eLearning During the COVID-19 Pandemic in Tanzanian Universities: Policy Challenges and Implications

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Abstract

This article assesses the experiences of universities in engaging students in teaching and learning during crises, such as the COVID-19 pandemic, with a case study of the University of Dodoma. Data were collected from 181 academic staff and 250 students through online questionnaires and interview. In addition, the 2018 UDOM ICT policy and 2021/2022-2025/2026 Strategic plan was reviewed to obtain data. Descriptive statistics was used to analyze the quantitative data, and thematic analysis was used for qualitative data. The study found that the University of Dodoma had well-articulated statements that emphasize the implementation of eLearning in its ICT policy and strategic plan. However, ICT facilities such as internet services, computers, and computer laboratories were found to be inadequate for the university to use eLearning as an alternative model for teaching and learning during the pandemic. Staff and students had a limited knowledge of eLearning. The improvement of eLearning infrastructure and capacity strengthening among academic staff and students at the University of Dodoma is recommended to enhance teaching and learning during crisis periods and beyond.

Keywords: Assessment, eLearning, COVID-19 pandemic, teaching and learning, University of Dodoma.

Introduction

The outbreak of the highly infectious coronavirus disease (COVID-19) has had a far-reaching impact globally on all aspects of life, including education (Fasae et al., 2021; Raaper & Brown, 2020). Social distancing and restrictive movement policies instituted by different countries to prevent the spread of the pandemic significantly affected traditional face-to-face educational practices as educational institutions were forced to temporarily shut down their physical operations (Chandra, 2021; Aduhene & Osei-Assibey, 2021). While the spread of the COVID-19 pandemic is now under control in many countries, there is growing evidence that suggests the pandemic is far from over (McDonnell et al., 2020), and other pandemics of similar characteristics are likely to emerge. Accordingly, educational institutions, including universities across the world, are urged to have a system in place for crisis and pandemic resilience and preparedness (Ayega, 2020; Shaya et al., 2022). Amidst Covid 19 pandemic e-learning emerged as the quick alternative to ensuring teaching and learning continuation. This is because eLearning supports teaching and learning that is not restricted by social distance, location, or physical existence (Dhawan, 2020; Watson, 2008; Wright *et al*, 2015).

The tremendous growth in the use of eLearning platforms in Higher Education (HE) has been observed in almost every part of the world over the past decade (Franceschi et al., 2009). Experiences show that higher education institutions (HEIs) in East African countries, for example, have been working hard to integrate ICT into their core functions of teaching, research and community services (Mtebe, 2014). The Inter-University Council of East Africa (IUCEA), the organ that regulates all issues related to the provision of education in HEIs in the region, has an ICT

policy that focuses on promoting the utilization of ICT as a tool for teaching, learning, and research, and promoting best practices in eLearning, distance education, and virtual university systems within East Africa (IUCEA, 2016). Although IUCEA insists the use of eLearning, only few universities such as the Open University of Tanzania (OUT) and the University of Dar es Salaam (UDSM) have made a step further in terms of the policy statements regarding eLearning (Mtebe, 2020). It is not known whether each higher learning institution in the region has adequate facilities that would facilitate teaching and learning, especially in the time of crises similar to COVID-19. The development of eLearning policies enables universities to prepare their infrastructure, educators, and students to use information and communication technology (ICT) facilities to address emerging crises like that of the COVID-19 pandemic that could provide an ideal alternative for universities to continue with their core functions during pandemics (Fasae et al., 2020). However, a report by the Tanzania Commission for Universities (TCU) claims that most universities in developing countries, East Africa in particular, are not prepared for online learning (TCU, 2015).

The University of Dodoma (UDOM) in Tanzania has set out an ICT policy to ensure equitable access to ICT resources for academic staff and students including special user groups such as visually, physically, and hearing impaired, among others, since its establishment in 2007 (UDOM, 2021). For example, the university has been using Moodle as a Learning Management System (LMS) since 2008 (Ngeze, 2017). The system offers a platform for instructors to upload learning resources and assignments, and conduct some discussions with students online. The College of Informatics and Virtual Education (CIVE) at UDOM is also responsible for managing the e-learning systems, training users, and providing pedagogical support to instructors for the effective use of technology in teaching and learning (Anatory, 2015). However, the implementation of eLearning at UDOM is still a challenge which raises questions as to how such a large university hardly implemented teaching, learning, and assessment online during COVID-19. Therefore, the study aimed to assess the adequacy of the existing eLearning policies and the challenges facing the university in using eLearning to facilitate teaching and learning in the times of crises like that of the COVID-19 pandemic.

Research Questions

a) To what extent are the eLearning policy statements of UDOM adequate in enhancing eLearning in the times of COVID-19 pandemics?

b) What are the challenges faced by academic staff and students in teaching and learning during the COVID-19 pandemic?

Literature Review

The term eLearning has been defined differently by different scholars. Arkorful and Abaidoo (2014, p. 398) defined e-learning as the use of information and communication technologies to enable access to online learning/teaching resources. Goyal (2012, p. 240) defines eLearning as the science of learning without using paper-printed instructional

material. Also, eLearning can be defined as the intentional use of networked information and communication technology in teaching and learning (Chitra & Raj, 2018, p. 11). In this study, eLearning is defined as a system or science where information and communication technologies are networked to enable teachers to design, develop and deliver instructional materials to enhance the teaching and learning process. eLearning, therefore, is conceptualized as the building block that supports students' learning during a pandemic, like COVID-19, as it allows for teaching and learning that is not restricted to physical distance and time (Nikou & Maslov, 2020; Abdelfattah et al, 2022).

Models for e-Learning

Educational institutions across the world have used different models of eLearning to facilitate students' learning. Salmon (2000) discusses a five-stage model of eLearning that educational institutions can adapt to successfully implement eLearning in teaching and learning. Each stage identifies technical and e-moderating/facilitation skills required, with an interactivity bar running along with the steps that indicate varying amounts of interaction expected between the participants at each stage. The model is based on constructive learning where at each stage, the learners are actively involved in the online learning process. In the first stage, the participants (students and academic staff) must be provided with information and technical support such as internet facilities, computers, and mobile phones to access online learning services. They also need to be encouraged and motivated to participate in online learning. In the second stage, universities must put in place a mechanism to promote a sense and culture of sharing information online. They must create an atmosphere where participants feel respected and free to express their views online. In stage three, institutions must create an avenue for participants to interact with course materials and other participants. In stage four, the participants start to construct their materials rather than just reading and transmitting information from others. At this stage, the participants can explore, discuss, and evaluate online issues. Finally, in stage five, the participants begin to explore their thinking and knowledge-building processes. These higher-level skills require the ability to reflect on, articulate, and evaluate one's thinking. Learners become responsible for their learning and need little support beyond what is already available. Studies that applied Salmon's five-stage models of e-learning found that the model provides a framework with clear progressive stages that can support the design and facilitation of online learning (Moule, 2007). Therefore, the HEIs can work on their digital systems to ensure the provision of high-quality and reliable eLearning resources such as the Internet, computers, and teleconference rooms. This will enable instructors and students to interact, discuss and perform different activities without meeting face-to-face in case of threats such as the COVID-19 pandemic.

E-learning Policy

The e-learning policy is an essential modality for the continuation of teaching and learning in higher education during crises such as the COVID-19 pandemic. As such, supportive policies for eLearning in higher education institutions must be in place to ensure that graduates receive suitable transferable skills through ICT (UNESCO, 2009). However, there is plenty of evidence indicating that the existing ICT policies in many developing countries are inadequate to

address eLearning practices (Kibuku, Ochieng & Wausi, 2020). A study conducted by Adeoye, Adanikin, and Adanikin (2020) noted that the lack of a clearly articulated e-learning policy is among the challenges for implementing online learning in public HEIs in Nigeria. Similarly, a study by Mwakyusa and Mwalyagile (2016) reported that the lack of an eLearning policy is a major barrier to establishing technical and managerial support towards eLearning in HEIs in Tanzania. The outbreak of the COVID-19 pandemic and its impacts on education suggest that the future of international higher education policies will continue to be shaped and changed by global phenomena (Kara, 2021; UNESCO, 2022). Institutions with clearly articulated eLearning policies are expected to be in a better position to successfully utilize the eLearning system features to enhance their teaching and learning activities during crises similar to the COVID-19 pandemic (Mtebe, 2020). Therefore, for African HEIs to benefit from such changes, there is an urgent need to review their eLearning policies to foster their use in teaching and learning (Trines, 2018). The pandemic highlights the need to examine policy frameworks and strategies most suited to the current situation to support teaching and learning during similar situations.

Challenges in eLearning

Many HEIs in developing countries such as Tanzania have expressed interest in eLearning (Mtebe, 2020) but the use of eLearning in many developing countries is experiencing different challenges from the ones in the developed countries (Ndibalema, 2022). Ndume and Tilya (2008) outlined the challenges, such as management support, methodology, culture of education, and learning style. Mtebe (2014) added the lack of access to computers and the internet, low internet bandwidth, and absence of policies as the main barriers to e-learning implementation. In other developing countries, similar challenges exist. For instance, Narh et al. (2019) revealed challenges of implementing eLearning in higher education in Ghana including poor internet connections, lack of technologies to support e-learning, and system failure. Similarly, in Tanzania, Ngenze (2016) and Ndibalema (2020) added pedagogical weakness and inadequate guidance, inadequate computer laboratories, and unreliable power supply as major challenges for implementing eLearning in HEIs. These challenges are likely to be greater in newly established universities like UDOM. While the onset of the COVID-19 pandemic has increased the sense of urgency of HEIs to adopt eLearning learning (TCU, 2015), there have been a lot of doubts about their preparedness to provide quality online teaching and learning. It is, therefore, important to understand these challenges to provide insights into the readiness of UDOM towards the implementation of e-learning during crises such as the COVID-19 pandemic.

Methodology

This study was carried out at the University UDOM because it is currently the largest university in Tanzania, with more than 30,000 student enrollments for both undergraduate and postgraduate programs (UDOM, 2021). The UDOM was also selected because it has insufficient teaching and learning infrastructure and academic staff compared to the number of students enrolled. Since data were collected online it was easy for researchers to share the questionnaires through WhatsApp groups where researchers were part of the groups which was easy for them to access the group

and monitor the progress by encouraging members to respond to the questionnaire. This study used a concurrent mixed methods design to collect data. Both qualitative and quantitative data were collected at the same time (Creswell, 2009). The qualitative approach provided detailed information about the phenomena while the quantitative provided numerical data. This study placed greater priority and emphasis on qualitative inquiry and quantitative research playing a secondary role (Creswell & Plano Clark, 2018). Qualitative data included participant responses while quantitative data included responses from knowledge surveys.

The target population for this study involved all academic staff and students of the University of Dodoma. The study employed non-probability sampling. The convenience sampling was used to select 431 participants from different colleges, schools, and institutes at UDOM based on their availability and willingness to participate in the study. The participants who responded to online questionnaire were 396 (166 academic staff and 230 students). The extraneous variables were controlled by employing random assignations and the groups involved through WhatsApp had similar characteristics. The study also conducted interviews with 15 academic staff and 20 students. Students were involved because they were the ones who benefited from the teaching process while academic staff were involved because they are the ones who implemented the teaching and learning process. Academic staff and students were also involved because during the COVID-19 pandemic, the university was temporarily closed to prevent the spread of the disease, and there were no online courses offered. Questionnaires and interviews were used to collect data from academic staff and students. Documents such as such as national and UDOM ICT policies, UDOM 5-year rolling strategic plan, and UDOM prospectus for the 2021/2022 academic were also reviewed. In closed-ended questionnaires, the participants answered the questions with predetermined responses (Zull, 2016). Questionnaires were designed through Google Forms and distributed to academic staff and students through WhatsApp groups and emails. The questionnaire was administered through Monkey Survey which was a great tool for collecting opinions and data for different purposes which was sent through social media such as WhatsApp or email (Zull, 2016). The quantitative data were analyzed through descriptive methods with the help of Statistical Package for Social Sciences (SPSS) software version 20 to obtain frequencies, means, and percentages. Then, descriptive statistics was used to describe and present the data in figures, and percentages (Cohen et al., 2007) to indicate the responses of the research participants. The quantitative data were then combined with the qualitative data during the presentation, discussion and interpretation to make sense of the findings. On the other hand, qualitative data obtained from documents and interviews were analyzed through thematic analysis.

Validity in this study was assessed using different sources to obtain data (questionnaires and documentary review). The research instruments were checked by the academic staff at UDOM before data collection (Cohen et al., 2007). After constructing the instruments for data collection, the researchers requested some academic staff at the College of Education to discuss the weaknesses and strengths of the instruments which helped to strengthen the quality of the questionnaires and interview guide. Informed consent was sought from academic staff and students by

explaining the purpose of the study and emphasizing that they are free to withdraw at any time. To ensure privacy and confidentiality, the participants' names and their colleges were not mentioned in the report. The collected data were kept in a secure place where no one can be able to access them except the researchers. Moreover, permission to conduct the study was sought from the Directorate of Research and Publications at UDOM.

Results

The subsequent sections present the study results on the extent to which the learning policy emphasizes teaching and learning and the challenges faced by students and academic staff in HEIs in Tanzania in its implementation during the COVID-19 pandemic, taking UDOM as a case study.

The extent to which eLearning policies and strategic plans emphasize eLearning

The findings from the questionnaire items showed that 79% of academic staff and 69.5% of students expressed that the existing ICT policy emphasizes the implementation of eLearning at the University of Dodoma to a large extent. This finding was supported by documentary reviews, from UDOM ICT policy and strategic plans that to a large extent, the university has well-articulated eLearning statements in its policies and strategic plans. For example, UDOM's strategic plan 2021/22-2025/26 states that: "*eLearning will further be prioritized as a strategic option for enabling a learning environment, but more importantly, it will be provided with backup in case of threats such as COVID-19 resurges*" (UDOM, 2021, p. 31). This suggests that UDOM considers the potential of eLearning in helping to shape its core functions of teaching and learning.

The UDOM ICT policy to the larger extent emphasizes the use of ICT devices as a key infrastructure for teaching and learning. Academic staff and students similarly reported that the university has ICT policy for eLearning. However, the academic staff reported that very few of them use eLearning in teaching and learning. For example, one academic staff said*: "To a large extent, the university policies and strategic plans articulated well the issues of online learning, but unfortunately, few academic staff conduct teaching and learning through eLearning with a large class of 3000 students".* To support these findings, the UDOM ICT policy states that the university should design and implement a university-wide unified communication service to support new communication channels, integrated online meetings, video conferencing, and workplace collaboration (UDOM, 2021). Despite this policy statement, the academic staff revealed a lack of these rooms. Therefore, there is a limited implementation of the policy in teaching and learning through the eLearning.

ICT Policy and Training on Teaching through eLearning

The review of ICT policy at UDOM shows that, to a large extent, the policy insists on promoting the training of the ICT to academic staff and students. The academic staff through interviews supported that the university conducts seminars and training about ICT issues occasionally, but e-learning is rarely included as a component. This limited

training on eLearning hampers the effective use of eLearning platforms in teaching, learning, and research, especially during the COVID-19 pandemic. One academic staff said: "*We have a good ICT policy which insists on training staff on eLearning, unfortunately, I am not well-trained."* This implies that, although the university has a good ICT policy, the implementation of e-learning is limited due to inadequate training for academic staff and students.

Perceived eLearning challenges faced by academic staff and students during Covid 19

Limited internet connectivity

The data obtained from the questionnaire revealed that 92.5% of academic staff and 69.6% of students perceived that the classrooms had limited internet connectivity (see Fig. 1), which hindered effective teaching and learning using online platforms during the pandemic. This was also reported through qualitative data that classrooms had limited internet services that hindered lecturers from searching and sharing materials online with students. One academic staff reported that:

> We have limited and unreliable internet connectivity. During COVID-19, we could have taught our students online to avoid close contact, unfortunately, teaching was going on through face to face while students and academic staff were at risk and uncomfortable which made some students to escape the class.

Figure 1

Classrooms connected with internet
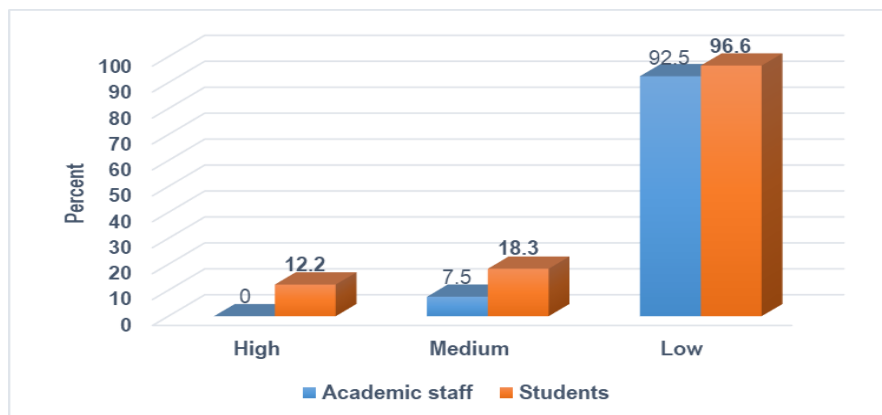
Source: **Field Data, 2022.**

Furthermore, 60.3 % of academic staff and 73.2% of students perceived that computer labs and libraries were poorly equipped with internet connection facilities which hamper implementation of eLearning (see Fig. 2). Through Interview, one academic staff supported that the computer labs and library were poorly connected to the internet and unreliable. To support this, another academic staff commented, *"The computer labs are equipped with the internet, but the internet is not reliable. You cannot search for materials and conduct Zoom meetings during COVID-19 when the internet is not reliable*." Students had a similar perception and were not motivated to work in computer labs

because of low internet connectivity and unstable internet. One student reported that "*The internet in the computer labs and library is not reliable, and that some students opt to access internet through their mobile phone.*" Therefore, academic staff and students perceived difficulties in teaching and learning through online platforms, especially during COVID-19, due to limited internet connectivity in the computer labs.

Figure 2
Computer labs and library connected with internet
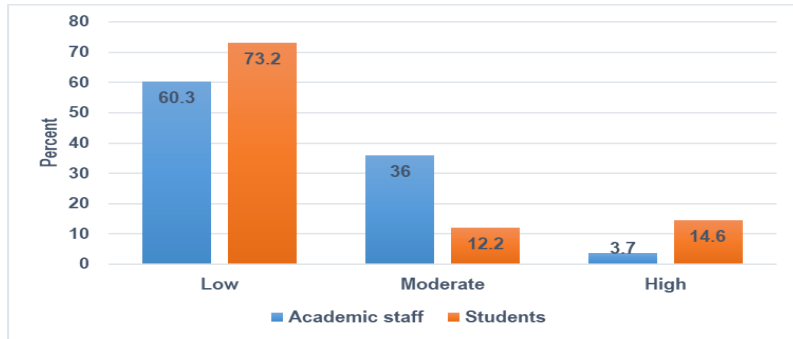
Source: **Field Data, 2022.**

In addition, 94.3% of academic staff and 37.8% of students perceived that the internet connectivity among classrooms, libraries, and labs in the university is low, as indicated in Fig. 3. The interview findings further indicate that 92.4% of academic staff and 67.1% of students perceived that the university had limited availability of special rooms such as teleconference rooms, for conducting teaching and learning through eLearning platforms (see Fig. 4).

Figure 3
*Interconnectivity among classrooms, library and labs*
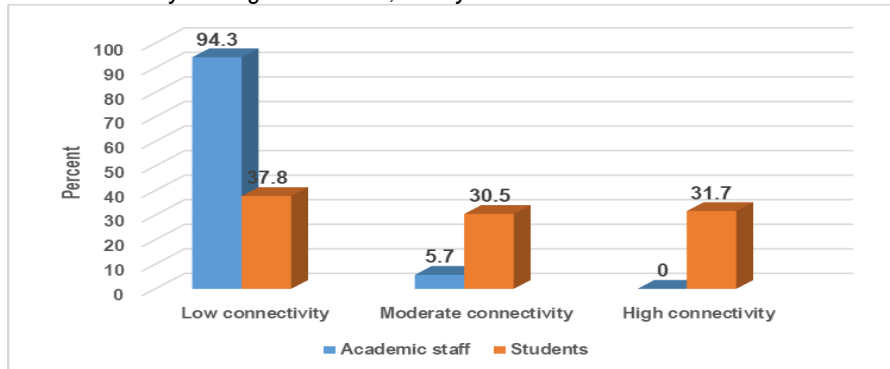
Source: **Field Data, 2022.**

The findings from questionnaires were supported by the findings obtained from the interviews with academic staff and students, indicating that the university has few teleconference rooms and smart boards in some colleges, such as the College of Informatics and Virtual Education (CIVE). This is reported to hinder effective communication during Zoom meetings, especially for teaching and learning during pandemics. One student reported, *"I have not seen*

the multimedia rooms or conference rooms in this university". This was supported by one academic staff who commented:

> At our college, we don't have conference and multimedia rooms where an academic staff can teach or communicate with students through online platforms. This discourages lecturers from using modern methods, such as eLearning, especially during pandemics.

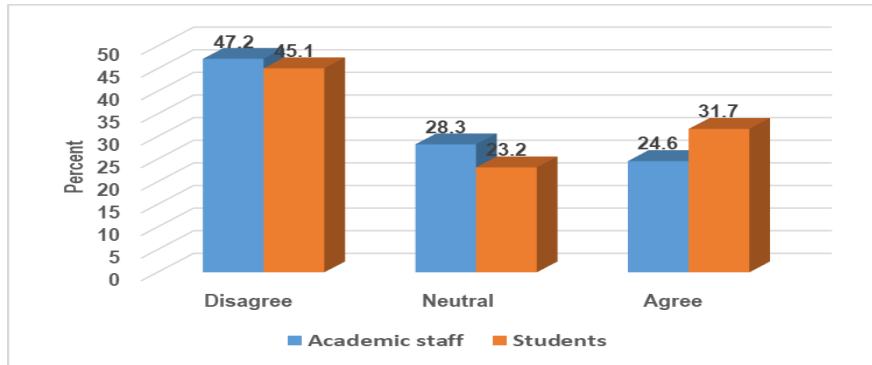**Figure 4**
Availability of e-learning rooms
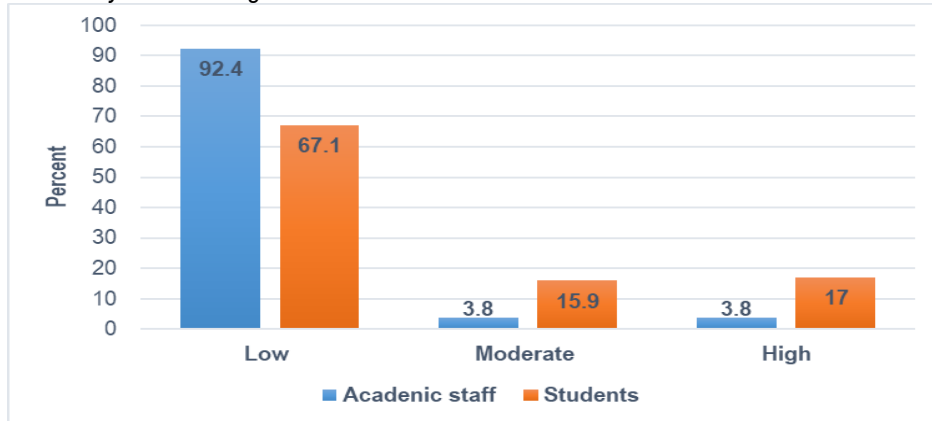
*Source***: Field Data, 2022**

Challenges Related to Awareness of the Potentials of eLearning

The results showed that 47.2% of academic staff and 45.1% of students had low awareness of eLearning (see Figure 5). Figure 5 suggests that awareness among academic staff and students about eLearning at the university is below average. The academic staff through interview supported that they had low awareness on using eLearning to enhance teaching during the COVID-19 pandemic, although they were ready to be trained on the use of it. For example, one academic staff member reported: "*I am aware of the efforts taken by universities globally to implement their core functions during the COVID-19 pandemic; however, I am not aware of the initiatives taken by my university*". A student supported that: "*We heard that students from other countries were learning online, but it was not the case at our university. We don't even have an idea of how eLearning is conducted".* This comment implies that both academic staff and students are ready to use eLearning as a strategy to address the challenges caused by the pandemic, although they are not well informed.

Figure 5

*Perceived awareness of e-learning among academic staff and student*

Source: **Field Data, 2022.**

The findings from questionnaire also showed that 45.5% of academic staff and 44% of students had a low ability to teach and learn through eLearning platforms, as shown in Figure 6. The academic staff and students through interviews acknowledged to lack digital skills for teaching and learning. One academic staff reported:

> I don't know how to use teleconference rooms for teaching online. Sometimes, I fail to connect with people during Zoom conferences because I don't have such knowledge. We need education on this. The majority of academic staff are ignorant of this. I ask myself what can we do in case of a pandemic such as COVID-19? This knowledge is important, especially in this time of globalization.

Figure 6
Academic staff and student's ability to learn and teach through eLearning
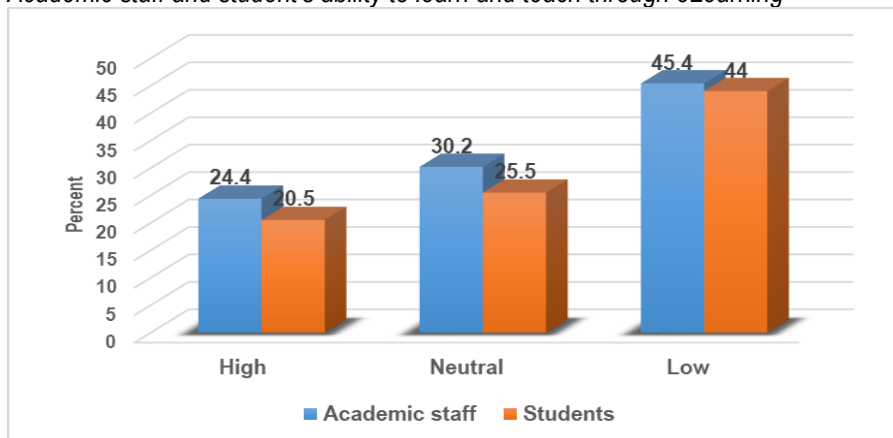
Source: **Field Data, 2022**

An interesting finding was that the majority of academic staff were able to use ordinary eLearning platforms such as WhatsApp, websites, and Facebook to promote online learning. For example, one academic staff reported: "*It is very easy for me to use WhatsApp or Facebook in communicating with my students rather than Zoom meetings and Microsoft Teams in facilitating learning. The majority of teachers don't know about Zooms and webinars.*" Also, the academic staff reported that they use online system to upload students' results and coursework rather than teaching. Therefore, the findings indicate that teachers and students do not have advanced digital devices, but instead, they use simple platforms such as WhatsApp and Facebook for eLearning.

Discussion

Although UDOM has an ICT policy which insists on provision of a resilient, secured, and stable network (UDOM, 2018, p.7), the findings of this study revealed that eLearning at the university during the COVID-19 pandemic was limited in terms of its implementation. Teaching and learning were done in a situation of fear and worry of being contaminated, as there was no closure of all institutions in the country despite having adequate and explicit ICT policy on eLearning. This suggests that many students missed lectures, and those who managed to attend were anxious, limiting effective teaching and learning. Research findings by some researchers such as Pelucio et al., (2022) indicate that students lack concentration in their studies when they are not settled, worried and anxious. Therefore, if the policy could be effectively implemented, it could minimize physical interactions and stress which triggered such worries and anxieties during COVID-19 crisis.

Although eLearning was used on a small scale at UDOM, some African Countries Such as Ethiopia and Namibia implemented eLearning in line with their ICT policies (Gunga & Ricketts, 2007). Therefore, if other countries with a similar economy to Tanzania can use e-learning, why can't Tanzania and UDOM in particular implement it? This needs commitment and priority by the country to acknowledge its importance, especially during pandemics such as Covid-19.

The findings revealed that the academic staff and students had limited knowledge of using eLearning platforms to enhance teaching and learning. This finding is contrary to Yacob et al. (2012) at TATI University College in Malaysia who revealed that students were knowledgeable of accessing, communicating and interacting with ICTs and eLearning platforms. The difference in findings may be due difference in the level of economy, context and government priorities. This situation implies that because of the lack of eLearning knowledge, the academic staff and students may not be able to use online teaching and learning platforms during pandemics. The findings suggest that the academic staff and students at the University of Dodoma need training in eLearning.

The findings also revealed that there was limited internet connectivity at the University of Dodoma. The findings provide evidence that most of the lecture rooms, computer labs, and libraries at the university have limited computers with an internet connection, something which hinders eLearning. As a result, the academic staff and students have low confidence in the use of Internet facilities to enhance teaching and learning at the university.

This finding is similar to the findings by other researchers who noted that the achievement of eLearning depends on availability of computers and stable and reliable internet services (Rasouli, Rahbania & Attaran, 2016). Also, Mwakyusa and Mwalyagile (2016) found that limited availability of computers and internet connectivity are the most critical impediments to e-learning adoption in higher learning institutions in Tanzania.

Conclusion and Recommendations

The purpose of this was to assess ICT policy and the challenges of implementing eLearning in Tanzanian universities during COVID-19. Overall, the study highlighted the limitations of eLearning implementation at UDOM during the COVID-19 pandemic. Despite having good policies and strategies, teaching and learning are conducted face to face as the university is faced with the limitation of internet connectivity and lack of eLearning facilities. Limited knowledge of the use of e-learning facilities by academic staff and students was revealed to hinder teaching and learning through e-learning.

The findings suggest that the university needs to improve its e-learning infrastructure and develop an effective eLearning policy to enhance teaching and learning, especially during crises. Also, capacity strengthening would enhance staff and student's ability to effectively use eLearning facilities in teaching and learning.

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