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Challenges and Opportunities for the Adoption of e-Learning at University of Gondar: A Qualitative Study

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Abstract

E-Learning has grown significantly across the globe since the start of the COVID-19 pandemic. However, the usage of e-Learning in higher education is still in its infancy and under-utilized in the Ethiopian context. Contextual understanding of the main challenges and enabling factors are essential for the effective implementation of an e-Learning system. Therefore, the aim of the study was to explore the challenges and to identify the enabling factors for the adoption of e-Learning at the University of Gondar. This study aimed to explore the main challenges and to identify the enabling factors for the adoption of e-Learning at the University of Gondar, Ethiopia. Methodologically, the study used thematic analysis to identify, analyze, and report findings. A total of 31 participants with a wide range of characteristics were purposely sampled and interviewed. Seven themes emerged during the analysis. Major challenges, such as infrastructure, poor knowledge, awareness and attitude towards information technology or e-Learning, new culture and resistance to accept the teaching system, lack of expertise on e-Learning, negatively affected the implementation of e-Learning. Other emerging themes included the pathways to overcome the challenges, opportunities in the University of Gondar's context, and advantages and disadvantages of e-Learning from the participants' perspective. The findings of this study revealed that there is willingness to implement e-Learning systems in developing countries like Ethiopia. The study identified the major challenges that significantly affect the adoption of an e-Learning system in Ethiopia. The study confirmed that establishing e-Learning infrastructures, increasing commitment and offering in-depth training are key elements for the successful implementation of e-Learning in higher education. This study also provided important recommendations and can serve as a baseline for policy-makers, designers, and researchers that help them to bettr understand the essential components of the e-Learning system.

Keywords: e-Learning, online learning, challenges and opportunities, qualitative study

Introduction

There are various definitions of e-Learning, but its main aspect is the use of technology to provide online access to learning resources for the improvement of learning. e-Learning can be defined as an educational method that facilitates learning by utilizing information technology (IT) and communication, which provides learners access to all required education programs (Regmi & Jones, 2020). The terms e-Learning and web-based learning, online learning or online education, computer-assisted or computer-based instruction, internet-based learning, multimedia learning, and technology-enhanced learning have been used interchangeably (Regmi & Jones, 2020).

There are two types of e-Learning: synchronous and asynchronous. Synchronous e-Learning requires all participants to be present during the online session at the same time (Khalil et al., 2020). Asynchronous e-Learning is a flexible e-Learning type that is commonly facilitated by media, such as e-mail and discussion boards, which helps students and faculty maintain working relationships even when participants are not online at the same time (Hrastinski, 2008).

Information communication technology (ICT) and e-Learning are currently becoming the driving factors in most institutions including universities. Higher learning institutions in developed and developing countries are using new technologies in teaching and learning processes as a competitive tool for increasing academic performance (Innocent & Masue, 2020).

Implementing e-Learning in higher institutions has many benefits. e-Learning is incredibly useful for offering cost-effective education regardless of time or location. It enhances the interaction between students, students with instructors, students with content, and instructors with content. e-Learning can also make the students participate actively, motivate/increase their virtual knowledge and skills, encourage students to work independently, thereby enhancing students' ability to develop self-learning skills and improving the students ’ thinking ability within the learning management system (LMS; Al Rawashdeh et al., 2021; Kanwal & Rehman, 2017). Moreover, e-Learning increases the collaborations among learners, educators, and administrators.

Despite the importance of e-Learning in higher education, e-Learning was underutilized in the past, particularly in underdeveloped countries. The COVID-19 pandemic, however, has compelled the entire world to rely on it for education (Zalat et al., 2021). Nearly 1.6 billion learners, including university students across the globe, were affected differently because of this pandemic (Muchemwa & Sciences, 2021).

Evidence shows that the faculty and administrative staff in Ethiopia lack awareness about the benefits of e-Learning in the classroom and the use of e-Learning in higher education is still in its infancy stage across most Ethiopian universities (Anberbir, 2015). Moreover, the world has faced many challenges during the outbreak of COVID-19, particularly developing countries including Ethiopia. Due to the outbreak of the pandemic, the Ethiopian government and Ministry of Education declared the shutdown of all the teaching and learning activity for approximately eight months from March 16 to October 19, 2020, which is a huge crisis at a country level. This school closure also happened in the University of Gondar (UoG), since the LMS is predominantly face-to-face and does not have an organized and effective online learning system. At this time, UoG, with the collaboration of the Mastercard Foundation, is planning to implement e-Learning to respond to any challenges of the teaching and learning activity in addition to the traditional in-person approach. However, the research team strongly believes that before implementing the e-Learning platform system, it is better to explore the challenges, the opportunities, and the preparedness in Ethiopia's higher education context, particularly at UoG, to implement e-Learning. Since the students, instructors, and administrators 'knowledge of e-Learning will have an impact on the successful implementation of e-Learning, it is crucial to explore their understandings and perceptions of e-Learning. The finding of this study will also help the Ministry of Higher Education of Ethiopia and the managers of educational institutions that use e-Learning systems to better understand the challenges they will confront and reduce the chance of implementation failures. Therefore, this study was aimed to explore the challenges and enabling factors for the adoption of e-Learning at UoG.

Research Questions

1. What challenges do faculty, technical supporting staff, students, and university leaders perceive as obstacles to implementing e-Learning in the University of Gondar?
2. What are the opportunities/enabling factors to implement e-Learning at the University of Gondar?

Literature Review

Problem Statement

Several challenges were identified in the existing literature review associated with implementing the e-Learning system. The main challenges were: technological challenges, individual challenges, cultural challenges, and course challenges (Almaiah et al., 2020). These challenges differ greatly from one country to the other country due to differences in culture, context, and readiness. For example, in developing countries, the main barriers to e-Learning system adoption were a lack of ICT knowledge, a lack of network infrastructure, and a lack of

content development expertise (Aung & Khaing, 2016). Another study found that system characteristics, internet experience, and computer self-efficacy were the most significant barriers to the successful adoption of e-Learning systems in Pakistan (Kanwal & Rehman, 2017). Similarly, the primary barriers to the successful implementation of existing e-Learning projects are poor interface design, insufficient technical support, and a lack of IT skills (Almaiah et al., 2020). A study done in Kenya also identified the three major challenges of e-Learning as inadequate ICT infrastructure, a lack of technical skills, and financial constraints (Tarus et al., 2015).

A qualitative study conducted in China revealed technological barriers, such as equipment and adaptability, had a negative impact on the implementation of online courses (Ray et al., 2022). A similar study discovered impediments to implementing e-Learning in developing world universities involved gaps in awareness: the majority of university administrators, lecturers, and students are unaware of e-Learning innovations (Sekiwu, 2010). Also, most universities lack the technical support and administrative personnel required to facilitate the integration of e-Learning. Most students and instructors do not have personal computers, and a major barrier to implementing e-Learning is an inconsistent electric power supply (Sekiwu, 2010). As a result, evidence shows numerous challenges to implementing e-Learning in higher institutions within developing countries including Ethiopia. A better understanding of the challenges would help in designing better strategies to adopt e-Learning. Therefore, each individual involved in the online education process (policymakers, administrators, faculty members, and instructional designers) must consider several critical issues when implementing or adopting online courses.

As stated, some of the major challenges identified as hindering the implementation of e-Learning are insufficient ICT and e-Learning infrastructure (computers, network, and internet connectivity, and computer labs), lack of operational e-Learning policies, lack of technical skills on e-Learning, and e-content development by the teaching staff, lack of affordable and adequate internet bandwidth, financial constraints, lack of interest and commitment among the teaching staff to use e-Learning), Fear or resistance of new technology by the academic staff and many amounts of time required to develop e-Learning content (Tarus et al., 2015). Hence, to implement e-Learning successfully, all the above factors were explored critically before implementing the e-Learning platform in higher education institutions of Ethiopia, particularly in the UoG context to establish a sustainable and effective e-Learning system to deliver quality education.

Review Articles on e-Learning System Opportunities

A study conducted on online learning during the COVID-19 pandemic highlights three main opportunities to implement online learning. These opportunities were enhancement of technological capacity, more accessible or easier instructional methods, and easy reference expansion to achieve learning objectives (Lubis & Dasopang, 2021). Similarly, a study conducted in Pakistan on factors influencing the quality of online learning found that effective use of technology, the availability of suitable facilities and infrastructure, and the financial state of the students all play an essential role in online learning. Additionally, enabling factors predicted for the quality of online learning included university support (guidance and counseling of students), instructor support, learner readiness, and motivation (Saleem et al., 2022). Researchers at Assosa University, Ethiopia, found the most important enabling factors for the application of e-Learning were: meeting students ’expectations; expanding students' technology skills; improving teaching and learning quality; more technological advancement; improving cost and efficiency; course material distribution; and simplification of administrative procedures (Muhie et al., 2020).

Despite these existing studies on the challenges and opportunities to implement e-Learning systems, little is known about e-Learning in Ethiopian higher education. Although online learning has been practiced in the education sector since the 19th century, it is still a relatively new cultural teaching and learning method in Ethiopia’s higher education system. As a result, this study will serve as a baseline and fill the gaps for the implementation of an e-Learning system in Ethiopia's higher education and at UoG by identifying the main challenges, opportunities, and enabling factors.

Methods

Study Design and Period

This study was a descriptive qualitative study. Since the aim of the study was to learn about the experience and perspective of the participant (Moser & Korstjens, 2017) a qualitative method was used. This study used a thematic analysis method to identify, analyze and report findings. Thematic analysis is a preferred qualitative research method to identify, analyze, organize, describe and report themes within data, which also yields a rich and detailed output (Braun & Clarke, 2006; Vaismoradi et al., 2013). The research project was carried out from April 1, 2022 to September 30, 2022.

Project or Study Area

The institution is located in the historic town of Gondar, Ethiopia. It is one of the oldest and most well-established higher education institutions in the country, having been established

in 1954 as a Public Health College and Training Center (PHC & TC). The university is located in Northwest Ethiopia, 726 kilometers from Addis Ababa, the capital city of Ethiopia. Since UoG is one of the first-generation universities in Ethiopia, it has tremendous experiences in achieving its strategic plan vision and missions, the teaching learning processes, community engagement and in the research and technology transfer. The university is one of the top ranked universities at both national and international level in its research involvement and publication. Currently, UoG has been structured in eight colleges including College of Medicine and Health Sciences. At UoG, there are 8,300 staff members. Among them, there are around 2,000 well-experienced academic staff.

The status of the online learning or e-Learning LMS at UoG is not implemented yet. However, there is a little experience during the COVID-19 time through Microsoft team, telegram and email. Occasionally, the department of tourism, college of veterinary medicine and college of informatics use e-Learning.

Participants

The targeted study participants were faculty members, students, administrators, and ICT supporting staff within UoG.

Sampling Method and Sample Size

The study sample consisted of 31 participants, who had a wide range of characteristics. The sampling technique was a criterion sampling approach (Korstjens & Moser, 2018). This sampling technique helps in the collection of data from participants by ensuring that the sample populations from different groups under the study are well represented. Maximum variation sampling was used to recruit participants with diverse demographics within each group. Samples of the participants were selected from different colleges/departments, years of experience, educational levels, from all administrators ’levels, and ICT supporting staff (low, middle, and high administrator levels). e-Learning implementation piloting departments (UoG with the collaboration of the Mastercard Foundation is planning to implement e-Learning from some departments) served as the eligibility criteria for lecturers and students. The eligibility criteria for non-teaching staff (managers and technical ICT supporting staff) were based on their position and experience. The sample size was determined by data saturation which means sampling to the point at which no information is obtained and redundancy is achieved. Moreover, according to Quick and Hall (2015), the sample size in qualitative research is usually a range of 40–50 participants due to the large volume of data collected. They described the sample as to be selected based on appropriateness and adequacy (Quick & Hall, 2015).

Data Collection Process

Informed consent was obtained from all participants before the start of each interview. All participants were informed about the study method and purpose. They were informed that participation in the study is voluntary and that they had a right to withdraw from the study at any point of time. They were also assured that their responses and identities would remain confidential in research reports. Participants were selected according to the criterion sampling method. In this sampling method, the participants were chosen based on their particular features or characteristics that the researcher wished to study in order to enable detailed exploration and understanding of the central themes.

A separate, semi-structured, in-depth interview protocol was developed for lecturers, students, administrators, and ICT support staff. The protocol contained open-ended questions, such as "Tell me what you know about e-Learning? Any experience with teaching or learning by e-Learning? When and how did you hear about e-Learning? In your opinion, what are the advantages and disadvantages of e-Learning for higher education institutions, students, and instructors? Do you think e-Learning can be easily implemented at the University of Gondar? If yes, how can it be easily implemented at the University of Gondar? What good opportunities are there? If not, what are the biggest barriers that could potentially hinder the implementation of e-Learning at the University of Gondar? What do you think about the preparedness of the students and instructors to use e-Learning effectively at the University of Gondar? What can be done to overcome the challenges and improve the preparedness of the university, students, and instructors to adopt e-Learning?" created to pursue the study purpose and obtain information about the perspectives of lecturers, administrators, and students regarding implementing e-Learning at the institution. The questions were open-ended, and if the interviewer needed more information about a question, they would ask the participants to explain more. Data collection continued until there were no new themes or information that emerged from the data. Each participant's demographic information was collected prior to the interview.

Interviews were conducted in Amharic, the official language of the Federal Democratic Republic of Ethiopia (Zemaryam, 2019). The first author (YA) conducted all the interviews. Data were collected by scheduling a convenient time for each participant in a quiet place at the department of physiotherapy office. Field notes were also taken during and immediately after each interview. All interviews were face-to-face and lasted between 40 to 60 minutes. All interviews were audio recorded and transcribed verbatim in the language of the interview.

Data Analysis Method

The thematic analysis method (Braun & Clarke, 2006) was employed to analyze the transcripts and field notes for this descriptive qualitative study using NVivo software. The steps of the analytical process were as follows: 1) familiarization with the data, 2) generating initial codes, 3) searching for themes, 4) reviewing themes, 5) defining and naming themes, 6) writing and discussing the findings. The analysis started with data familiarization by listening to the audio recordings, reading, and rereading the transcripts (Braun & Clarke, 2006). All the transcripts were coded line by line, and these codes grouped into categories. The first and second author independently coded three transcripts to develop a coding tree. Qualitative research expertise was consulted when consensus was not reached between the first and the second authors. Data analyses were performed by the authors, and all codes and categories were confirmed with the research team during periodic meetings.

Member check, peer check, and audit trial were used for the sake of trustworthiness. For member check, the written copy of the finding was given to some participants to confirm whether the data fit what they said or not. Also, the research team asked colleagues who have experience in qualitative studies to review our transcripts (peer check). Audit trail was also kept by two investigators who kept records of raw data, field notes, and transcripts.

Ethical Approval and Consent to Participate

This study was approved by the Institutional Review Committee of the College of Medicine and Health Sciences, at UoG, Ethiopia (Ref No. SOM/1452/2022). Official letters from the UoG administrators were obtained before contacting the study participant. The purposes and the importance of the study have been clarified to each participant. They were informed that participation in the study was voluntary and this study was conducted in accordance with the declaration of Helsinki.

Results

Thirty-one participants were interviewed in this study: 16 students who were at the time studying physiotherapy, law, and IT, 9 lecturers from the School of Law (law), College of Social Science and Humanities (sociology), and College of Medical and Health Sciences (physiotherapy), and 6 non-teaching staff. The details of the socio-demographic characteristics of the study participants are described in Table 1.

Table 1

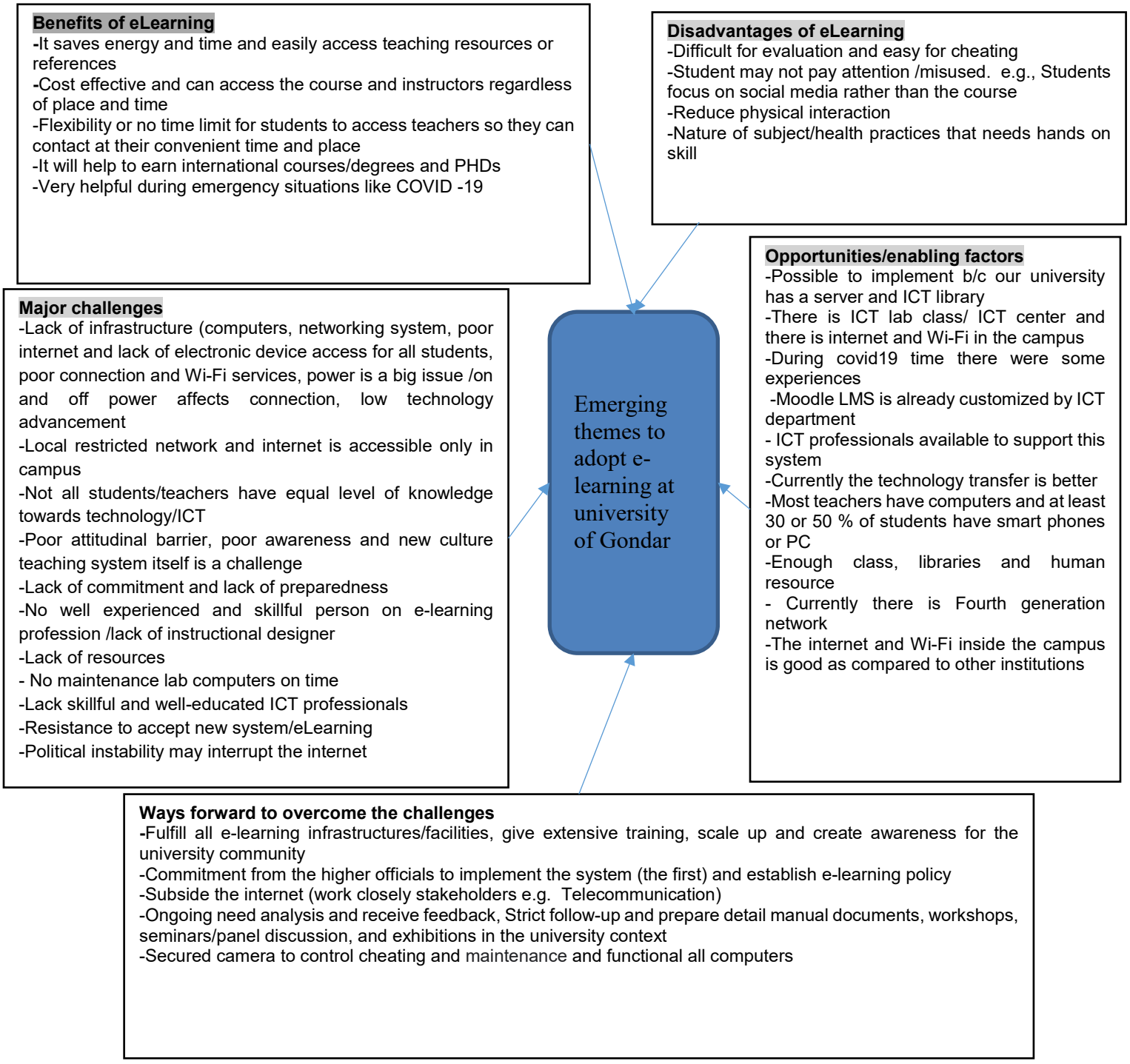
The Socio-Demographic Characteristics of The Study Participants (n = 31)

Socio-Demographic Characteristics of Students	Descriptions (Frequency)
Age in years (Range)	21-29
Gender Men Women	 10 6
Year and field of study Final year Physiotherapy students Final year law students Final year information technology students	 4 8 4
Socio-demographic characteristics of lecturers	Descriptions (frequency)
Age in years (range)	28-37
Gender Male Female	 9 0
Professional background and specialization (level of education masters and assistant professor) Physiotherapy Law Sociology	 3 3 3
Year of experience of teaching (range)	4-15
Socio-demographic characteristics of non-teaching staff (ICT supporting and administrative staff	Descriptions (frequency)
Age in years (range)	27-39
Gender Male Female	 5 1
Number of technical supporting staffs	3
Number of administrative staffs and their Job title (IT head, ICT directorate and law college dean)	3
Year of experience (range)	4-15

Seven main themes and sub-themes related to the adoption of e-Learning at UoG emerged from the data. The findings and the emerging major themes and sub-themes are shown in detail in Figure 1.

Figure 1

Major themes and some of the sub-themes emerged from the data



The participants 'quotes with themes and additional data are included below. Almost all participants described e-Learning as a teaching and learning method that uses smart electronic or technological devices and the Internet, essentially regardless of time and location. For instance, one participant (P.6…Physiotherapy lecturer) described e-Learning as "virtual teaching using the Internet without physical contact and sharing recorded materials, videos or text materials through email or other means." Most participants had heard about the term "e-Learning" and were familiar with the concept of e-Learning during the COVID-19 time.

In terms of readiness, most participants described that they are ready and have willingness to implement an e-Learning teaching system at UoG as long as all the e-Learning infrastructure is fulfilled. One participant (P.30…ICT directorate) said, "Our office is ready to support and implement the e-Learning system as an optional teaching method. Most importantly, the research team has some experiences from the Department of Tourism, College of Veterinary Medicine and College of Informatics. Occasionally these departments use e-Learning."

Study participants Perception about the Advantages and Disadvantages of e-Learning

Benefit of e-Learning

All interviewed participants strongly asserted the importance of e-Learning for higher education institutions. According to the participants, e-Learning was important based on the following: course instructors and teaching resources are easily accessible for students regardless of time and location; it allows for flexibility; it is cost-effective; it saves time and energy; it may help in emergency situations like the COVID-19 pandemic; and it enhances independent learning and allows students to learn at their own speed.

One participant (P.3…Physiotherapy student) emphasized, "Without physical presence, without time and place restrictions, students and faculty can communicate. Faculty can deliver their knowledge to and share their teaching materials with the students at any convenient place." The other participant (P.31) also reported: "Since we are moving towards modernity, in the future, e-Learning is the preferred and modern teaching learning system and will help us to upgrade ourselves and since the world is moving there, it helps to keep pace with the world."

Disadvantage of e-Learning

The following points were stated by the majority of the participants as disadvantage of e-Learning: Students may not focus or pay attention to the teaching activities or students may misuse the teaching activities due to social media influence, it reduces physical interaction, it is easier for cheating, it is difficult for evaluation or not the same check and balance between

students and faculty as in-person learning. Additionally, online learning may not be as advantageous for certain subjects/for health practitioners 'students that require hands-on skills.

Major challenges

1. Infrastructure Challenges

The majority of the participants responded that lack of infrastructure issues such as laptops and computers, networking system issues, unstable or interrupted Internet, a lack of access to electronic devices for all students, poor connections and WiFi services, and interrupted electricity or inconsistent power are some of the major problems that affect the implementation of the e-Learning teaching system. Another challenge reported by the participants were low technology advancement and local restricted network/the Internet does not work in every dorm and outside the campus.

A physiotherapy student participant, stated, "Lack of internet connectivity is major challenge. Additionally, the University of Gondar, enrolls a huge number of students, making it challenging to provide smart electronic devices to every student. Students will have difficulty accessing smartphones or personal computers. Aside from that, the costly internet and scarce internet access in Ethiopia is a challenge to implement e-Learning."

Similarly, a participant (P.26…Sociology lecturer) stated, "The internet supply and the strength of the WiFi services are questionable and there is also a lack of computers for new hired teaching staff."

2. Poor Level of Knowledge about Information Technology and e-Learning, Attitudinal Barriers, and Poor Awareness of Use/Benefit

Fifty percent of the participants responded that a lack of understanding of IT and online learning, poor attitude and low level of awareness in terms of knowing the benefit of e-Learning or how to use it will challenge the implementation of e-Learning.

One participant (P.31…IT head) said, "students 'low level of knowledge will be a challenge to implement e-Learning because most students may know how to use Facebook but not e-Learning. For instance, if the research team looks at the student knowledge level, they can see that all students are not equal in terms of technology. Because their background knowledge of IT is so different, some students came from remote areas, and on the other hand, there are students who came from towns and are familiar with educational technology; if the team is to put them all in one room, there might be a student who finds it difficult and fear to use this type of teaching platform effectively. Similarly, instructors also have different backgrounds in technology and possess varying levels of understanding."

Another participant (P.12...Law student) also supported this idea by saying: “There will be an information and knowledge gap from students in terms of how to access and how to use the online teaching system.”

Similarly, another participant (P.9…Law lecturer) mentioned, “Attitude barrier towards educational technology and poor awareness about online learning or students not having a good awareness about the benefits of e-Learning can be a problem to implement an e-Learning teaching system.”

3. New Culture of Different Teaching System and Resistance to Accept New Teaching System

Some of the participants reported that implementing a new teaching culture around e-Learning for the first time by itself is a challenge and there will be fear and resistance by lecturers or by other university communities and also there will be a lack of commitment and lack of psychological preparedness. They also reported that to master this new teaching culture, a great amount of time and preparation are needed.

For instance, one participant (P.24…Technical assistance) responded and emphasized by stating: “I think in my view the biggest challenge in applying e-Learning is the people's acceptance. This means there are people who resist a technology teaching method and prefer and follow the traditional teaching approach.”

In addition to resistance to accept a new system, the other challenge reported by some of the participants was a lack of resources or that the higher administrator may not give focus and allocate enough budget for e-Learning.

4. Lack of Expertise on e-Learning

The majority of participants stated that since this teaching platform is new in the setting/context of the University Gondar, there will be a lack of well-experienced and skillful people related to e-Learning fields/ e-Learning professionals and instructional designers.

For instance, one participant (P.22) said, “We may have enough number of IT or ICT professional, but I think we have no well-trained manpower on e-Learning.”

In addition to the above challenges, one participant (P.26…Law lecturer) spoke as follows: “The Internet may be closed by government bodies for a certain period of time due to political instability and social influences. This will affect the teaching system.”

Opportunities to Implement e-Learning at the University of Gondar

Despite all the challenges, there are opportunities to implement e-Learning at the institution. The majority of participants mentioned the following opportunities or enabling factors. UoG has a server and ICT library, there is an ICT lab class and center, almost all faculty

members have personal computers, there is Internet and WiFi inside the campus, the LMS is already customized by the ICT department (Moodle platform), there is a fourth generation network system and an installation of Internet, there are enough classes and most of the classes have interactive Smart Whiteboards, there is an sufficient number of human resources or ICT and IT professionals to support this system and most importantly, during the COVID-19 time the staff gained more experience so they declared that all these will help as a good opportunity to implement e-Learning at UoG.

Ways Forward from the Participants to Overcome the Challenges and to Implement e-Learning at University of Gondar

The majority of the study participants stated the following important points to overcome the challenges and to implement the e-Learning teaching system effectively. Commitment to implementing the system (the first), fulfilling all the e-Learning infrastructures/facilities, providing in-depth training and creating awareness for the university community about why it's needed and how to use it or educating the university community about its necessity and its use, and strong follow-up along with preparation of detailed manual documents, workshops, seminars/panel discussions, and exhibitions in the context of UoG. It is important to establish laws and regulations to apply this system (commitment from higher officials/administrators to execute/apply the eLearning system) as well as an ongoing continuous need analysis/assessment to identify the challenges and receive feedback with a secured camera to control cheating and maintenance and proper operation of all computers.

One participant (P.4…Physiotherapy lecturer) strongly emphasized, "There should be commitment mainly from the higher officials and from the university community—this is very essential to implement an e-Learning teaching system at the University of Gondar. The first step is to be committed, which means if we believe that we must come to this system at this critical time we can accomplish it in any way." The other participant (P.20) also emphasized that it will work by "providing extensive training for teachers and students about the benefit of e-Learning and creating good awareness about e-Learning and its implementation,"

Discussion

This is the first qualitative study that has explored the challenges and the enabling factors for the adoption of e-Learning at UoG in Ethiopia. Since the beginning of the COVID-19 pandemic, e-Learning/online learning has increased rapidly. However, the usage of e-Learning in higher education is still in its infancy stage and under-utilized in the Ethiopian context. Therefore, this study highlights the main challenges and enabling factors in Ethiopia's context. Also, the main themes identified in this study add knowledge to the existing literature.

The research team found that the implementation of the e-Learning teaching system in higher education is hampered by a number of major issues, including a lack of infrastructure, such as laptops and computers, networking system problems, unstable or interrupted Internet, a lack of access to electronic devices for all students, poor connections and WiFi services, and interrupted electricity or inconsistent power, restricted network, lack of resources and inadequate technological advancement. The finding of this study is supported by other studies (Alias et al., 2021; Sarker et al., 2019; Tarus et al., 2015).

This study also highlights further major hindrances for the implementation of e-Learning in UoG. Poor knowledge towards IT and e-Learning, attitudinal barrier, a lack of awareness of the advantages and how to use such educational technology, anew cultural teaching methods and resistance to accept a new teaching system from academic staff/other university community, lack of skillful and expert professionals in e-Learning pedagogy. Most of the challenges of the findings of this study are in line with other studies (Innocent et al., 2020; Sekiwu, 2010), which states that, the inadequate applicability of e-Learning is attributed to poor attitude, lack of skills among the users (e.g., lecturers, students, and non-teaching staff) and insufficient ICT infrastructure. All these challenges negatively affect the adoption of the e-Learning teaching system.

The study participants suggested and considered some ideas to address the challenges associated with e-Learning implementation in higher education. Dedication to the system's implementation from higher officials, providing in-depth training about e-Learning for the university community, fulfilling e-Learning facilities, establishing e-Learning policy or rules and guidelines to efficiently use this type of instruction method would help the implementation.

As discussed by the study participants, e-Learning has potential benefits for higher education institutions. It is a flexible teaching approach, it makes it simple to access teaching resources, and course instructors and students can be in contact regardless of time and location. Furthermore, the participants perceived that e-Learning reduces cost, saves energy, saves time, enhances active learning and students can learn at their pace. Similar to what was reported in previous studies, e-Learning encourages students to work independently, which strengthens their capacity to develop self-directed learning skills and enhances their capacity for critical thinking within the LMS (Al Rawashdeh et al., 2021; Kanwal & Rehman, 2017).

Overall, this study had positive insights and implications for e-Learning implementation in higher education institutions. The results of this study provide foundational knowledge to design and implement an e-Learning system in an Ethiopian context. In other words, the findings highlight, offer, and add valuable knowledge for faculty members, staff, technical

support, and students on e-Learning in Ethiopia. The findings of this study will also be used as a baseline for policymakers, instructional designers, higher institution managers, the ministry of education, and other stakeholders who are closely working in the education sector in Ethiopia.

With due respect to the positive implications, the study has limitations because it was conducted at UoG only. Thus, the findings may not reflect or generalize the characteristics of the e-Learning systems of other Ethiopian universities. Therefore, future researchers can conduct large-scale studies across a large sample of Ethiopian universities to identify challenges and opportunities and generalize the implementation of an e-Learning system in the country.

Conclusion

The findings of this study revealed that there is a need to implement e-Learning systems in developing countries like Ethiopia. The study identified the potential challenges and opportunities to the adoption of an e-Learning system in UoG, Ethiopia. The major challenges were infrastructure challenges, resistance to accepting a new teaching system, lack of expertise on e-Learning, low level of knowledge towards IT and e-Learning, poor awareness and attitudinal barrier. The study confirmed that, creating e-Learning infrastructures, commitment and providing in-depth training are key elements for the successful implementation of e-Learning in higher education. The findings of this study also provided important insights for policy-makers, designers, and researchers, which will help them better understand the essential components of the e-Learning system. Therefore, this study can be used as a baseline to fully implement an e-Learning system in the university.

Recommendations

For the University of Gondar and Other Higher Institutions in Ethiopia

From the findings of this study, the research team can recommend that UoG and other institutions in Ethiopia can implement an e-Learning system in addition to the in-person teaching approach by establishing the e-Learning infrastructure, establishing an e-Learning policy, offering in-depth training for the university communities, and scaling up or building capacity in IT and e-Learning.

For Researchers and Policymakers

The research team can recommend that this study will help lay the groundwork for future researchers or policymakers related to e-Learning.

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