

## Overcoming Challenges and Negative Perceptions of Open Educational Resources in eLearning Management Systems in Tanzanian Higher Learning Institutions

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### Abstract

*While Open Educational Resources (OER) offer a valuable opportunity for academics to access educational content, their adoption in Tanzania remains limited. This paper examines the challenges that hinder the adoption of OER by the academics of Higher Learning Institutions in Tanzania. Data on experiences and challenges related to OERs were collected through a focus group of 10 participants from two institutions. The findings were further validated through an online questionnaire completed by 90 academics across seven institutions. The study identified key challenges, including a lack of skills, contextual relevance, awareness, and policies on OERs, as well as concerns over ownership, licensing, and copyright. To address these challenges, the paper proposes several strategies, such as establishing OER policies that specifically address contextual adaptation, copyright regulations, and capacity building. These measures would enhance the adoption of OER among academics in Higher Learning Institutions in Tanzania.*

**Keywords:** *Open educational resources (OER), eLearning management systems (eLMS), academics, higher learning institutions, adoption challenges, mitigation strategies*

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### Introduction

The integration of Open Educational Resources (OERs) into the blended mode of teaching, represents a strategic approach to modernising and enhancing higher education in Tanzania, as outlined in the latest guidelines of the Tanzania Commission for Universities (TCU, 2022). By leveraging OER, universities can meet the TCU's requirements, improve the quality of learning, and ensure that education remains accessible to all students, irrespective of their financial circumstances. OERs are freely accessible and openly licensed educational materials found in various repositories, platforms, and websites. OERs can be used, shared, and

modified by education communities. OER encompasses a broad range of digital and non-digital resources, including textbooks, lecture notes, videos, interactive modules, quizzes, assessments, and more (Faton et al., 2023). They empower both educators and learners by supporting the principles of openness, collaboration, and lifelong learning. OER can significantly reduce the financial burden on students and institutions by providing free alternatives to traditional expensive textbooks and learning materials (AjiThKumar, 2014)

Institutions use eLearning Management Systems (eLMS) to manage and organise learning. eLMS offers features to categorise and structure learning contents logically and intuitively. eLMS provides a centralised platform where educators can upload, organize, and store learning content. One such type of learning content that can be controlled by eLMS is OER (Bhalalusesa, 2013). eLMS enables educators to control access to learning content based on roles and permissions. They can designate which content is accessible to specific individuals, groups, or classes. This ensures that sensitive or restricted materials are shared only with the intended audience. However, eLMSs are limited in sharing the learning content because many of them lack the learning materials to start with (Mohammadi et al., 2021). To increase the availability of learning content in the eLMS, institutions can turn it into an OER strategy. OER allow educators to customise and adapt resources to align with their teaching methods, curriculum goals, and student needs. With the freedom to adapt and remix OER, educators can experiment with interactive multimedia elements, incorporate open educational technologies, and feed the learning contents into eLMS.

Although OER have been around for a while still their adoption in eLMS for developing countries is very limited. The low-level adoption can be attributed to the proper awareness among academics (Mtebe et al., 2014; Samzugui et al., 2010). Proper awareness involves knowledge. Knowledge is more than just mainly information but the rules upon which information can be inferred to produce newer information. Academics may be informed about OER but do not possess the right knowledge about OER. It is important therefore to understand how academics perceive OER to formulate tools that can improve the usage of OER. This way the challenges can be found through means put in place to mitigate them. This paper is based on research conducted to unearth challenges faced by academics when adapting the OER in higher learning institutions. The paper explores opportunities and strategies to address the challenges academics face when integrating OER into their curricula.

## A Review of Related Work

Numerous studies have examined various aspects of Open Educational Resources (OER) adoption, utilisation, and impact across different educational contexts. Mtebe et al. (2014a) investigated the perceived barriers to OER utilisation in higher education institutions (HEIs) in Tanzania. Conducted across 11 institutions, the study employed semi-structured interviews with 92 instructors and document reviews to identify key obstacles. Findings highlighted limited access to computers and the internet, inadequate bandwidth, absence of institutional policies, and insufficient skills in OER creation or usage as primary barriers. The study contrasts with previous research in Africa, revealing that issues like distrust, lack of interest in OER creation or use, and time constraints were not significant barriers in Tanzania. Mtebe et al. (2014b) explored broader challenges facing HEIs in Tanzania and other African countries, particularly the lack of quality teaching and learning resources due to deficits in tradition, competence, and experience in resource development. Despite the availability of free OER in the public domain, their uptake in Tanzanian HEIs has remained low. The study identified effort expectancy as a key factor influencing instructors' intention to use OER, while performance expectancy, social influence, and facilitating conditions played a lesser role. These findings provide valuable insights into the challenges affecting OER adoption.

Samzugi et al. (2010) explored OER usage at the Open University of Tanzania, revealing that both academics and students accept OER. However, the study reported slow adoption due to a lack of knowledge on proper OER usage within eLearning Management Systems (eLMS). Without adequate knowledge, institutions may struggle to realise the full benefits of OER, necessitating better integration strategies within eLMS platforms. Similarly, Ismail et al. (2019) examined OER awareness among first-year undergraduate students at the State University of Zanzibar (SUZA). An online questionnaire survey across three campuses found that over 40% of students had little to no exposure to available OER offerings. Although OER usage at SUZA was low, the study identified growth potential, particularly given the widespread use of mobile devices and ICT among students. Challenges to OER adoption included limited access, connectivity issues, and concerns about affordability. The study also emphasised the need to build the capacity of academic staff in OER integration.

Mubofu and Kainkwa (2023) investigated Tanzanian academics' awareness, attitudes, and sentiments toward OER in two HEIs. Using a quantitative approach, they administered questionnaires to 52 purposively selected academics. The study found that while most participants had moderate awareness of OER and held positive beliefs about its benefits, some lacked the necessary training and support to integrate

OER into their teaching and research. The study recommended targeted training initiatives to address negative sentiments and promote OER adoption. Muganda et al. (2016) provided a comprehensive analysis of OER adoption within African Open Distance and eLearning (ODEL) institutions, focusing on workshops held at the Open University of Tanzania (OUT). Using a participatory research approach, the study convened two workshops with 28 academic staff and an OER Africa facilitator to assess the status of OER adoption. Findings indicated that while OUT staff were willing to engage with OER, they lacked sufficient awareness, skills, and competencies in OER creation, integration, and usage.

Loglo and Zawacki-Richter (2019) examined academics' perceptions and engagement with OER at a Ghanaian university using in-depth qualitative interviews. Participants viewed OER positively, particularly for addressing knowledge imbalances between the Global North and South. Concerns regarding OER quality emerged, with the reputation of the sharing institutions being a crucial factor in perceived credibility. The study also found that academics were informally engaging in OER-related practices, such as reusing and remixing educational content, though often without applying for appropriate open licences due to low awareness. These findings suggest a readiness for OER adoption but highlight the need for increased awareness and formalisation of open practices. Ujakpa et al. (2020) examined awareness, perception, and attitudes toward OER in relation to Sustainable Development Goal 4 (SDG 4), which aims to ensure inclusive and equitable education for all. The study, which surveyed 80 postgraduate students at the International University of Management in Namibia revealed high levels of awareness and positive perceptions of OER. The study recommended that universities actively promote OER creation to enhance the availability of relevant educational materials.

Wolfenden et al. (2019) explored OER utilisation in teacher education institutions across Mauritius, Tanzania, and Uganda. Using surveys and interviews with teacher educators and institutional stakeholders, the study examined how educators accessed and used OER, the factors influencing sustained engagement, and the impact on teaching practices. The findings indicated that many educators lacked knowledge of proper OER utilisation, largely due to weak institutional policies supporting OER integration. Lastly, Adala (2019) investigated the relationship between OER availability and the emergence of Open Educational Practices (OEP) at the African Virtual University (AVU). The study found that simply making OER available did not guarantee widespread adoption of OEP. Challenges such as insufficient institutional support, lack of necessary skills, and limited access to technology were identified. The study advocated for policies addressing training, ICT infrastructure, partnerships, and faculty motivation to strengthen OER adoption.

The literature provides a comprehensive overview of OER adoption, highlighting its potential to promote inclusive and quality education. However, several common challenges persist, including limited awareness, inadequate institutional support, and technological barriers. While studies have examined these challenges, there is still a need for effective strategies to systematically address them. Insights from existing research can inform the development of targeted interventions to enhance OER integration and utilisation in Tanzanian HEIs.

## Methodology

This study employed a mixed-methods research approach, which integrates both qualitative and quantitative methods to enhance the depth and breadth of analysis. Mixed research paradigms can be applied concurrently, sequentially, or within a single study investigating the same phenomenon, offering a more effective, efficient, and robust approach compared to a single-method design (Creswell, 2014; Babbie, 2020). The qualitative part used data from in-person Focus Group Discussions comprising ten (10) academics from two academic institutions: the Open University of Tanzania (OUT) and the East African Training Centre (EASTC). For the quantitative part, a convenient sampling technique was used as all responses from academics who responded to the online questionnaire were used. There were a total of 90 academics from seven (7) institutions (OUT, EASTC, University of Dar es Salaam, National Institute of Transport, Mzumbe University, Institute of Accountancy Arusha and Institute of Finance and Management) who responded to an online questionnaire.

Thematic analysis was used to transcribe and identify the challenges discussed in the focus groups. Each theme that emerged from the analysis represented a challenge, which was then incorporated into the questionnaire. The variables from the thematic areas in the focus groups, as presented in the questionnaire, were primarily categorical. These included a 3-point scale (Yes, Don't Know/Maybe, No) and a 5-point Likert scale to measure importance (Not Important At All, Not Important, Neutral, Important, Very Important) and agreement (Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree).

Python-built in packages that perform detailed analysis, including Pandas, NumPy, and Matplotlib were used. Data from the questionnaire were coded into Excel and imported into Python using Pandas and pre-processed using the NumPy package. A package of Matplotlib was used to visualise the findings in bar and pie charts.

Secondary data from the TCU report and various researchers who explored OER challenges in Tanzania were analysed. An exploratory analysis was conducted, where the results from these studies were compared with the responses from an

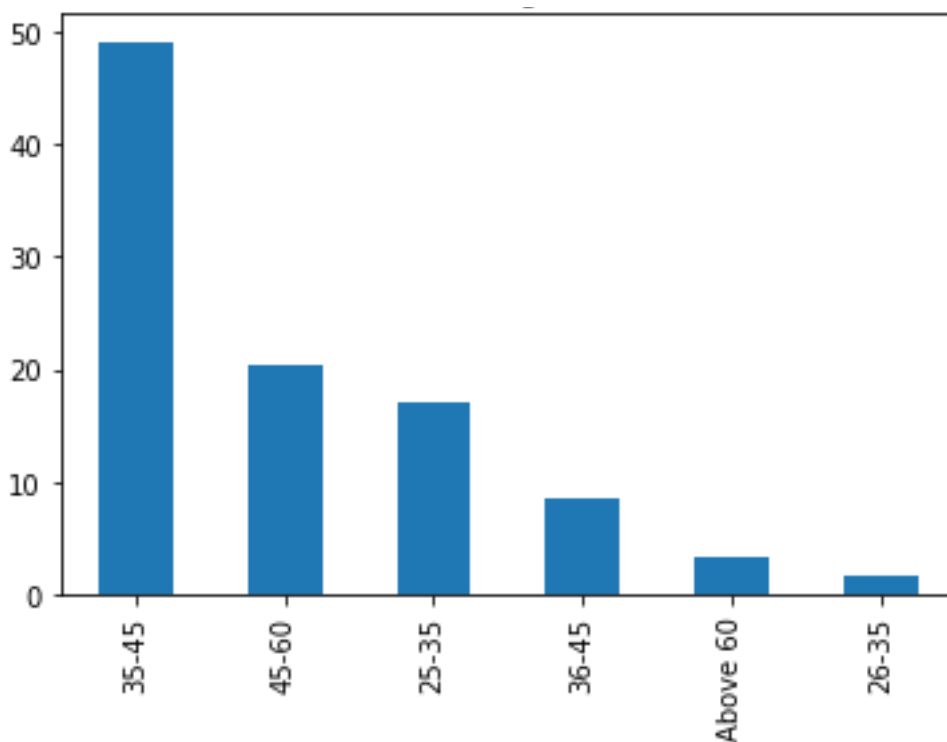
online questionnaire. The insights gained from the secondary data were then incorporated into the Scholarly Personal Narrative (SPN) to help identify and establish strategies for overcoming the challenges identified.

## Results and Findings

### Demographics

#### *Age*

The perception of OER may be different according to the age group especially since both education and technology are concepts viewed from different angles by young and old people. Young people are usually not fearful of technology contrary to the perception of old people. One could argue that young people ought not to have more knowledge of OER than older people. The challenges faced by younger people in using OER may be different from those of old people. This trend is worthy of investigation to understand how best the OER is used. To understand this relationship, the age group of participants in the study was carefully observed to relate to the awareness and usage of OER. Figure 1 shows the distribution of the age group from the respondents.



**Figure 1:** *Age of respondents*

## Gender

Studies consistently highlight that gender disparities exist in accessing and benefiting from OER initiatives. Women, particularly in developing nations, often face challenges compared to their male counterparts. The solution on the other hand can differ between men and women. Before analysing the disparity of challenges between males and females their distribution in the study conducted must be known. Figure 2. shows the distribution of gender of respondents.

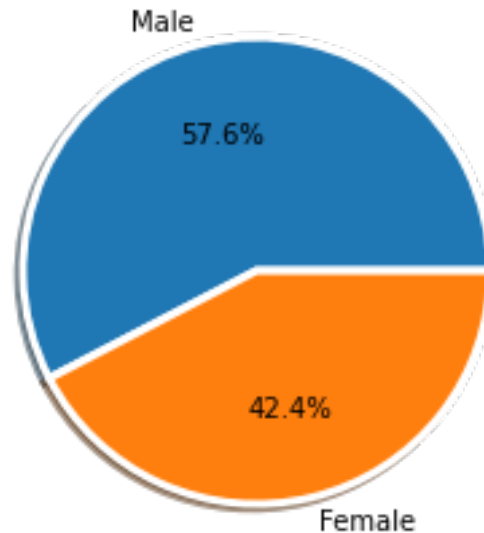


Figure 2: Gender of respondents

### Challenges faced by academics in the adoption and utilisation of OERs

From the focus group discussions, several thematic challenges were identified. These challenges were incorporated into the questionnaire for academics to comment on their viability. They include: limited knowledge of OER (Open Educational Resources), fear of committing copyright infringement, lack of recognition of ownership, lack of contextual relevance in OER, insufficient pedagogical and technical OER skills, inadequate system integration, absence of a personalised instructional approach, and the prevalence of irrelevant materials on the internet. The identified challenges were included in the questionnaire, and academics were asked to provide their perceptions. A description of potential approaches to mitigate these challenges is provided after each challenge.

### Lack of awareness and understanding of OER

Proper usage of OER can be attributed to a lack of awareness. The lack of awareness regarding OERs refers to a situation where individuals, institutions, or communities

have limited knowledge or understanding of what OERs are, their benefits, and how to effectively use and access them. This lack of awareness can be seen among stakeholders in the education sector such as academics.

*Academics' perspectives on OER awareness*

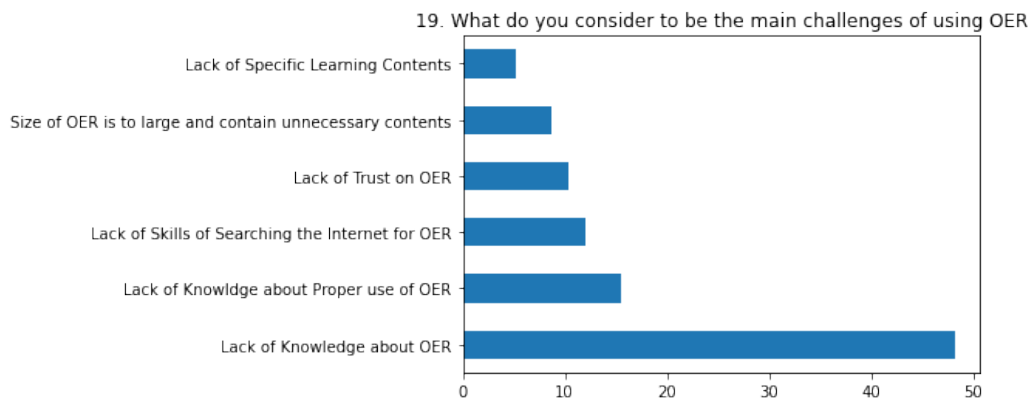
The findings from the study revealed that most academics have some knowledge of what OER are and have used OER in their courses including video lectures from YouTube as indicated in Table 1. This is significant because it is clear that the rate of using the OER is not attributed to the knowledge of OER in Tanzania but must be controlled by other factors as well and calls for other factors to be considered as well.

**Table 1**

*Academics' Awareness and Understanding of OER*

No	Question	Yes	No
4	Do you know what is Open Education Resources (OER)?	72.9	27.1
5	Have you ever used OER in your Course?	59.3	40.7
6	Have you ever reused Learning Content downloaded from the Internet for teaching such as PDF, word, or video from YouTube, Google, or Yahoo?	93.2	6.8
8	Have you downloaded a question from the Internet and used it as it is without changing it?	50.9	49.1

While the academics acknowledged their awareness of OER, over 40% identified it as a significant challenge, as shown in Figure 3. However, knowledge of OER goes beyond merely understanding the term; it also encompasses the ability to effectively adapt and reuse OER in a meaningful and practical manner.



**Figure 3:** *Ranking summary of challenges identified from focus group*



### *Mitigating the lack of awareness about OERs*

Addressing the lack of awareness surrounding Open Educational Resources (OER) requires concerted efforts from various stakeholders. Awareness campaigns promoting the concept, benefits, and potential of OER can reach a wider audience (South, 2023). These campaigns might include workshops, conferences, webinars, and online resources designed to inform and engage educators, students, policymakers, and other stakeholders. Offering training and professional development opportunities to educators, instructional designers, and administrators can enhance their awareness and capacity to effectively use and integrate OER in teaching and learning. Facilitating collaboration and networking among educators, institutions, and OER advocates can foster a supportive community. This might involve establishing OER communities of practice, online forums, and platforms for sharing experiences, resources, and best practices. Finally, policymakers can play a crucial role in raising awareness by incorporating OER into education policies and strategies.

### *Fear of committing copyright infringement*

The fear of copyright infringement can have a significant impact on the adoption of OER. The complexity of copyright laws and the uncertainty surrounding the permissible uses of resources can discourage educators from utilizing OER. Educators may be hesitant to adopt OER due to the fear of inadvertently violating copyright laws. The fear of potential legal repercussions may overshadow the perceived benefits of using openly licensed resources, leading to a reluctance to explore and adopt OER.

### *Academics' perceptions of copyright infringement*

The results show that most of the academics (over 85 %) in Tanzania are not familiar with the different types of Licences used in developing and reusing OER. As indicated in Table 2, 85% of academics do not know how to adapt the OER to new learning content. Table 2 also indicates that most academics do not check the Creative Commons (CC) license when adapting content from OER repositories. This is significant because it can lead to improper use of OER, potentially rendering them ineffective and causing institutions to abandon them.

**Table 2***Knowledge of the Licenses used in OER*

No	Question	No	Yes
26	Do you know what a Creative Common (CC) License is?	86.7	13.3
27	Are you knowledgeable about different types of CC licenses used in OER [Attribution (CC BY) – ]?	88.1	11.9
27	Are you knowledgeable about different types of CC licenses used in OER [Attribution-Share Alike (CC BY-SA)]?	88.1	11.9
27	Are you knowledgeable about different types of CC licenses used in OER [No Derivatives (CC BY-ND) ]?	86.2	13.8
27	Are you knowledgeable about different types of CC licenses used in OER [Attribution-Noncommercial (CC BY-NC)]?	86.2	13.8
27	Are you knowledgeable about different types of CC License used in OER [Attribution-Noncommercial-Share Alike (CC BY-NC-SA)]	85	15
27	Are you knowledgeable about different types of CC licenses used in OER [Attribution-Noncommercial-No Derivatives (CC BY-NC-ND)]?	85	15
28	Do you know how to add a CC License in developing OER?	86.7	13.3
29	Do you know how to adapt an OER with a signed CC License?	85	15

*Mitigating the fear of copyright infringement*

To eradicate the fear of copyright infringement in OER adoption academics require awareness, education, and support on copyrights (Butcher, 2015). There is a need to provide training and resources to educators to enhance their understanding of copyright laws, open licenses, and the permissible uses of OER. This can help dispel misconceptions and build confidence in utilizing openly licensed resources. Technologists need to ensure that OER repositories indicate the licensing information for each resource, making it easy for educators to determine the permissions and restrictions associated with the materials. Institutions need to offer guidance and support materials, such as best practices and Frequently Asked Questions, to assist educators in interpreting and complying with different open licenses. Awareness of open licensing and its benefits within educational communities should be promoted by institutional management and legal professionals. This can be achieved by emphasising how open licences enable the legal and ethical use of resources. Open content licences, such as Creative Commons licences, are commonly used for OER. These licences allow content creators to grant permission for others to use, modify, and share their work while stipulating certain conditions. Each CC

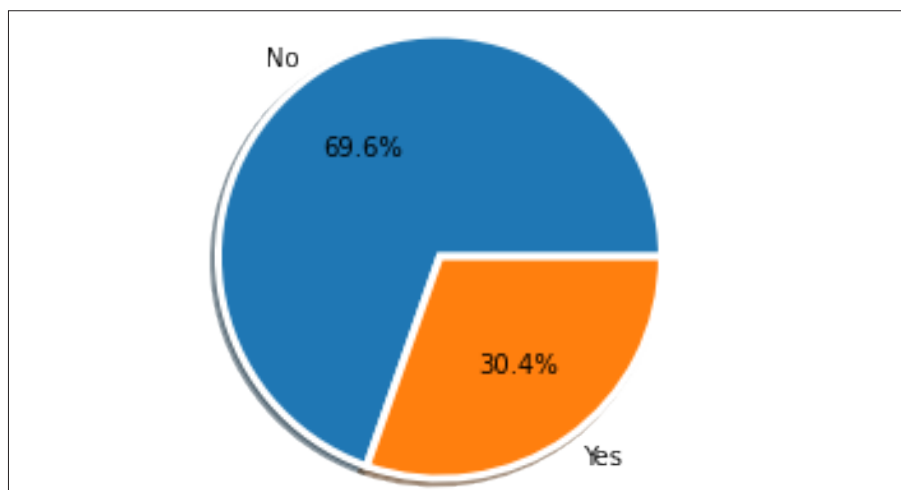
licence has specific terms and associated icons. These terms include requirements like attribution, share-, non-commercial, and no derivatives. Understanding these terms and icons will help academics navigate the licensing requirements when using and adapting OERs.

### ***Lack of recognition of ownership***

The fear of losing authorship or recognition is a valid concern for some academics when it comes to OERs. Academics may worry that their contributions to OER will not be properly acknowledged. Since OER are openly licensed and can be modified or adapted by others, there may be a perception that authorship or intellectual property rights could be diminished or overlooked. There might be concerns that openly licensing their work as OER could diminish the uniqueness or value of their content, potentially impacting their professional reputation within their field. Some academics may worry that sharing their work as OER could be perceived as less prestigious or less impactful than traditional publishing, potentially affecting their chances of promotion.

### ***Academics' perceptions of the lack of recognition of ownership***

A large proportion of academics (69.5%) in this study showed that they do not check the owner of the OER before downloading the contents (Figure 5). Also, most of the academics (86.67%) do not know how to add a CC license to the OER while 85% of academics are not familiar with how to adapt learning content which has been signed with a CC license as shown in Table 2.



**Figure 4:** *Number of academics who check the CC license before using it*

### *Mitigating a lack of recognition of ownership*

To address these concerns and alleviate the fear of losing authorship in OER, several strategies can be considered. OER repositories and platforms should ensure that proper attribution practices are in place, clearly indicating the authorship of each resource. Guiding how to attribute and give credit to authors can help maintain their recognition and reputation (Ismail et al., 2019). Academics can select licenses that preserve their desired level of control and ensure appropriate attribution. Academics should be encouraged to engage in co-creation efforts to improve collaboration. By actively participating in the development and improvement of OER, academics can maintain a sense of ownership and ensure their contributions are recognised. Academics can consider dual publishing, where they make their work available as both traditional publications and OER. This approach allows them to retain recognition in traditional publishing channels while also benefiting from the broader reach and impact of OER. The value of OER should be highlighted with the educational community and showcase examples of academics who have gained recognition, visibility, and collaboration opportunities by sharing their work openly. This can help alleviate concerns about the perceived loss of authorship and highlight the positive aspects of OER adoption.

### ***Lack of contextual relevance in OER***

The problem of context in OER adoption primarily relates to how OER are created, shared, and used. OER are often created by individuals or organisations from diverse backgrounds and contexts. While these can be valuable resources, they may not always align with the specific cultural, social, or educational needs of different regions or communities. This lack of contextual relevance can make it difficult for educators and learners to fully utilise OER in their specific settings.

#### *Academics' perceptions of the lack of contextual relevance in OER*

The findings show that a relatively higher number of academics (over 50%) reuse the OERs the same way they found it. That means they do not look at the context of the OER. If the OER was made for students in Malaysia their environment and curricula would be different from that of Tanzania and the OER ought not to be sufficient for their curricula.

**Table 3***Reusing OER Without Contextualisation*

No	Question	Yes	No
8	Have you downloaded a question from the Internet and used it as it is without changing	50.9	49.1

*Mitigating the lack of contextual relevance*

To deal with these context-related challenges, it is crucial to involve diverse stakeholders, including educators, policymakers, and local communities, in the creation, adaptation, and implementation of OERs (Kılıçkaya and Kic-Drgas, 2021). Collaboration and co-creation efforts can help ensure that OER is contextually relevant, adaptable, and effectively integrated into educational settings. Additionally, ongoing investment in infrastructure development and digital literacy initiatives can enhance access and support the sustainable use of OER.

*Lack of skills (technology and pedagogy)*

The lack of skills among educators can significantly affect the adoption of OERs. Educators need to possess the skills to effectively search, evaluate, and select appropriate OER for their teaching needs. Without the necessary skills to navigate the vast array of available resources and make informed decisions, educators may feel overwhelmed or uncertain about using OER. Also, OERs are often designed to be adaptable, allowing educators to customize them to suit their instructional methods, students' needs, and the local context. However, this process requires technical and pedagogical skills to modify, remix, or localise the resources effectively. If educators lack the skills or knowledge of relevant tools and technologies, they may find it challenging to adapt OER to their specific teaching environments.

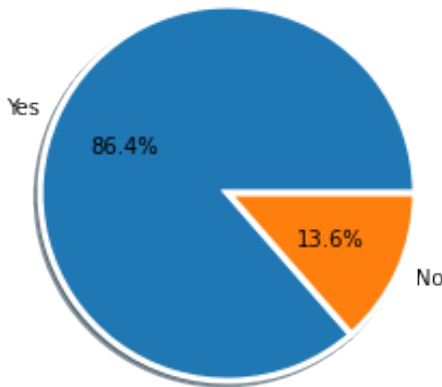
*Academics' perception of the lack of skills in using OERs*

The findings in the study indicate that out of the five responses for the requirement of skills in adapting OER Most of the academics (94.8%) feel Skill is very important when adapting OER. The respondents ranked the different skills required using a 5 Likert important scale as shown in Table 4 and showed that all the skills are very important. ICT skills ranked first with a mode of (84.6%) in the skills identified to be important when adapting OER. However, a majority of academics noted that they have not been trained on how to adapt OER. This is in sync with the observation in part xx where most of the academics also showed less knowledge of the CC license used in OER as it is one of the skills required to adapt OER correctly. The academics (67 %) also reported that training of OER is important to reuse the OER well.

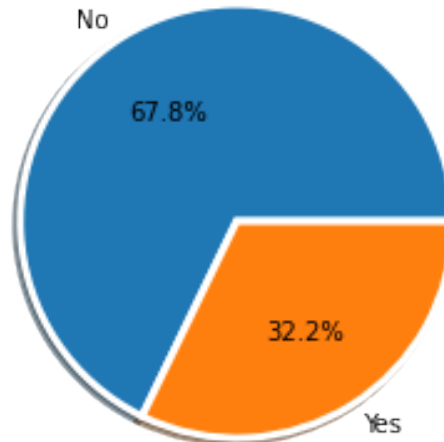
**Table 4**

*Skill in Adapting OER*

No	Skill	Mode (Highest Choice)	Percentage
22	Which skill is mostly required to reuse OER [ICT]	Very Important	84.6
22	Which skill is mostly required to reuse OER [Curriculum]	Very Important	73.3
22	Which skill is mostly required to reuse OER [Pedagogical]	Very Important	64.4
22	Which skill is mostly required to reuse OER [Just need time]	Important	43.6
22	Which skill is mostly required to reuse OER [Internet Search]	Very Important	56.9
22	Which skill is mostly required to reuse OER [Programming]	Very Important	40.7
22	Which skill is mostly required to reuse OER [Video Editing]	Important	41.0
22	Which skill is mostly required to reuse OER [Instructional Designing]	Very Important	53.9
22	Which skill is mostly required to reuse OER [Learning Psychology]	Important	46.2



**Figure 6:** *Perception of academics on the need for OER skills training*



**Figure 7:** *The percentage of academics who have been trained in using OER*

### *Mitigating the lack of skills in using OERs*

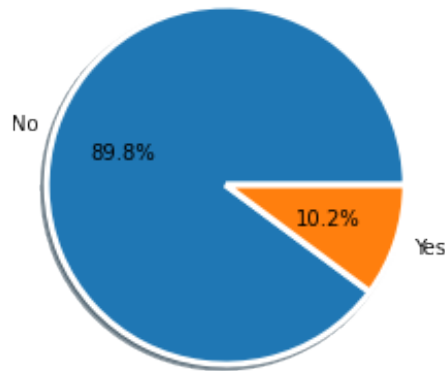
Some organisations provide financial and expert support in the field of OER development and promotion such as COL and UNESCO. These organisations offer financial support through various programs, projects, and initiatives that promote the development and use of OER. They provide grants and funding opportunities to individuals, organisations, and institutions for creating, adapting, and disseminating OER (Ossiannilsson et al, 2023). This financial support helps in producing high-quality OERs and sustaining OER initiatives. For example, the UNESCO-Commonwealth of Learning OER Chair Network supports the establishment of OER Chairs in various regions, fostering expertise and knowledge sharing. UNESCO collaborates with funding agencies and donors to mobilise resources for OER projects and provides expert support through its network of specialists in open and distance learning. They offer technical assistance, capacity building, and guidance in OER development, implementation, and sustainability. UNESCO and the Commonwealth of Learning share best practices, conduct research and facilitate knowledge exchange on OER topics. They also work with governments, educational institutions, and civil society organisations to foster partnerships and create a supportive ecosystem for OER.

### *Lack of OER policy*

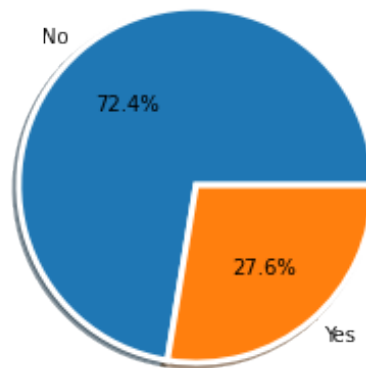
The lack of policy support can affect the adoption of OERs as they help raise awareness and understanding of OER among educators, institutions, and policymakers themselves. Policies provide a framework for institutions to support the adoption and integration of OER. A lack of specific policies or guidelines can result in a lack of institutional support, including dedicated funding, infrastructure, training, and incentives for educators. Policies can address copyright issues and provide guidelines on licensing practices for OER. The absence of such policies can create uncertainty and confusion among educators regarding the permissions, limitations, and legal aspects of using and sharing OER. Policies can encourage collaboration and resource sharing among institutions, educators, and stakeholders. They can promote the creation, adaptation, and sharing of OER across different educational contexts.

### *Academics' perceptions of the lack of OER policy*

From the data collection, it was discovered that most of the academics are unaware of OER policy in their institutions. Some institutions such as The Open University of Tanzania have drafted OER policies but they have never been operational and that is why the academics are not familiar with these policies. As of 2024, there is no OER policy in the country although there are some developments that are being supported by HEET to formulate OER policy for the higher learning institutions.



**Figure 8:** *Percentage of academics who are aware of OER policy in their institutions*



**Figure 9:** *Percentage of academics who are aware of OER policy in the country*

#### *Mitigating the lack of OER policy*

To promote OER adoption, it is essential to have supportive policies in place. Policymakers should work towards developing policies that explicitly support and promote the use and creation of OER (Muganda et al., 2016). These policies can address areas such as awareness raising, licensing guidelines, funding mechanisms, institutional support, quality assurance and reward mechanisms (Adala, 2019). Policymakers should involve diverse stakeholders: educators, administrators, content creators, and licensing experts, in the policy development process. Policies should be accompanied by advocacy and awareness campaigns to promote the benefits and opportunities of OER among educators, students, and administrators.



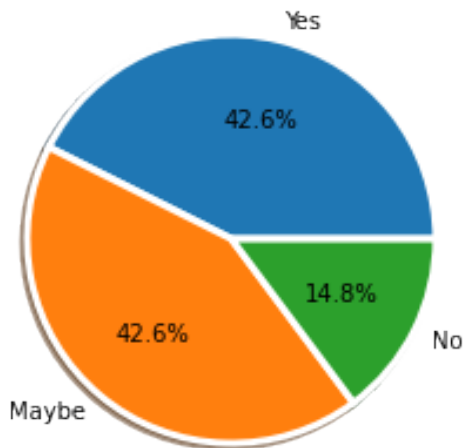
### ***Lack of system integration***

Interconnecting OER repositories with eLMS can be challenging. They may have different platforms, database structures, metadata schemas, and technologies. OER repositories may use different metadata standards or have inconsistent metadata practices. Interconnecting repositories with eLMS requires careful consideration of licensing compatibility, attribution requirements, and intellectual property rights. Top of Form

And finally Interconnecting repositories with eLMS requires infrastructure and ongoing maintenance to support the exchange and synchronisation of data. This may involve significant technical and financial resources.

### ***Academics' perceptions of the lack of system integration***

The number of academics who use OER in LMS exceeds those who do not use OER in eLMSs. Given that most academics lack proper skills in reusing OER there is a very high probability that they are not using them effectively. This explains why the number of individuals uncertain about using OER in eLMS is similar to the number who actually use OER in eLMS.



**Figure 10:** *Percentage of academics who use OER in the eLMS*

### ***Mitigating the lack of system integration***

Overcoming the difficulties of interconnecting OER repositories requires a collaborative approach, involving stakeholders from different sectors, standardisation bodies, and technology experts. It requires ongoing efforts to align technical systems, metadata practices, governance models, and sustainable funding strategies.

The best design for eLMS is to be able to integrate well with other external systems, including OER (Teng and Hung, 2013). It is important to note that the extent and ease of integration may vary depending on the specific eLMS version, configuration, and plugins available. When selecting an eLMS, it is recommended to evaluate its OER integration capabilities and consider the specific needs and requirements of your institution. Moodle eLMS which is by far the most popular eLMS in developing countries integrates well with OERs. It provides features like resource management, content sharing, and collaborative activities. Moodle allows instructors to upload OER directly into courses, create links to external OER repositories, and embed OER within learning materials. Other eLMS such as OpenEdx, Blackboard, Google Classroom, Canvas, etc also have some form of integration with OER.

### ***Lack of personalised instructional approaches***

Collaborative Learning and Personalised Learning are two pedagogical approaches that are used in higher learning institutions. Collaborative learning promotes social interaction, communication skills, and teamwork, while personalised learning supports individualised instruction, self-regulation, and autonomy. The choice between the two approaches depends on the learning goals, context, and the needs of the learners. OER materials are well suited for collaborative learning but Personalised Learning is not easily attained. Personalised learning focuses on tailoring education to the individual needs, interests, and pace of learners. OER, on the other hand, refers to freely available educational resources that can be used, shared, and adapted. Most of the OER contents are tailored to the context they were developed for and may lack personalisation when reused elsewhere.

### ***Academics' perceptions of personalised instructional approaches***

Personalisation is a teaching approach which requires pedagogical skills. From the table, it is clear that the academics (64.4 %) felt pedagogy to be one of the key skills which are required for using OER. Additionally, a large portion of academics indicated that OER skills training is very important. Since personalisation is a pedagogical skill and academics already perceive the skill to be very important in reusing OER, one can conclude personalisation to also important in using OER. However, most of the academics (67.2%) had indicated that they have not been trained on the skills of reuse of OER.

### ***Mitigating the lack of personalised instructional approaches***

The key area in mitigating the problem of personalisation in OER is improving the pedagogical skills of academics. This can be achieved through training on

pedagogical approaches such as collaborative and personalised learning (Alamri et al, 2021). Once they are well trained academics can inject personalisation into the OER. Institutions should design learning experiences that integrate both collaborative and personalised learning elements. For example, students can collaborate in groups to create personalised learning paths using OER, with each group member contributing resources based on their interests and strengths. Academics can learn the skills to use OER to deliver instructional content outside the classroom, allowing students to engage with the material at their own pace. Classroom time can then be dedicated to collaborative activities, discussions, and personalised support.

### ***Irrelevant material available on the Internet***

The presence of irrelevant materials can have an impact on the adoption of OERs. The internet is made up of so many materials that are used by different groups. If low-quality or outdated resources are mixed with valuable ones in OER, it can undermine the credibility and trustworthiness of the entire collection. Educators may be hesitant to rely on the repository, unsure if they can find reliable resources within it.

### ***Academics' perceptions of irrelevant learning materials***

Quality OERs are made by academics who are good at instructional designing and pedagogical skills. Table 4 showed that the academics felt instructional design to be a very important skill (53.9) in reusing OER. In the previous part (4.2.8.1) it was also shown that pedagogical skills are also important. This shows that the academics know that high-quality learning OER is important. However, because most academics lack OER training, they are hindered from developing high-quality OER, resulting in a proliferation of irrelevant OER online.

### ***Mitigation of irrelevant learning contents***

It is worth noting that while OER is designed to be easily searchable, the process of finding the most suitable resources may not be easy. It is essential to review the content to ensure its relevance, quality, and alignment with your instructional objectives before incorporating it into your teaching or learning activities. Institutions need to Implement robust quality control measures to ensure that only high-quality resources are included in the repository. This can involve peer review processes, expert evaluations, or community-driven mechanisms for resource selection (Zamiri and Esmaeili, 2024). OER Repositories should ensure that resources are appropriately tagged, described, and categorised using standardised metadata practices. Mechanisms for user feedback and ratings should be Incorporated

to enable educators and learners to share their experiences and evaluations of resources. The institutions should also continue to review and update the repository to remove outdated or irrelevant resources periodically to be aligned with current educational needs.

## **Conclusion and Recommendations**

This study has identified several challenges academics face when using OER within eLMS. While significant progress is still needed to fully address these challenges, this study has also highlighted the potential for overcoming them. Effective strategies, involving all stakeholders—educators, institutions, policymakers, and the wider educational community—are essential for successful OER adoption in eLMS. This study proposes the following strategies to foster such adoption within Higher Learning Institutions (HLIs):

First, awareness campaigns and professional development programmes are crucial to educate educators, students, administrators, and policymakers about the benefits, value, and potential of OER. Organisations like the Open University of Tanzania, which have already made strides in this area, should showcase successful examples and highlight the positive impact of OER adoption on teaching, learning, and accessibility.

Second, developing and strengthening supportive policies is essential. Policymakers should develop and implement policies that promote the creation, use, and sharing of OER. These policies should address areas such as licensing, funding, quality assurance, resource sharing, and institutional support. Crucially, relevant stakeholders should be engaged in policy development to ensure their perspectives are considered.

Third, collaboration and partnerships among institutions are vital for wider OER use. Relevant authorities, such as the Tanzania Commission for Universities (TCU), the National Council for Technical Education (NACTE), and the Tanzania Commission for Science and Technology (COSTECH), should encourage collaboration among educators, institutions, and OER stakeholders. Partnerships between content creators, repositories, and educational institutions should be encouraged to facilitate the creation, curation, and sharing of high-quality OER. A culture of open collaboration and resource-sharing within the educational community should be promoted. Research donors should facilitate collaboration and knowledge exchange across countries and regions to foster a global OER community and encourage cross-cultural collaborations in OER development and adoption.

Fourth, institutions should provide professional development and training to educators to enhance their skills and knowledge in finding, evaluating, adapting,

and integrating OER into their teaching practices, including how to link OER within eLMS. Training should address misconceptions and concerns related to copyright, licensing, and attribution, ensuring OER are shared with appropriate licences and acknowledgement of original authors.

Fifth, HLIs should enhance quality assurance mechanisms. Quality assurance frameworks and evaluation criteria for OER should be established. Institutions should encourage peer review, community feedback, and continuous improvement processes to ensure the quality, accuracy, and relevance of OER. Relevant institutional authorities should provide educators with guidance and resources to assess the quality of available materials.

Sixth, institutions should recognise the value of OER and provide support in terms of funding, infrastructure, and policy frameworks. They should encourage the integration of OER into institutional strategies, curriculum development processes, and learning management systems. Policymakers should recognise and reward educators for their contributions to OER and their innovative teaching practices. Relevant authorities should support research initiatives to explore the impact, effectiveness, and benefits of OER adoption, encouraging evidence-based practices and disseminating findings to inform decision-making and promote OER adoption.

Seventh, all stakeholders need to promote open licensing and resource sharing. Regulatory authorities, such as TCU and NACTE, should emphasise the importance of open licences, such as Creative Commons licences, to enable the free use, adaptation, and sharing of OER. University leaders should encourage educators to openly license their work and contribute to the broader OER community. Institutions should facilitate platforms and repositories that support the discovery, access, and sharing of OER.

Finally, institutions should promote accessibility and inclusivity, ensuring OER is accessible to diverse learners, including those with disabilities, different languages, and varying learning needs. Content developers should consider accessibility standards, alternative formats, and inclusive design principles in OER creation and dissemination.

By pursuing these strategies collectively and in a coordinated manner, OER adoption can be fostered, leading to increased access to high-quality educational resources, fostering innovation in teaching practices, and ultimately enhancing the overall quality of education. While this study has focused on the academic use of OER in eLMS, it is recognised that effective learner engagement with OER is also crucial. Future work will explore student perceptions of OER, particularly regarding context and personalised learning.

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