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## **Access and Utilisation of Open Educational Resources by Academics and Students among Tertiary Institutions in Tanzania**

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### **Abstract**

This study investigated the use of open educational resources (OER) among academics and students at the Local Government Training Institute in Tanzania (LGTI). The study was premised on the pragmatism paradigm and deployed a mixed-methods research approach. An explanatory sequential design was used, which involved the collection of quantitative data in the first stage, followed by qualitative data in the next phase. The sample size comprised 55 respondents from LGTI who filled out questionnaires. Five library staff and two ICT staff were purposefully selected for interviews. Quantitative data was analysed using SPSS version 16, while qualitative data was thematically analysed based on the themes that emerged from the interview. The findings from the questionnaires and interviews established that academics and students were aware of OER. The findings further revealed that the majority of academics frequently use OER for teaching and learning purposes, while the use of OER among students was moderate. A study found that students and academics encounter various challenges in their use of OER, including unreliable internet connectivity, a lack of searching skills, information overload, and a lack of awareness. The study recommends that LGTI management ensure regular training on OER usage is conducted for both academics and students to equip them with searching skills. The study further recommends that LGTI management invest in ICT facilities, including ensuring the availability of stable internet connectivity. Finally, the study recommends that the management of LGTI embrace the use of blended learning to promote the use of OERs in learning.

**Keywords:** open educational resources, academics, students, tertiary institutions, Tanzania

## **1. Introduction**

The usage of open educational resources (OER) has grown in popularity in tertiary institutions around the world due to the necessity for academics and students to have access to knowledge for learning, research, and community engagement. With the advent of technologies, the world is witnessing the change in the way education is delivered from traditional classroom to virtual learning where learning materials are accessed online (Issa et al., 2020). Open Educational Resources (OER) are learning, teaching, and research materials in any format and medium that are in the public domain or are protected by copyright and have been distributed under an open license, allowing others free access, re-use, re-purpose, adaption, and redistribution (UNESCO, 2022). Because of the open nature of these materials, anybody can legally and freely copy, use, alter, and re-share them under the terms of the creative commons licence that accompanies the resource. Textbooks, curricula, syllabi, lecture notes, assignments, assessments, projects, audio, video, and animation are all examples of OERs (UNESCO, 2022).

Initiatives to use OERs arose as a result of a drive by the Massachusetts Institute of Technology (MIT) in 2001 to generate education resources in the form of Open Course materials (Open Courseware) and make them freely available to anyone through an online platform (Butcher, 2010). Since the emergence of these resources in the early 2000s, significant progress has been made, most notably the formation of initiatives that oversee and enable the production and use of these resources on a regional and worldwide scale in addition to the MIT project, one of the many examples of international bodies facilitating the OER movement is the OER Commons, which was established with the support of the Institute for Knowledge Management in Education to develop a sustainable culture of sharing among educators and scholars (OER Commons, 2017). The World OER Congress, co-hosted by the Commonwealth of Learning (COL) and UNESCO in Paris in June 2012, resulted in the Paris OER Declaration, which included recommendations on the need for advocacy, policy development, capacity-building, and research. COL's interest and experience in OER encompassed all of these dimensions, as well as secondary education, teacher training, and non-formal education (Bulugu, 2018).

The value of OER in Africa is evident in efforts made by various tertiary institutions to familiarise their communities with such resources and provide access to them, in response to a number of stumbling blocks that have been and continue to affect the quality of education, most

notably an unhealthy drop in funding, unrealistic enrollment targets, growing populations, and rising costs of education resources, all of which have made an obvious impact (Ngugi, 2011). The involvement of the Open University of Tanzania (OUT) in the OER movement highlighted several initiatives in Tanzania towards the usage of OER. Its use as an aim by OER Africa in the development of a course titled Academic Digital Fluency is one example of its engagement (Nihuka, Mbwette, and Kihwelo, 2014). The use of OER has bridged the gap in access to knowledge and provided accessibility to learning resources to the wider community. It has decreased expenses in accessing learning materials for learning purposes while improving educational quality in Sub-Saharan Africa (D'Souza, 2021; Mtebe and Raisamo, 2014). A number of studies show the usefulness of OER in facilitating learning in tertiary institutions such as Mishra, 2017; Samzugui and Mwinyimbegu, 2013; Grimaidi et al., 2017; Mwinyimbegu, 2019; Upendo, 2020; and D'Souza, 2021).

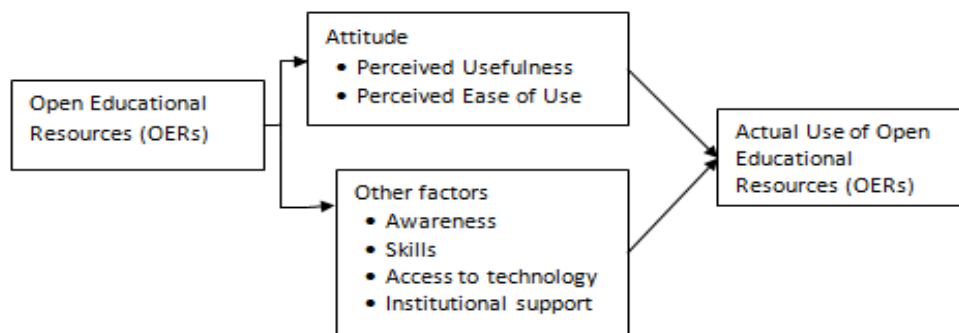
However, the outbreak of COVID-19 has witnessed the closure of many tertiary institutions in Tanzania, resulting from their inability to effectively use OER to ensure learning continuity. The Ministry of Science and Technology in Tanzania (MoEST), through the Higher Education for Economic Transformation (HEET) project, which is funded by the World Bank, requires all funded institutions to harness the use of technology by digitising their systems and services. They emphasise the importance of tertiary institutions strengthening their capacity to deliver online learning in order to enhance institutional resilience in the face of shocks such as the COVID-19 epidemic. The ministry also emphasises the use of blended learning, which combines in-person instruction with online learning (MoEST, 2021). In responding to the government directives, all tertiary institutions in Tanzania, whether funded by HEET projects or self-funded, are expected to act by harnessing the use of OER in their education systems to ensure learning is not affected even in the emergence of unexpected events or pandemics, such as during the outbreak of COVID-19. Thus, this study investigates the access and utilisation of OER among academics and students at the Local Government Training Institute (LGTI), located in Dodoma, Tanzania. Specifically, the study intends to:

- (i) Assess the awareness of students and academics on the use of OER at LGTI
- (ii) Examine the extent of OER usage among academics and students at LGTI

(iii) Identify factors hindering the use of OER among academics and students at LGTI

## 2. Conceptual Framework

Davis's 1993 model has been modified to use the term open educational resources (OER) instead of Technology to guide the study. In other words, the modified model takes into account aspects that contribute to the adoption and thus utilisation of OERs. According to this model, people's understanding of OER (awareness) has a significant influence in determining how useful and ease of use they will find them. In other words, without being adequately informed on OER, one will not be able to appreciate their value, let alone grasp how to search, retrieve, and use them, aside from not knowing of their existence and where they can be found. The model also suggest that, despite users' appreciation for EOR as a result of being adequately informed, other factors may play a role in determining their access and utilization. Depending on their situation, such aspects as users' technical knowledge (skills), access to technology, and institutional support may be enablers or challenges. This model was deemed useful since it guided the researcher in investigating how awareness about OER may have implication on their actual use. In addition to that, the model helped in examining the extent of OER usage and in identifying challenges hindering academics and students in using the OER. Figure 1 show the modified technology adoption model used to guide the study



**Figure 1: Modified Technology Adoption Model**

**Source:** Modified from Chuttur (2009)

### **3. Literature review**

#### **Awareness of Open Educational Resources**

Several studies were conducted to examine awareness and the use of OER. D'Souza (2021) used a quantitative research approach to examine how awareness leads to the utilisation of OER. The findings of his study revealed that the majority of the respondents had less awareness of the uses of OER. He recommended the faculty provide enough awareness of OER and guide students in using OER. However, this study did not adequately address the issues of ICT infrastructure, such as the availability of reliable internet connectivity, which is a pre-requisite for OER usage. Another study conducted by Mtebe and Raisamo (2014) found that, because of a lack of awareness, the majority of academics were not able to search for and use EOR from reliable sites. This means that the tertiary institution selected for the study had no in-place adequate training sessions to equip the instructors with the skills of using OER. This affects the effective utilisation of OER because some instructors have no ICT skills in searching for and evaluating the authenticity of the sources where such learning materials comes from.

A similar study was conducted at the Open University of Tanzania by Samzugi and Mwinyimbegu (2013), where data for their study was collected using survey questionnaires and documentary reviews. The findings of their study indicated that academics and students were aware of OER and its uses, such as for learning. This study employed a mixed-methods research approach where an explanatory sequential research design was used to gain more insights on access and utilisation of OER by academics and students at LGTI Dodoma. Using different methodologies and contexts may yield related or different findings from the previous studies because the Open University of Tanzania offers education on a distance learning basis, while LGTI offers education in a conventional mode. Therefore, the learning environment and pedagogy may be different, and their awareness of the use of OER may differ.

#### **The Uses of Open Educational Resources**

Open Educational Resources entails the use and sharing of knowledge and information among individuals. It contributes significantly to improving educational equity, maintaining cultural history and local knowledge, and developing an online platform for global access to knowledge and information in a variety of languages (Mishra, 2017). A study conducted in Open University

of Tanzania by Samzug and Mwinyimbegu (2013) established that through OER students and faculty were able to access study materials, course notes, research information, bibliographic information and course outlines which were used purposefully used for references, research and self learning. This suggests that the usage of OER has reduced the cost of accessing learning materials among teachers and students, facilitating distance learning. However, the remaining challenge is whether students are adequately led because not all OER materials are appropriate for a specific learning level. This assertion is consistent with Mishra (2017), who claims that many OER do not meet the learning needs of a specific grade level. As a result, simply because a text or image is published under an open licence does not automatically imply that it is educational material or OER.

A study conducted by Sandanayake (2019) demonstrated that the adoption of OER-based online courses promotes the quality of learning by allowing flexibility of resources while applying information in a broader context. Learners could share their knowledge and skills using a variety of ways. In a study that was conducted in Nigeria by Oloidi (2021) it was observed that there was moderate use of OER for research by postgraduate history students. The findings imply that the moderate usage of EOR may be resulted from lack of awareness among students because of an absence of capacity building sessions to equip them with searching and ethical use of OER for learning purposes. According to Mwinyimbegu (2019), higher education institutions should develop policies to ensure the ethical use of OER for learning purposes among students and academics. Because OER is available in a number of formats, students must be informed of the licencing agreement prior to accessing such materials; hence, policies should clearly indicate the proper usage of OER to avoid any type of misappropriation among academics and students.

### **Challenges hindering access and utilisation of Open Educational Resources**

Although the usage of open educational resources (OER) brings numerous benefits to academics and students, particularly in terms of access to reading materials for learning purposes in higher education institutions, it is fraught with difficulties. A study conducted in Tanzania by Samzug and Mwinyimbegu (2013) observed that low internet connectivity affected the use of OER by Open University students and academics. Thus, this calls for tertiary institutions to ensure the availability of reliable internet connectivity to facilitate learning activities and minimise the costs

of accessing such resources from students' sides. Sandanayake (2019) discovered that due to the information explosion, undergraduate students were unable to determine the veracity of free and open content. A study conducted by Oloidi et al. (2021) revealed the low usage of OER for research by postgraduate history students in Nigeria as a result of inadequate awareness programmes by the university. This suggests that to ensure effective utilisation of OER, higher education institutions should consider putting in place awareness programmes.

A study by Mwinyimbegu (2019) noted that despite the fact that OERs are available in institutional repositories and websites, students have low awareness of them, which affects their usage. Upendo (2020) found that inconsistency and accuracy of information provided online were factors affecting postgraduate students' use of OER in Tanzanian higher tertiary institutions. Another study conducted by D'Souza (2021) found that students faced challenges in finding and locating relevant OER for learning purposes. According to Hatzipanagos and Gregson's (2015) study, quality assurance was a top worry of respondents when it came to the use of OER. The conclusions of their investigation also revealed that respondents had a low awareness of OERs and licencing. From the above-consulted literature, it can be depicted that although the use of OERs offers numerous benefits to students and academics in higher education, there are still a number of challenges impacting their usage in learning.

#### **4. Methodology**

This study was premised on the pragmatism paradigm by employing a mixed-methods research approach (MMR). According to Ngulube (2015:3), combining two or more approaches in one study results in well-focused research and increases its rigour. An explanatory sequential design was used, which involved collecting quantitative data in the first research phase, followed by qualitative data in the second research phase. This enabled the researcher to refine some questions based on the responses obtained from the quantitative phase to ensure all research objectives were addressed in the second qualitative research phase. The study's population included academics and LGTI students, from whom a sample of 55 respondents was drawn, included 43 students and 12 academics. Simple random sampling was used to select students' respondents to be included in the study, while convenience sampling was used to select academics to participate in the study. Purposive sampling was used to select 5 library staff and 2



ICT staff to participate in interview because they expected to possess useful information that this study sought to collect. Quantitative data was collected through the use of survey questionnaires that were distributed to students and academics, while interviews were conducted with ICT and the library staff. Quantitative data were analysed using SPSS version 16, and responses were presented in the form of tables, frequencies, and percentages, while qualitative data was thematically analysed based on the themes that emerged from the interview transcripts. Finally, the findings from both strands were integrated and possible reasons for their similarities or differences were given.

## 5. Results and Discussion

**Table 1: Awareness of Open Educational Resources by Respondents**

Response	Students N=43		Faculty members N=12	
	Frequency	Percentage	Frequency	Percentage
Yes	42	97.7	12	100
No	-	-	-	-
No response	1	2.3	-	-

According to the findings in Table 1, the majority of student responses 42 (97.7%) students and 12 (100%) of academics were aware of EOR. The implication is that the concept of open educational resources (OERs) is not new to the respondents. The findings of the study concur with the study conducted in Japan by Shigeta et al. (2017), which established that respondents had awareness of OERs. However, the level of awareness, which includes the ability to identify reliable OER, and the skills of searching for and using such resources, may differ because Japan is ahead in terms of technology compared to African countries. The findings of the study also revealed that with the current trend of the use of social media platforms, students and academics became aware of various OER because, through such platforms, they received information on various useful sites where OER could be found. Similar findings were observed in a study conducted in Sri Lanka by Hettige, Dasanayaka, and Ediriweera (2022), which revealed that the majority of students used OER and social networking sites for learning. Wiki sites were the most popular OER, and Facebook was the most popular social media platform.

The findings of the study further revealed that awareness of OER among academics and students is necessitated by their usefulness in academics including the reduced costs of accessing them, they are freely available, facilitate learning, and they can also be obtained timely. Thus, they informed each other about the sites where OER can be accessed for learning purposes. Findings of the study from the interview revealed that both students and academics were aware of the OERs; however, the interview participants were a bit sceptical if students and academics could identify the relevant sources where the OER comes from. During the interview one participant had this to say:

*“Students and academics have a general awareness of the OER because they have been using them for learning purposes, but I am not sure if they really identify the reliable and unreliable sites because some of the OER is coming from unreliable sites.”*

This implies that both academics and students had limited awareness of proper searching techniques, the ability to identify reliable sites, the ability to evaluate the obtained OER, and the ethical use of such learning materials, including licencing issues. Similar findings were observed in the study conducted by Hatzipanagos and Gregson (2015), which revealed inadequate awareness of EORs and associated licencing among academics.

**Table 2: Frequency of Using Open Educational Resources**

Response	Students N=43		Faculty N=12	
	Frequency	Percentage	Frequency	Percentage
Very often	11	25.6	7	58.3
Often	10	23.3	3	25
Rarely/Less often	22	51.2	2	16.7
Total	43	100	12	100

Findings in Table 2 show that 11 (25.6%) student respondents and 7 (58.3%) teaching staff respondents indicated “very often”, 10 (23.3%) student respondents and 3 (25%) staff respondents indicated “often”, and 22 (51.2%) of student respondents and 2 (16.7%) staff respondents indicated “rarely”. The findings of the study revealed that there was low usage of

OER among students compared to academics, who frequently used such resources. Based on their level of education and experiences, academics were likely to be aware of various OERs that are used for learning compared to students. Apart from teaching, academics also used OER for consulting assignments and research, which gives them the advantage of being aware of various online learning materials. The remaining question is whether they are also aware of the licencing agreements of those OERs because there is a tendency among people to accept the licencing agreements without reading them, which is sometimes done intentionally or unintentionally. A study conducted by D’Souza (2021) found that the majority of academics and students used OER twice a week. The less frequent use of OER is associated with factors such as a lack of awareness of the existence and importance of such resources for learning among students and academics. Other factors include skills in searching and accessing the required information from the online learning materials.

The perceptions and attitudes of academics and students towards the use of OER may have implications for the frequency of its usage. This means that if OERs are perceived as useful and easy to use among academics and students, there are more chances of using them frequently in learning, as suggested by the modified model by Chuttur (2009). Another factor that may lead to frequent use of OER is the attitude of academics towards them. For example, if academics and students develop positive attitudes towards OER, they are likely to use them frequently for their learning purposes, but if they develop negative attitudes towards them, they will use them occasionally. Negative attitudes may result because of some unreliable sites, which may provide them with the wrong information.

**Table3: Challenges faced in Accessing and Utilising Open Educational Resources**

Response	Students N=43		Faculty N=12	
	Frequency	Percentage	Frequency	Percentage
Unreliable internet connectivity	27	62.8	4	33.3
Inadequate search skills	24	55.8	4	33.3
Too much information	13	30.2	2	16.7
Lack of awareness	3	6.9	1	8.3
Language barriers	2	4.7	-	-

Findings in Table 3 depict that the majority of respondents indicated unreliable internet connectivity as the major challenge in using OER; this was affirmed by 27 (62.8%) of student respondents and 4 (33.3%) academics. Related findings were observed in another study that was conducted in Tanzania by Samzugui and Mwinyimbegu (2013), which established that internet connectivity was a major challenge for access and utilisation of OER. However, this study also revealed other challenges associated with the use of OER, such as inadequate searching skills, which were mentioned by 24 (55.8%) of the student respondents and 4 (33.3%) of the academics. Other challenges encountered in the use of OER included too much information, a lack of awareness, and a language barrier. Similar findings were observed in the study that was conducted in Tanzania by Mwinyimbegu (2019), which established that limited awareness of the existence of OER despite their availability on websites and repositories were the major hindrances to the utilisation of such materials. The findings of the study were in agreement with the study that was conducted in Nigeria by Olufunke and Adegun (2014), which revealed that the major challenge for using OER was the unfamiliarity of such learning materials among undergraduate students. The study conducted in India by D'Souza (2021) observed that the major challenges encountered by students and academics in the use of OER were a limited understanding of copyright law and open licencing initiatives. His study further revealed that the inability to access relevant OERs was another factor affecting the effective utilisation of such resources.

The findings of the study imply that the use of OER has encountered a number of challenges that need to be addressed if tertiary institutions are intending to ensure its effective utilisation in learning. Tanzania has witnessed the implementation of big ICT projects such as the ICT broadband backbone (NICTBB) infrastructure project to solve the internet problem, which spent over 250 billion, as mentioned by Kowero (2012). However, the issue of internet connectivity is still a challenge in Tanzania. There is a need for more initiatives to ensure the availability of reliable internet connectivity in higher education in Tanzania towards ensuring the access and utilisation of OER, which may facilitate learning and in turn enable students to be knowledgeable and competent. The Tanzania Information and Communication Technology Policy (2016) harness the use of technology in higher education institutions. It is therefore

expected that tertiary institutions will adopt the use of blended learning, which promotes the use of OERs.

### **Conclusion and recommendations**

The findings of the study established that there was a limited awareness of the use of OER among students compared to academics, which is why they rarely used such learning materials for academic purposes. Students and academics encountered a number of challenges in their use of OER, including unreliable internet connectivity, a lack of searching skills, information overload, and a lack of awareness of OER and its proper use. Based on these findings, this study recommends that LGTI management make investments in ICT facilities, including ensuring the availability of stable and reliable internet connectivity. There should also be regular training on the use of OER among staff and students to impart searching skills to them in order to maximise the utilisation of such resources for learning purposes. The management of such institutions should also embrace the use of blended learning, which will indirectly require students and academics to learn better ways of using OERs because this will also ensure continuity of learning activities even in emergence events such as the outbreak of the COVID-19 pandemic. Finally, the tertiary institutions in Tanzania need to formulate policies and procedures that will guide the utilisation of OER, including issues relating to copyright laws, to avoid any forms of violations in the course of their use.

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