each student and were digitally recorded. Three participants were uncomfortable with the digital recording and thus their responses were recorded using paper and pencil. The following topics guided my interviews with the students: Students’ demography, their perceptions of ICT, the mode of teaching used, the types of media used, the challenges they faced and their recommendations. All interviews were transcribed. Files were then stored on my personal computer and folders were secured with passwords. To maintain anonymity during data analysis, pseudonyms were used for participants and regional centres. Data triangulation and methodological triangulation were performed to enhance the validity of the study. The main purpose of the study was not to generalise the findings, but rather to apply them where possible in areas with similar characteristics. My involvement in the process of data collection, transcription and pre-analysis in the field made me more familiar with data collected and hence adopt thematic analysis. NVivo 9 qualitative data analysis software was used to facilitate the analysis processes.
Research Findings and Discussion

Student Characteristics

The sampled students’ age ranged from 20 and 59. All students sampled were employed in public and private sectors. The sample includes five females and eighteen males. This difference could be associated with the nature of programmes chosen, cultural reasons, and even the locations where the study was carried out. They entered at the OUT as experienced students with diplomas in education and other certificates like law, agriculture, optician, technical education and foundation course at the OUT. Three out of the eighteen students came directly from schools; however, they were employed as licensed teachers in rural secondary schools. This showed that these students were upgrading their levels of education. Also their prior experiences acted as a resource in their learning processes.

Apart from that, these students were part time learners as they were also involved in many other social and economic activities within their communities. They were dealing with agricultural activities, small trading businesses, and carpentry. The majority of them were married with families; only six were single and one was widowed. This again showed that students had family roles to attend to, in conjunction with their work and their studies at the OUT. Students’ locations in the rural areas were mostly underdeveloped and challenged with infrastructural problems like lack of electricity, poor roads, lack of Internet facilities and other media. However, some of the students had generators and solar power in their homes. This was noted during the interview sessions.

Teaching, Means of Communication, and its Influence in the Learning Process

The mode of teaching at the OUT was similar to that at other universities in developing countries. Both print and non-print media such as self-teach study materials, recorded tapes and Moodle (Learning Management System) were used. Mobile phones, display boards, letters, emails and radio announcements were among the other modes for communication. Interviews with administrative officers revealed that the OUT had established a website with several features to support the students learning and their access to information.

The university also provided access to students’ results via the ‘Students Academic Register Information System’ (SARIS). One of the students acknowledged the relevancy of SARIS by saying “SARIS has simplified our academic life to the extent we can register our course and view our examination results without any problems” (Lambertha, region A). The students said that they had difficulties accessing the previous paper-based system. Technology had enabled the university to have a good record management, which in turn enabled students to monitor their progress and query in case of problems.

These adult learners tended to require immediate feedback in their learning. Technology used at the OUT serves this purpose and sustains learners in their studies. Moreover, the university used Moodle, a Learning Management system, to facilitate tutor/students interaction and provided access to learning resources (Nihuka, 2011). However, the university had yet to relay to students how to effectively use the system; the majority of the rural students had little knowledge of the system.

The university provided library and tutor support only at regional centres. Students had to travel for many hours by bus or motorbike depending on their locations. In conjunction with that, students also had to attend week-long face to face session once a year at their nearest regional centre. Assessment of students learning portfolio was also carried out within the same week. The assessment checked the students’ level of readiness to sit for their annual examinations. Students are encouraged to record any challenge they experience during their learning in their portfolio.

Mobile phone interaction was observed to be the main source of communication among students, course tutors, and regional directors. A student said “We use our mobile phones to communicate with tutors who are at the regional centre for it is impossible to come to town every now and then” (Allen, region D). This student seemed to appreciate the role of mobile communication, as it was costly to interact face to face given the location. Mobile calls reduced a felt sense of distance by providing access to verbal interaction. This was verified by one of the tutors, who said “We sometimes use mobile phones for communication and for sending text messages for an urgent announcement” (Tutor regional centre A).

Apart from that, students had university email accounts that they were supposed to use to communicate with their tutors and fellow students. Unfortunately, the students could not always access the Internet services due to poor infrastructure in their locations. Hence, email communication was less relevant to their learning.

The creation of the university website was also noted to play a vital role in providing administrative support to the students. The majority said they had to access current information through the website, access their results and even register for their examinations. “Most of the information needed appeared on the Internet, I mean the website” (Daniel Region D). Students used the university website more for administrative purposes than for academic issues. Access to Internet services proved to be a challenge among the rural learners. However, a few whom I would say had more economic capital had modems and laptops within their homes. However, the majority of students had to access internet service from Internet cafes in town or look for internet support from tutors at the regional centres.
Students Perceptions and Challenges Experienced on the Use of ICT in Learning

As noted students had limited access to electrical power, internet services, and learning resources, all of which have proved to be the major challenges hindering smooth learning in their rural context. Students had to travel up to 120 km on slippery unpaved mud roads looking for ICT- based support. Internet services were accessed through Internet cafes where students had to pay for the services. Unfortunately, even those with modems had to buy recharge vouchers to access certain amount of bandwidth. This hindered access to learning materials, interaction through emails, and chatting.

In fact, lack of ICT facilities also complicated the role of the tutors at the OUT. The university had more than 200 tutors, but that number still seemed inadequate for the learning needs of students due to the use of traditional methods (OUT, 2010).

The costs of accessing learning resources affected the learning of students. Despite the policy of cost sharing in the country, these students required financial support of one form or another. Students had to pay for their transport costs to town, membership for regional national library services, access to Internet services and printing services in case of downloading materials. Because of this, students were forced to use only the study materials provided by the OUT, which were not adequate. They needed to look for additional reference books, journal articles and other online materials. This meant that the students often lacked an adequate learning environment.

Investment in support services like ICT is critical in this situation. One of the tutors in region C said that the costs of mobile interaction for example, kept him from providing proper support to his students. He also said that it was hard to respond to students’ academic challenges via SMS as some of the questions required a lot of explanation.

At the time the study was carried out the university had no plan to provide financial support to tutors or provide top up vouchers for communication with students. Tutors, therefore waited for the students to call them or visit the regional centres for face-to-face support. Surprisingly, even some of the regional centres had no Internet connections. At one site, only a regional director had access to Internet services, and the tutors had to use modems at their own costs. This was very discouraging and to some extent affected the motivation of tutors to support the students.

Apart from that, some of the students showed that they were not ready to adopt ICT for academic and administrative support. For example, a student argued “…We have been forced to get into technology which is not readily accessible to us in the remote areas. It is more complicated since every bit of information has to be traced in the Internet i.e. registration, examination forms, examination results, examination timetable, name anything! That is tough!” (Zainab, region A). The OUT needs to address this challenge by helping their students cope with the development of technology in the world.

Moreover students’ lack of basic skills in using ICT resources like the Internet hinders effective utilisation of the resource in their learning. Some of the students obtained support from their work mates and friends who helped in search for and download materials. For example, a student said ‘aah…Actually we have a big problem in relation to Internet usage in our district. I know there is an Internet connection at the municipal office but it is not for everyone. I would also like to use the Internet for learning but I am not capable of accessing it from here and I do not have the skills’. (Jonathan, region C). Lack of access to Internet facilities and insufficient computer basic skills contributed to the failure to use ICT in learning.

The OUT introduced a course on computer literacy and made it compulsory for all first year students (OUT Prospectus, 2010). Students did the course and passed. However, providing a course in theoretical terms without practical support does not equip students with the necessary skills. That is why we see continuing students lack basic practical skills like searching, downloading and retrieving information from different websites. In order for this course to be more meaningful, a blend of practical and theory is necessary.

Despite the challenges regarding access to ICT facilities and support in rural areas, students still believed that ICT was relevant in their learning processes. A student said “I use a generator, I just charge the battery for my laptop for about two hours and then I put it off. I can use the laptop for one hour when searching for materials. That is repeated whenever I want to study” (Christian, Region D). This student showed the value attributed to Internet services particularly in relation to searching for relevant study materials. He was a law student from a remote area, but still he invested in a generator, laptop, and modem. This showed an increasing level of commitment to the use of ICT in learning among some of the students.

Internet services need to be a social resource accessible by everyone. Efforts are in place to connect all regions of the country through fibre optics. Hopefully the completion of this task will reduce the costs of Internet services and enable effective use of ICT. Effective teaching, counselling, access to learning materials and effective interaction could all be simplified with the use ICT.

Other students demonstrated that they were eager to learn computer skills for the benefit of their studies. They had enrolled in different short course programmes offered in the nearby town centre. This again showed a motivation and appreciation of the role of ICT to their learning. Students realised that those who were able to search and access online materials from different websites gained more than those who depended solely on study materials. The lack of library services in the rural areas required students to struggle to look for other sources of learning materials.
Students commented that technology had brought education to their door steps and simplified their learning processes. They were even familiar with the role of handsets in learning. “You know today technology has gone beyond our comprehension and it has simplified the learning process very unexpectedly. I have heard that one can get Internet services even through the hand set” (Samwel, region C).

On the contrary another student demonstrated a challenge in using mobile phones: “One of our regional directors used to tell us everything is on the Internet, use your mobile phone. He was forgetting that I have to top up my voucher in order to access the Internet through my mobile phone and some of our mobile phones are not Internet friendly. But also we don’t know what to do in order to access materials through the mobile phones” (Sebalela, region C).

These students need help in understanding that distance education is not purely free in a developing country like Tanzania. There are always hidden costs, which perhaps should be made free before people sign up for programmes. However, the growing use of mobile phone in the world assisted rural learners to access information and education within their location. Tutors and students are using the device for providing support and even sending text messages.

**Students, Tutors, and Administrators Proposals for Improvement**

When asked what should be done after observing the interactive patterns and challenges facing students when using ICT, students, educators, and administrators each offered a number of recommendations that focused on improvements within the university, the relationships between universities, and students’ readiness to use ICT.

One tutor suggested that the “university should establish a mechanism to collaborate with various institutions within the country by having something like a memorandum of understanding which would enable students to access the computers and Internet services’ (Tutor, region C). The OUT could collaborate with both public and private universities which are now mushrooming in different regions to at least support their students by giving access to Internet and library services. This would keep students from feeling of lonely and strengthen their affiliation with their institutions.

Another regional director proposed that Internet services need to be accessible at the regional and district centres so that rural students can access learning resources and websites. This director’s suggestion also examined the support from a district point of view. District centres can provide services closer to students’ homes and reduce transportation costs and time spent on the road looking for ICT support. An administrative officer at the OUT supported this idea, noting that the OUT needs to start establishing itself at the district level. District centres could act as a meeting point for students to interact, share experiences, and access Internet services. To do this, OUT needs to efficiently connect regional centres with Internet services and equip its library resources.

Another tutor suggested that students need to be more properly informed about the role of ICT in their learning. The tutor noted that yearly face-to-face sessions would be the best place to demonstrate and guide students on how to access and use online resources.

Students suggested that there should be constant interaction with tutors, and above all they wanted study centres to be established in their nearby areas.

Fulfilling all these recommendations requires physical, human, and financial resources in place. The Open University needs to solicit support from the government, donors, and even communities to enact some of these proposals.

**Conclusion and Recommendation**

The success of distance education in Tanzania relies heavily on ICT applications. The Open University of Tanzania uses ICT to enhance effective teaching and learning processes at a distance. However, the country’s poor infrastructure, the high costs of technology, and the lack of knowledge within the country about how best to utilize ICT all hinder these efforts, especially any attempts to reach students in rural, remote locations. Very few students have enough capital to gain access to computers and laptops; those that can actually afford the laptop itself must then purchase vouchers, buy generators or install solar power in order to get the electrical power necessary to run their computer. Most students resort to traditional, print-based methods of learning instead.

The study indicates that students appreciate the role played by ICT in facilitating their learning, and that without ICT, students in rural areas may feel isolated and lack proper socialization.

It is important for the government to create policies that will govern ICT in higher education and assist in its implementation. Moreover, to facilitate the country’s social and economic development, the government must improve the infrastructure of rural areas. The current national ICT policy emphasizes integration of ICT in all sectors without considering the infrastructural challenges in the country.
believe the current efforts of linking regions with fibre optic will support the educational sector and make distance education more widely practiced.

OUT also needs to assume their role by creating an environment that will enhance student learning. To permit students to use the Internet for learning at their convenience, the regional centres in remote areas should be equipped with full time Internet services. Lecture sessions recorded on tapes and CDs can subsequently be replayed on radio and television programs, to contribute to learning and reduce isolation. Students should receive support via the use of two-way communication between students and tutors. Lastly, mobile learning should be utilized to send relevant information (registration, exam results and scores) to students. The ultimate goal should be to maximize the use of ICT services in distance education, notwithstanding the challenges.
References


