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Accessibility of Open Educational Resources for Distance Education Learners: The Case of The Open University of Tanzania

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Abstract:This paper investigated the accessibility of Open Educational Resources at The Open University of Tanzania. Specifically, the study looked at staff and students' level of awareness on the types of OER available at OUT Library, access and use trends of OER by academic staff and students, challenges faced in accessing OER and possible solutions. The study involved one hundred and twenty (120) students and eighty (80) academic staff who were randomly selected. Primary data for this study was collected through self-administered questionnaires. Secondary data was collected through document review. Key findings revealed that staff and students are aware of the OER available at OUT and that the major use of the information found in OER is for self-learning. The major constraint in the use OER was library users' dependency on librarian assistance in accessing the resources. In addition, other problems encountered by library users when accessing OER were low internet connectivity, unreliable power supply and inadequate number of computers. In view of the fast changing information and ICT environment the study recommends that OUT students and staff should be trained in computer and information literacy skills. Besides, awareness on OER should be created and the ICT bandwidth should be increased to improve access to OER available at The Open University of Tanzania.

Key words: open educational resources (OER), access, utilization, e-learning, online learning, open and distance learning, distance education.

INTRODUCTION

Knowledge generation in any field of study begins with clear, accepted or at least conventional definitions of terms (Farace, 2010:1). The two terms; open educational resources and access to information, are interrelated because it is the availability of information which promotes its accessibility. Basically, you can only access what is available and the value of information lies on its extent of accessibility and usage.

According to the Cambridge Advanced Learner's Dictionary (2008) the term access is defined as the right to use or look at something, the right or opportunity to use or benefit from something.

On the other hand, Atkins (2007) defines open educational resources (OER) as teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use or re-purposing by others. Likewise, Hylen (2007) defines open educational resources as digital materials that can be re-used for teaching, learning, research and more, made available freely on the internet. OER is further defined by UNESCO (2002) as open provision of educational resources enabled by information and communication technologies, for consultation, use and adaptation by a community of users for non-commercial purposes.

In the context of this study, OER include all forms of educational materials that are freely available in the internet and such resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge.

Both definitions are very similar and they emphasize on the removal of any copyright or price restrictions on scholarly information for the purpose of disseminating knowledge by using the full potential of ICT in accessing scholarly works.

From the definitions given, open educational resources include three components. The first component is learning content which includes full courses, courseware, content modules, learning objects, collections and journals. The second component is tools, which entail software that support the development, use, re-use and delivery of learning content. The third thing in OER is implementation resources which comprises of intellectual property licenses that are used to promote open publishing of materials, design principles of best practice, and localization of content (Hylén, 2006; OECD, 2007).

OERs have increasingly drawn an attention to users especially in a distance education mode because of its ability to promote lifelong learning and self learning as well as providing opportunities for teaching and learning (Yuan, 2012). Open content help educational organizations to deal with problems associated with offering free-to-use educational resources. Whereas it costs a university time and money to produce a course, technology has made reproduction and distribution costs almost non-existent. A course can be sent electronically, or placed online, and any number of students can access the material (Caswell, 2008). According to Yuan *et al.* (2012), OER are a means to obviate demographic, economic and geographic educational boundaries and to promote lifelong learning and self learning. Ideally, the use of OER materials has several advantages in a country like Tanzania and The Open University of Tanzania in particular. Such advantages include the removal of barriers to access various course materials which have been prepared and reviewed by various experts.

The Open University of Tanzania students and staff like their counterparts in the conventional system need to access various sources of information to support their learning process regardless of the geographical locations. According to Kinyanjui

(1994: viii), OUT/sida (2006:5), the guiding principle is that, no student should be unduly disadvantaged because of the distance from the headquarters of OUT. In fact OER provides this opportunity by eliminating geographical boundaries through its mode of delivery. In this case, OUT has the potential to address Tanzania's unmet demand for higher education by using OER.

In order to redress this situation, a number of initiatives for creating and enabling OERs were undertaken. The initiatives taken by OUT on OER is to make them available at OUT website. The available OER at OUT include African Virtual University courseware (AVU) which focuses on increasing the quality and number of mathematics, science and ICT teachers; MIT courseware which offers lecture notes, problem sets, syllabi, reading lists, tools and simulations as well as videos and audio lectures, (http://ocw.mit.edu). Another initiative is institutional repository which is described by Lynch (2003) as a set of services offered to the members of a community for the management and dissemination of completed digital research materials donated or created by the institution and its community members. For the case of The Open University of Tanzania, materials found in the institutional repository include research reports, conference papers, journals published by the University (Huria, JIPE and Law Journal), theses and dissertations. Another OER at OUT is TESSA which is an international research and development initiative that offers a range of materials (Open Educational Resources) to support school based teacher education and training.

Despite the availability of open educational resources at OUT which are compatible to the curriculum, the extent of their accessibility is not known. Therefore, this study examined the extent to which students and staff at OUT are aware of OER, access and the available OERs, challenges encountered during access and possible solutions to cater for the identified problems. This study was undertaken because of the immense benefit which the use of OER materials can benefit a country like Tanzania and OUT in particular.

MATERIALS AND METHODS
The study used both primary and secondary sources of data. Secondary data were gathered from publications, documents and reports on OER. Primary data were collected through questionnaires containing both open and closed ended questions. Quantitative data were statistically analysed using the Statistical Package for Social Sciences (SPSS) Version 16 for Windows to produce percentages, tables and graphs. The data from open ended questionnaires were coded and organized according to themes that emerged. The themes together with the statistics, figures and tables formed the cases for discussion.

FINDINGS AND DISCUSSION
Out of the 200 questionnaires distributed, only 150 were returned. The composition of 150 respondents who participated in this study, 99 (66%) were males, and 51 (34%) were females where 93 (62%) were students and 57 (38%) were staff as shown in Figure 1 and 2. The study ended up with more males than females respondents because there are more males than females at our University (OUT

Facts and Figures 2012). There is a need therefore to sensitise women to join with OUT.
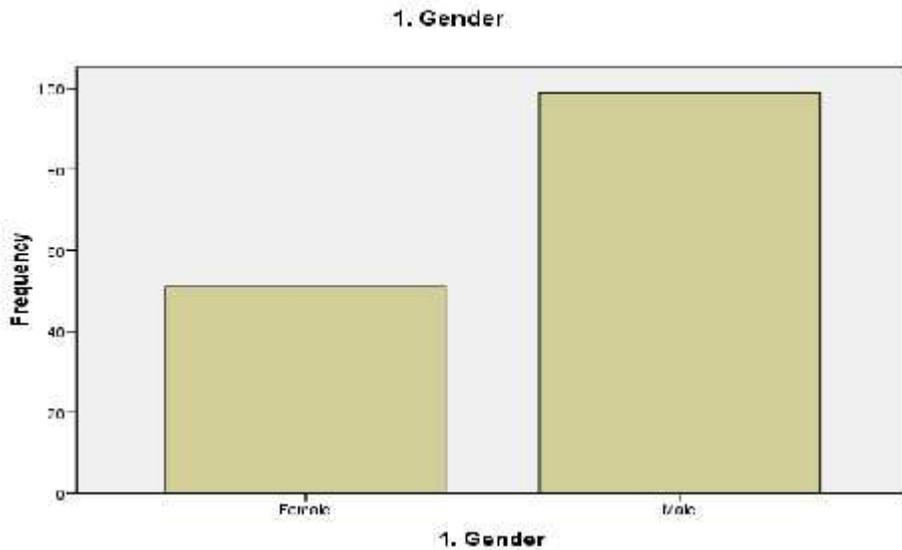
1. Gender

Figure 1: Distribution of respondents by Gender

2. Student or Staff
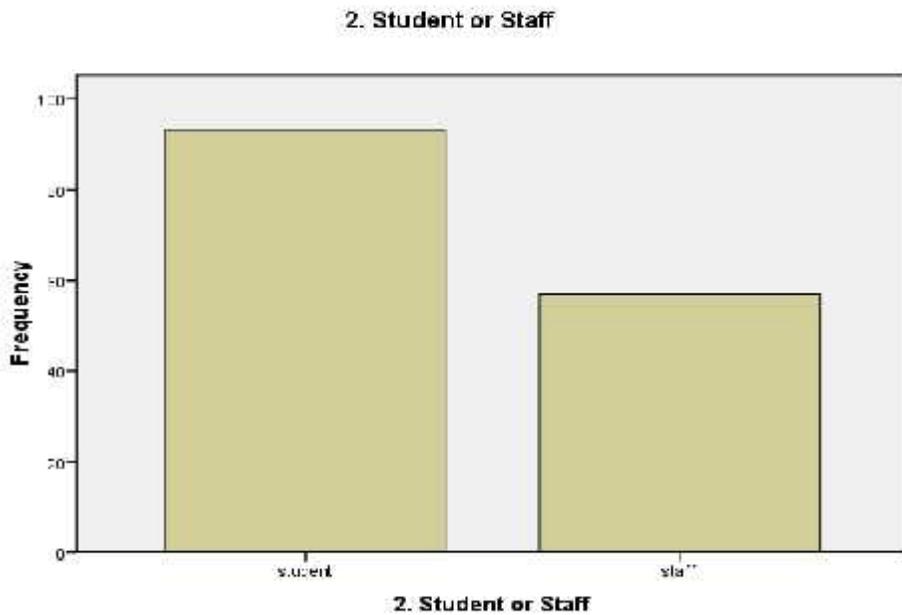
Figure 2: Status of Respondents

In terms of level of education of the respondents, first degree holders were 79 (52.7%), Masters had 51 (34%), PhD 14 (9.3%) and PGDE 6 (4%) as illustrated in

Figure 3.. All respondents are considered as the user community because the survey primarily focused on accessibility of OER.
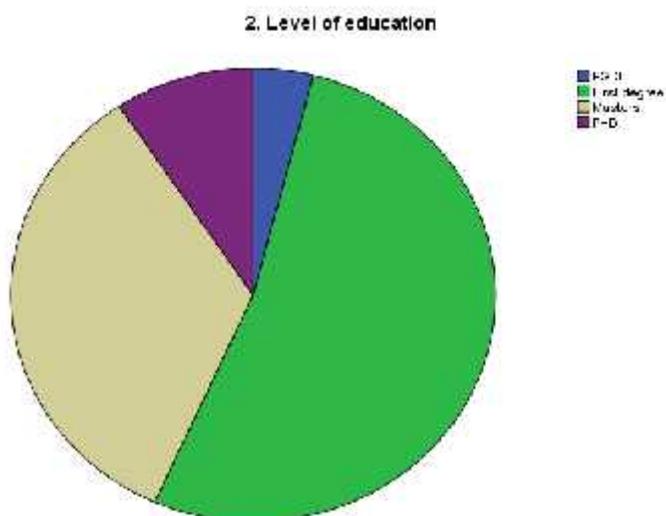
Figure 3: Level of Education of Respondents

Generally, the use of OER is influenced by the area of expertise and availability of OER. In order to get a clear picture of their accessibility the study ensured that every faculty is represented. Results in Table 1 illustrates patterns of usage of OER by areas of expertise.

 The results show that people in the social sciences are the most frequent users of OER by 63 (42%), followed by education 41 (27.3%), business and management, law and science follow in that order,

Table 1: Area of Expertise

Category	Frequency	Percent
Education	41	27.3
Business & Management	26	17.3
Law	12	8
Science	8	5.3
Arts & Social Science	63	42
Total	**150**	**100**

The results imply that arts and social scientists are more informed on OER than their counterparts in other areas. These findings are supported by De Beer (2005) who discovered that the academic departments in the humanities and social sciences are the ones that were very prominent in either engaging in self-archiving, hosting or promoting open access journals. Also most of the available OER at the University web are related to social sciences and education. In this case, there is a need therefore to increase awareness on OER and encourage other disciplines to make their materials available in OER format.
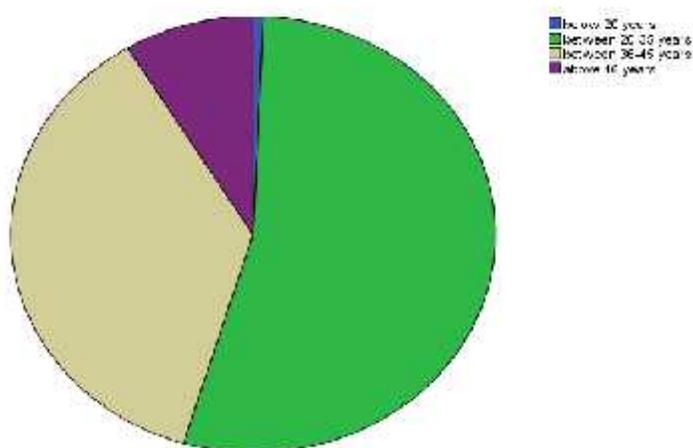
Figure 4: Age Profile of Respondents

On the other hand, the study established the age profile of the respondents in relation to the use of OER in Figure 4. The majority of OER users at OUT are between 20-35 years (54%), followed by 36-45 years (36.7%). The age profile has a direct bearing on the use of OER.

The findings are in line with Prensky (2000) who put users into two major categories, that is "Digital Natives" and "Digital immigrants". The majority of respondents were in the first category. These are the natives born after ICT and therefore have the ability to use their knowledge to access OER. These are followed by 36-45 years 55(36.7%), above 46 years 13(8.7%) and below 20 years 1(0.7%) as given in Table 2.

Digital immigrants are those who came later on into the ICT, and the natives are those born in the digital age and who are frequent users of technologies. The analysis shows that the majority of our users belong to the age profile of 20-35 years (54%).

Table 2: Computer Knowledge

Category	Frequency	Percent
Yes	150	100
No	-	-
Total	**150**	**100**

Knowledge on the use of computer plays a central role in facilitating access to OER. In order for users to effectively use OER they need to have ICT knowledge and information literacy skills in general. The library users in this survey were requested to state if they know how to use computers. It is very interesting to note that all 150 respondents (100%) have knowledge on how to use computer as indicated in Table

2. This finding is similar to that of Nihuka (2010) who found that most of the students at The Open University of Tanzania have knowledge of computers and internet use.

Table 3: Level of Internet Usage Skills

Category	Frequency	Percent
Very good	25	16.7
Good	86	57.3
Fair	31	20.7
Poor	8	5.3
Total	**150**	**100**

To utilize effectively the information in this digital era, there has to be a degree of acceptable expertise in the usage of internet. According to the responses received, the respondents appeared to have sufficient skills regarding internet usage: 25 (16.7) rated themselves as having very good skills in internet searching, 86 (57.3%) good, 31 (20.7%) fair and 8 (5.3%) poor, (Table 3). The results show that the majority of the respondents have skills regarding internet usage.

Information can only have value if it is accessed and used. OUT has put in place OER so that users can access them easily. Availability of OER promotes its usage. The findings presented in Table 4 show that out of 150 respondents, 120(81.6%) indicated that they use Online Public Access catalogue (OPAC).The OPAC shows what is available in the University library. In addition, 67 (45.6%) respondents indicated use of electronic journals, AVU courseware was reported by 58 (39.5%) respondents. Furthermore, the free online journals were used by 40 (27.2%) respondents, institutional repository by 34 (23.1%), MIT courseware 32(21.8%) and OUT courseware 27 (18.4%) respondents.

Table 4: Awareness and Use of OER Available at OUT

Category	Frequency	Percent
Electronic journals	67	45.6
MIT courseware	32	21.8
AVU courseware	58	39.5
Institutional repository	34	23.1
Free online journals	40	27.2
OUT courseware	27	18.4
OPAC	120	81.6
Total	**378**	**257.1**

(**Note**: Multiple Responses)

However, the results indicate that users were not very familiar with OUT courseware and institutional repository which are products of the University. The Open University of Tanzania OER has limited publicity as compared to other OER. A similar result is also reported in Samzugi (2012). According to Samzugi (2012)

public university library users are not familiar with the existing in-house databases containing mostly locally generated material. Hence their severely limited use of such a facility compared to their use of the available commercial databases.

Table 5: Ranking in Usefulness of OER at OUT

Category	Frequency	Percent
Electronic journals	67	45.6
MIT courseware	32	21.8
AVU courseware	58	39.5
Institutional repository	34	23.1
Free online journals	40	27.2
OUT courseware	27	18.4
OPAC	120	81.6
Total	**378**	**257.1**

(**Note**: Multiple responses)

Furthermore, all the respondents consider OERs as vital in supporting teaching, research and community services (Table 5). The findings show that OPAC is most useful to users, followed by e-journals, AVU courseware, free online journals, institutional repository, MIT courseware and OUT courseware. The overall picture suggests that all OER available at OUT are relevant. However, there is a need to promote the internal generated OER namely, OUT courseware and institutional repository utmost.

Table 6: Type of Information Sought in OER

Category	Frequency	Percent
Bibliographic information	31	20.9
Course notes	7	4.7
Research information	36	24.3
Information to area of study	99	66.9
Study materials	23	15.5
Course outlines	4	2.7
Total	**200**	**135.1**

(**Note**: Multiple Responses)

Findings in Table 6 show that users have a variety of needs. The type of information that respondents look for serve to maintain the significance of OER in distance education and the role OER play in academic undertakings.

Information in academic institutions is used to accomplish various assignments. As illustrated in Table 7, out of 150 respondents 120 (81.6%) indicated that they use information for self-learning, while 39 (26.5%) for research, 18 (12.5%) for references and 22 (15%) for paper writing.

Table 7: Use of OER

Category	Frequency	Percent
For references	18	12.2
For research purposes	39	26.5
For self learning	120	81.6
For writing study materials	18	12.2
For teaching	15	10.2
For paper writing	22	15
Total	**232**	**157.8**

(**Note**: Multiple Responses)

These results show that the available OER are used to fulfill the mission of the University which are teaching, learning and community services. The findings are in line with Geith and Vignare (2008), who emphasize that, access to individuals for their own purposes is a core value and key benefit of OER. Wiley (2007) sustains that, the majority of MIT open courseware users are individual self-learners: 16% are educators, 32% are students and 49% are self-learners.

Table 8: Importance of OER

Category	Frequency	Percent
Yes	146	99.3
No	1	0.7
Total	**150**	**100**

As shown in Table 8, out of 150 respondents 146 (99.3%) indicated that OER are important in fostering the quality of education, while only 1(0.7%) did not support. The results signify that OER play a vital role in improving the quality of education. This implies that, the respondents appreciate the availability of OER at OUT and therefore there is a need for the University to invest more on it.

Table 9: Reasons on Why OER are Important

Category	Frequency	Percent
Save time	85	58.2
No time or geographical location boundaries	16	11
Provides vast amount of information at the same time	21	14.4
Cost free	62	42.5
They are easily accessible & downloadable	46	31.5
Have the most current information	20	13.7
Provides relevant information	88	60.3
Improves the teaching and learning process	95	65.1
Provides quality materials	24	16.4
Supplement study materials	35	24
Total	**492**	**337**

(**Note**: Multiple Responses)

On a keen investigation on why OERs are very important to distance learners, it was revealed that OERs are potential sources of information to users as elaborated in Table 9 whereby 95 respondents (65.1%) indicated that it improves teaching, 88 (60.3%) provides relevant information, 85 (58.2%) saves time, 62 (42.5%) is cost free, 46 (31.5%) easily accessible, 35 (24%) supplement study materials. The finding only serve to accentuate the importance of OER in fostering education and substantiates that investing in OER is a worthwhile undertaking. The results corroborate those in previous studies by Jena (2012), MIT (2001) and UNESCO (2002). For example, Jena (2012) stresses that the open educational resources (OER) plays a significant role not only to updates ones own knowledge but also empowers to create a knowledge society amongst the developing world.

Table 10 shows that library staff assistance is 78 (53.4%), self searching 67(45,9%) and colleague assistance 43(29.5%) were the main sources of accessing OER. In fact 78 (53.4%) out of 150 respondents indicated that Library staff assistance is a more popular way of accessing OER. The findings show that library staff play an important role in finding access to OER. This is in contrast to their earlier allegations that they have good internet searching skills.

Table 10: OER Access

Category	Frequency	Percent
Through self searching	67	45.9
Library staff assistance	78	53.4
Colleague assistance	43	29.5
Total	**188**	**128.8**

(**Note**: Multiple responses)

Accessibility of OER depends on a number of factors. According to responses received, users encounter problems when accessing OER. 109 (74.1%) indicated low level of internet connectivity, 56(38.1%) inadequate number of computers, 42 (28.6%) power interruption. The results suggests that low level of internet connectivity, inadequate number of computers and power interruptions are the problems which are faced by users in accessing OER as shown in Table 11.

Table 11: Problems on OER Access

Category	Frequency	Percent
Low level of internet connectivity	109	74.1
Power interruptions	42	28.6
Lack of/ poor internet search skills	8	5.4
Lack of cooperation from library staff	10	6.8
Inadequate number of computers	56	38.1
Irrelevant information	9	6.1
Total	**234**	**159.1**

These results corroborate those in previous studies by Oshilalu (2011), Probert (2009), Ranaweera (2008) and Lau (2006). According to Oshilalu (2011) erratic power supply renders problems to libraries in developing countries to ensure that the library has constant supply of power to facilitate access and usage of electronic resources.

Table 12: Suggestions on OER Access Improvement

Category	Frequency	Percent
Improve internet connectivity	109	74.7
Install solar system	42	28.8
Create awareness on OERs	33	22.6
Increase number of computers	41	28.1
Build more computer labs especially in the regional centers	11	7.5
Establish local electronic resource sharing among universities	36	24.7
Subscribe to more OERs	15	10.3
Total	**287**	**196.6**

(**Note**: Multiple Responses)

All respondents did acknowledge the role played by OER in teaching, learning and research. Out of 150 respondents 74.7(109%) recommended to improve internet connectivity. The problem of bandwidth is an obstacle to accessing OER. As OUT depends on Government subventions, which generally is quite limited, their acquisition of bandwidth is small. This fact has also observed by Mike (2006) who is of the view that, bandwidth is the life-blood of the world's knowledge economy but it is scarcest where it is most needed – in the developing nations of Africa which require low cost communications to accelerate their socio-economic development. There is a need to improve internet connectivity. 42 (28.8%) recommended the need to install solar system, 41 (28.1) to increase a number of computers, 36(24.7%) establish local electronic resource sharing among universities, 33(22.6%) create awareness on OER, 15(10.3%) subscribe to more OER and 11(7.5%) build more computer laboratories in the Regional Centers. The response shows clearly that internet connectivity as well as power interruption is a problem and the University should continue to invest in ICT bandwidth.

Access to higher education via online learning, where the Internet is available, enables access to learning experiences that are rich, interactive, assessed for quality and carry the values and traits of the organizations that offer the online learning experiences. Access to higher education via OER is access to only part of a learning experience, and should be viewed as just one component in a learning system that includes other forms of support, assessment and credentialing.

There is need for the University to create more awareness among students and staff so as to sensitise them on the available technology means of literature access and also to improve its information and communication technologies infrastructure for better utilization of its resources and services.

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