

RESEARCH ARTICLE

 OPEN ACCESS

Received: 03-08-2024

Accepted: 04-10-2024

Published: 25-10-2024

Citation: Mohsini MH, Mtani H, Rashidi FU (2024) Student Readiness and Acceptance of eLearning Platforms: The Case of UDOM eClassroom of the University of Dodoma. Indian Journal of Science and Technology 17(40): 4198-4208. <https://doi.org/10.17485/IJST/v17i40.2504>

* **Corresponding author.**hamadimtani@gmail.com**Funding:** None**Competing Interests:** None

Copyright: © 2024 Mohsini et al. This is an open access article distributed under the terms of the [Creative Commons Attribution License](https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Published By Indian Society for Education and Environment ([iSee](https://www.indjst.org/))

ISSN

Print: 0974-6846

Electronic: 0974-5645

Student Readiness and Acceptance of eLearning Platforms: The Case of UDOM eClassroom of the University of Dodoma

Mustafa Habibu Mohsini¹, Hamadi Mtani^{2*}, Florence Upendo Rashidi³¹ Department of Computer Science and Engineering, The University of Dodoma, Tanzania² Department of Information Systems and Technology, The University of Dodoma, Tanzania³ Department of Electronics and Telecommunication Engineering, The University of Dodoma, Tanzania

Abstract

Objectives: To identify factors influencing students' acceptance of the UDOM eClassroom system at the University of Dodoma, focusing on the pandemic situation during and after the COVID-19 impacts in Tanzania. **Methods:** This study used the Technological Acceptance Model (TAM) as the theoretical framework and extended it by incorporating constructs such as Management support, Facilitating conditions, and Subjective norms from the other models. The model was tested using survey responses from 101 students (n=101) taking diplomas and bachelor's degrees from various programs at the College of Informatics and Virtual Education (CIVE). **Findings:** Quantitative analysis revealed that perceived usefulness (p-value=0.000), ease of use (p-value=0.000), management support (p-value=0.000), facilitating condition (p-value=0.000), and student attitude (p-value=0.000) have significantly influenced the students' UDOM eClassroom acceptance. The subjective norm (p-value=0.224) did not influence the acceptance of students' UDOM eClassroom. The study's findings will support educational institutions in identifying the strategies needed to boost learning platform usage and achieve the intended outcomes in educational institutions. **Novelty:** This study has focused on locally developed eLearning systems by the higher education institution specifically UDOM eClassroom which has different support structures, user experience, and resource constraints compared to the available open-source eLearning platforms such as Moodle and Blackboard.

Keywords: Student acceptance; eLearning system; UDOM eClassroom; Digital learning; Educational institutions

1 Introduction

The COVID-19 outbreak has caused a paradigmatic digital shift in education, particularly in higher educational institutions worldwide. This pandemic has significantly impacted the education sector globally, including universities in Tanzania. There has

been a notable increase in the use of digital learning systems by higher learning institutions in recent years following the outbreak of the coronavirus disease⁽¹⁾. These digital educational technologies were not strange to most academic institutions, having been partially installed and used even before 2019. The COVID-19 lockdown measures have provided an opportunity to observe the potential of digital technology's potential in sustaining education. The use of these digital educational tools has also improved student learning performance and reduced student dropout rates in academic institutions in Europe and America⁽²⁾. Most universities worldwide have adopted eLearning platforms such as Moodle, Sakai, and Blackboard to support online learning. Tanzania has also adopted a Learning Management System (LMS) to enjoy the same benefits that others have experienced. The Tanzania Commission for University (TCU) formulated guidelines for the delivery of blended and online to support and ensure the quality of instruction⁽²⁾. In line with the country's initiatives, the University of Dodoma (UDOM) through the College of Informatics and Virtual Education (CIVE), developed the UDOM eClassroom to facilitate teaching and learning during and after the pandemic.

Factors found to be influencing eLearning system usage have been explored in several studies globally. The study was done by⁽³⁾ found that self-regulated learning and an affinity for technology influenced eLearning acceptance among German-speaking university students. Performance expectancy, hedonic motivation, learning value social influence, and habit were found to impact students' intentions on eLearning platforms usage at different universities across Greece⁽⁴⁾. It has previously been observed that students' response to online classes is influenced by their intentions and other external factors which determine their satisfaction⁽⁵⁾.

Likewise in Africa, several studies have been conducted in universities regarding eLearning system usage among students to support teaching and learning. For instance,⁽⁶⁾ have found challenges such as unstable internet service, and lack of availability of computers in African teacher colleges and universities. According to the study by⁽⁷⁾ found that perceptions regarding eLearning system usage were high among undergraduate students in Nigeria, which influenced the management to continue education during the pandemic. Several researchers have reported challenges and influencing factors regarding eLearning usage in universities in Tanzania. For instance,⁽⁸⁾ found the University of Dodoma (UDOM) has a strong emphasis on the ICT policy in the implementation of eLearning, however, some challenges regarding ICT facilities require improvement for the effective implementation of digital learning. Mtani and Mbelwa observed that instructors' self-efficacy, intrinsic motivation, and perceived usefulness influence the usage of the Learning Management System (LMS) among instructors at UDOM⁽⁹⁾.

However, the majority of these studies focused on customized open-source eLearning systems such as Moodle, Sakai, and Blackboard to determine factors influencing their acceptance and usage among both students and staff^(3,4,6-9). These systems require specialized support and cost fully to maintain. It remains unclear what factors influence the eLearning systems developed locally by higher educational institutions. This study aims to investigate the factors that influence university students' acceptance of the UDOM eClassroom system.

1.1 UDOM eClassroom System

The UDOM eClassroom system, as shown in Figure 1, is a learning platform developed by experts from CIVE. It is a web-based application (<https://eclassroom.udom.ac.tz/>) that can be accessed via different browsers. The platform was formerly known as CIVE eClassroom and was exclusively used by the students at the CIVE. Currently, the UDOM eClassroom is now being used by students from all seven colleges at UDOM. The UDOM eClassroom system offers a variety of functionalities, including course monitoring and progress measuring, accessibility of course materials, allowing virtual classrooms, monitoring continuous assessments, making announcements, and allowing discussion and forums among students and instructors.

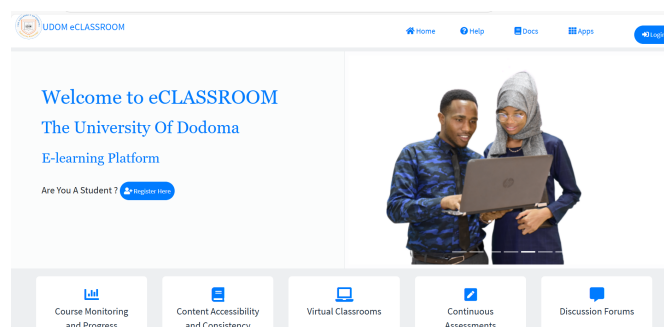


Fig 1. Home page of the UDOM eClassroom

2 Literature Review

2.1 COVID-19 and eLearning System Use in Educational Institutions

The global outbreak of COVID-19 has had both positive and negative effects on the delivery of education. The positive effects include a shift toward blended learning, enhanced digital literacy, and the rise in eLearning systems⁽¹⁰⁾. Educational institutions have adopted the eLearning system to support the teaching and learning process. These systems, along with well-connected computers, facilitate broad access to electronic teaching and learning materials to the students through their devices, such as smartphones, laptops, tablets, and other digital tools. The COVID-19 pandemic has impacted education systems worldwide, leading to a rapid shift towards the use of technology in education. This transition has been a critical response to the challenges posed by the pandemic, enabling educational institutions to continue delivering learning experiences while ensuring the safety of both students and instructors. Technology integration in education has taken various forms, including online learning platforms, video conferencing tools, digital educational resources, and learning management systems. Based on available data, the global closure of educational institutions affected over 1.7 billion students, with 160 countries imposing closures due to the pandemic⁽¹¹⁾. Research has shown that COVID-19 has impacted at least 91% of learners worldwide⁽¹²⁾. Table 1 presents the UNESCO data on school closures from February 2020 to June 2022 in various countries affected by the pandemic. Tanzania is one of the few countries where most educational institutions remained fully open during and after the COVID-19 pandemic.

Table 1. Data on school closures from February 2020 to June 2022 across the world

Country Status	Total number of schools closure countrywide	Percent
Full open	81102	45
Closed due to COVID-19	29385	16
Academic break	29385	22
Partially open	31604	17

Source: (UNESCO, 2023)

2.2 eLearning System in Educational Institutions

Munir⁽¹³⁾ researched in Malaysia and Pakistan on online learning and Students' fear of COVID-19. This study investigated the association between students' social presence in online learning and their fear of COVID-19, along with the moderating roles of students' psychological motivation and cognitive problem-solving abilities in this relationship. A total of 472 university students from Pakistan and Malaysia participated in the study, with data collected using an online Google Forms-based method. The research revealed that training in cognitive problem-solving abilities and providing psychological encouragement could increase students' interest in online learning. However, the study did not explore the perceptions related to the technical aspects of online learning tools and how they affected students' social presence during the pandemic, instead, focusing more on students' psychological traits.

Similarly, Mtani and Mbelwa⁽⁹⁾ investigated the factors affecting the instructor's use of the Moodle LMS at the University of Dodoma (UDOM) in Tanzania⁽⁹⁾. Their study examined variables influencing LMS use in higher learning institutions (HLIs). The constructs from the D&M success models, UTAUT2 and TAM, were employed to achieve the study's objectives. The data was gathered by employing surveys and then interviews with UDOM Instructors. A total of 92 respondents participated, and the data were analyzed using a quantitative approach. The findings indicated that perceived usefulness, instructors' self-efficacy, and intrinsic motivation influenced LMS usage among instructors in HLIs. The results can help HLIs and LMS implementers identify effective strategies to boost LMS usage and achieve desired outcomes. The study, however, focused on the instructors' experience, which may differ from those of students.

Yunusa⁽¹⁴⁾ researched the impact of the COVID-19 pandemic on university institutions in Nigeria. The study used a qualitative design and seven lecturers from five universities in Nigeria. The data were gathered through various online platforms such as Skype and Zoom cloud meetings. The results revealed that COVID-19 impacted many universities. This study recommends opportunities for responding to various issues that are currently arising and possibly will arise in the future in the Nigerian higher education system due to the COVID-19 pandemic impact. The study was mainly based on the impact of COVID-19 in universities among lecturers.

2.3 Theories of Technology Adoption and Usage

Several frameworks, theories, and models have been applied in various studies to investigate and explore the factors contributing to the acceptance and usage of eLearning systems in education institutions. These include the Theory of Reasoned Action (TRA), the Technology Acceptance Model (TAM), and the Unified Theory of Acceptance and Use of Technology (UTAUT), which focuses on individual behavior, as well as the Technology Organization Environment (TOE) framework, which focuses on a firm or organization.

The TAM was introduced by Davis in 1989. This model consists of five components: perceived usefulness, attitudes, behavior intentions, perceived ease of use, and actual usage, and it attempts to describe the conditions for technology acceptance in various practices. TAM suggests individuals adopt technology based on two main factors: perceived usefulness and perceived ease of use. Perceived usefulness refers as an individual perception that technology use will enhance his or her ability to perform a particular job effectively. They perceive ease as an individual belief that using a technology will require a minimal effort⁽¹⁵⁾.

TRA is a psychological theory that is used to explain and predict human behavior based on individuals' attitudes and subjective norms⁽¹⁶⁾. The theory was developed by Martin Fishbein and Icek Ajzen in the 1960s. According to the TRA, an individual behavior is determined by two factors which are attitudes and subjective norms. Attitudes refer to the individual belief in a particular behavior, while subjective norms are described as the individual perception of social pressure to perform or not perform a particular behavior⁽¹⁷⁾. According to this theory, people consider their attitudes toward behavior and the perceived social pressure or norms associated with it before deciding on engaging in a particular technology or not.

The UTAUT model was developed by Venkatesh et al. and is used to understand and predict individuals' acceptance and use of technology. The UTAUT model integrates various theories, including TRA, TAM, and the Innovation Diffusion Theory (IDT), to provide a clear understanding of the acceptance and use of technology. The model has four constructs which are social influence, facilitating conditions, performance expectancy, and effort expectancy. The model included moderating variables such as age, and experiences, voluntariness, which have impacts on the acceptance and use of technologies. Performance expectancy is the degree to which an individual believes that using a particular technology will help improve their performance of their tasks more easily, social influence captures the impact of social factors on an individual's decision to use a particular technology, effort expectancy assesses the extent to which an individual believes that using the technology will be free of effort, and facilitating conditions as the extent to which an individual believes that technical infrastructure and support are in place to facilitate the use of the technology⁽¹⁾.

Even though many studies used the constructs from various models to predict the factors influencing eLearning acceptance, no single theory or model could accurately predict how instructors or students will use eLearning systems. While numerous studies have been focused on eLearning systems usage among instructors, most research on students' acceptance of eLearning systems has been conducted in developed countries with developed technologies. As a result, there are differences in how technological factors influence eLearning systems usage between students in developed and developing countries, including Tanzania. This study developed a measurement model based on the literature to identify the variables influencing UDOM eClassroom usage among students at the University of Dodoma. It proposes a research model that aims to investigate the factors influencing students' acceptance of UDOM eClassroom, based on their perceived usefulness of UDOM eClassroom, perceived ease of use, facilitating condition, management support, subjective norms, and students' attitude to the use of UDOM eClassroom. The description of the research model and hypotheses is as follows:

2.4 The proposed research model

The proposed study model is only used with students to identify the variables influencing their use of the UDOM eClassroom system. Based on the objective of the study, a review of the literature, and technological acceptance models or frameworks, the research model shown in Figure 2 adopted and integrated constructs from TAM, TRA, and UTAUT2. The description of each modified construct is given in Figure 2.

2.4.1 Perceived Usefulness

In this study, perceived usefulness refers to the belief that a student has regarding how beneficial or advantageous it is to use the UDOM eClassroom system. It often relates to how students think using the UDOM eClassroom system will positively contribute to their learning. If the student finds the UDOM eClassroom more functional, they are more likely to use it. Many studies have reported a direct relationship between perceived usefulness and eLearning system usage⁽⁹⁾. The hypothesis for this factor is:

H1: Perceived Usefulness has an effect on students' UDOM eClassroom system usage.

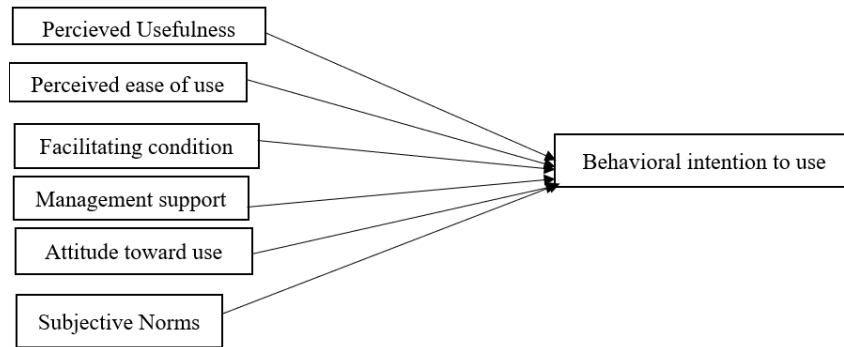


Fig 2. Research model for readiness and acceptance of UDOM eClassroom

2.4.2 Perceived ease of use

Perceived ease of use refers to student perception of how effortless it is to use the UDOM eClassroom system. Previous studies have reported that perceived ease of use significantly impacts eLearning system usage^(12,18). The hypothesis for this factor is:

H2: Perceived ease of use has an effect on students' UDOM eClassroom system usage.

2.4.3 Facilitating Condition

This variable measured people's beliefs about the technical and infrastructure needed to operate and support the eLearning system usage, ensuring adopting new technologies should not be a problem. Previous studies have reported that facilitating conditions significantly affect ICT use^(19,20). The hypothesis for this factor is:

H3: Facilitating conditions have a positive effect on students' UDOM eClassroom system usage.

2.4.4 Management Support

In this study, Management Support refers to the extent to which an individual believes that there is a management in place to provide assistance in case of any challenges with using the eLearning system. Previous studies have reported that management support significantly affects ICT use^(21,22). The hypothesis for this factor is:

H4: Management support has a positive effect on students' UDOM eClassroom system usage.

2.4.5 Subjective Norm

In this study, subjective norms are based on beliefs about what other people think should use the UDOM eClassroom system. If students think their fellows using the UDOM eClassroom system, they are more likely to use it. According to TRA, the subjective norm was a social factor influencing people's belief in ICT use. Previous research has shown that subjective norm is a significant factor in using various systems. The hypothesis for this factor is H5: Subjective norm has an effect on students' UDOM eClassroom system usage.

2.4.6 Student' Attitude

This refers to students' perceptions of using a UDOM eClassroom system, which can either be positive or negative about the usage of that system⁽²³⁾. Students who have a positive attitude towards using UDOM eClassroom feel more comfortable using it, which affects the integration of the system usage⁽²⁴⁾. Studies have shown that student attitude significantly affects eLearning system use^(24,25). The hypothesis for this factor is H6: Student' attitude has an effect on students' UDOM eClassroom system usage.

3 Methodology

3.1 Research Design

This study adopted a survey research design and aimed at determining the factors contributing to the acceptance of the UDOM eClassroom system among students at the UDOM. The constructs used included the perceived usefulness of UDOM eClassroom, perceived ease of use, facilitating condition, management support, subjective norms and students' attitudes toward using the UDOM eClassroom system. These constructs were derived from the literature and the data collected from UDOM

students. The quantitative approach was employed, and data were collected through a questionnaire. The obtained data were analyzed using statistical package software (SPSS) version 23.

3.2 Data collection

The study utilized a questionnaire with the five-point Likert scale (Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree) consisting of demographic items, background items, and variables from TAM, TRA, and UTAUT. The items were modified to fit the context of this study and were based on relevant literature. The study adopted the ⁽²⁶⁾ formula to determine the minimum sample size, $N > 50 + 8k$, where k is the number of independent variables. Given the six factors in the study, a minimum sample size of $50 + (6 \times 8) = 98$ was required. The participants consisted of 101 students from various academic programs, including with a Bachelor of Science in Computer Engineering (BSc. CE), Bachelor of Science in Software Engineering (BSc. SE), Bachelor of Science in Computer Network and Information Security Engineering (BSc. CNISE), Bachelor of Science in Health Information System (BSc. HIS), Bachelor of Science in Information System (BSc. IS), Bachelor of Science in Telecommunication Engineering (BSc. TE), Bachelor of Science in Digital Content and Broadcasting Engineering Natural Science (BSc. DCBE), Bachelor of Science in Computer Science (BSc. CS), Bachelor of Science in Cyber Security and Digital Forensic Engineering (BSc. CSDFE), Bachelor of Science in Instructional Designing and Information Technology (BSc. IDIT), Bachelor of Science in Multimedia Technology and Animation (BSc. MTA), Diploma in Educational Technology (DET) and Diploma in Information Communication Technology (DICT). The respondents were provided with a link to a self-administered questionnaire via Google Form. Confidentiality was assured, and 101 respondents completed the questionnaire.

Table 2. Data Collection Instrument

Factor	Code	Item
Perceived usefulness	PUQ1	Using the UDOM eClassroom will make it easier to do my learning tasks
	PUQ2	Using the UDOM eClassroom in my learning activities will enable me to accomplish tasks more quickly.
	PUQ3	I find the UDOM valuable eClassroom in my learning activities.
	PUQ4	Using the UDOM eClassroom will increase my tendency to learn.
	PUQ5	Using the UDOM eClassroom gives greater control over learning.
	PUQ6	Using the UDOM eClassroom in my courses will increase my performance.
Perceived ease of use	EUQ1	Learning to operate the UDOM eClassroom is easy for me.
	EUQ2	I find it easy to get the UDOM eClassroom to do what I want.
	EUQ3	My interaction with the UDOM eClassroom is clear and understandable.
	EUQ4	It is easy for me to become skillful at using the UDOM eClassroom
	EUQ5	I find the UDOM eClassroom to be flexible to interact with
	EUQ6	I find the UDOM eClassroom easy to use.
Facilitating Condition	FCQ1	The training provided by the IT Unit has enhanced my ability to use UDOM eClassroom
	FCQ2	Specialized instruction concerning the UDOM eClassroom is available to me.
	FCQ3	There is UDOM eClassroom support staff who give me prompt service by responding quickly to my request for help.
	FCQ4	A specific person (or group) can assist with UDOM eClassroom system difficulties.
Management Support	MGQ1	Management is keen to see that students are happy with using UDOM eClassroom for learning purposes.
	MGQ2	Management is always there to support and encourage using UDOM eClassroom for learning.
	MGQ3	Management provides good access to necessary hardware and software resources when people need them for operating the UDOM eClassroom.
Attitude towards use	ATTQ1	Using UDOM eClassroom is a good idea.
	ATTQ1	Using UDOM eClassroom is a wise idea.
	ATTQ2	I like the idea of using the UDOM eClassroom.
	ATTQ3	Learning through the use of UDOM eClassroom is a good idea.

Continued on next page

Table 2 continued

Subjective Norms	ATTQ4	I think it is worthwhile to use UDOM eClassroom.
	SNQ1	My fellow Students, who are more important to me, think I should use UDOM eClassroom.
	SNQ2	My fellow students who are familiar with me think I should use the UDOM eClassroom.
	SNQ3	Most students surrounding me use the UDOM eClassroom.
	SNQ4	Students who influence my behavior think that I should UDOM eClassroom.
Behavioral intention to use UDOM eClassroom	BIQ1	I intend to continue using the UDOM eClassroom in the future.
	BIQ2	I will always try to use UDOM eClassroom in my daily life.
	BIQ3	I recommend my colleagues to use UDOM eClassroom
	BIQ4	I plan to continue using UDOM eClassroom frequently.

3.3 Data Analysis

The quantitative data was analyzed to determine the relationship between the independent variables: perceived usefulness of UDOM eClassroom, perceived ease of use, facilitating condition, management support, subjective norms, and students' attitudes toward the use of UDOM eClassroom. The SPSS package was used to conduct the analysis.

4 Results and Discussion

The study aimed to examine the factors leading to the acceptance of the UDOM eClassroom system among students in Tanzania. Based on the literature review, the adapted TAM, TRA, and UTAUT2 constructs were used to achieve this research objective. This study revealed that six hypotheses were tested, and five hypotheses were supported.

4.1 Demographic Information

Table 3 shows that the majority (55.4%) of the research's respondents were male, while females (44.6%) were female. The study sample also indicates that most of the study respondents were students from the field of educational technology, which were Diploma in Educational Technology (DET) and Bachelor of Science in Instructional Design and Information Technology (BSc. IDIT) simply because of the relevance of their program and the system. Also, most students were in the first year (48.5%). This disproportional sex representation is triggered by the nature of the undergraduate program in the UDOM population, which is made up of more male students. Furthermore, the sampling technique employed could have influenced the obtained sample. The data also show that most respondents were in first-year degree programs in terms of study programs.

Table 3. Demographic information

Characteristics (n=64)		Frequency	Percent
Gender	Female	45	44.6
	Male	56	55.4
Degree program	BSc. CE	4	4.0
	BSc. SE	8	7.9
	BSc. CNISE	7	6.9
	BSc. HIS	4	4.0
	BSc. BIS	2	2.0
	BSc. TE	6	5.9
	BSc. DCBE	7	6.9
	BSc. CS	2	2.0
	BSc. CSDFE	5	5.0
	Bsc.IS	6	5.9
	BSc. IDIT	18	17.8
	BSc. MTA	9	8.9
	DET	15	14.9
	DICT	7	6.9
Year of study	1 st year	49	48.5

Continued on next page

Table 3 continued

2 nd year	33	32.7
3 rd Year	17	16.8
4 th Year	2	2.0

4.2 Sampling Adequacy

A structural model was tested using the Bartlett test and Kaiser-Meyer-Olkin (KMO) sampling adequacy on 33 items. According to, asserts that a KMO of less than 0.5 is insufficient. The KMO of this study was 0.804, indicating that factor analysis could be performed as the sample was sufficient. Additionally, the Bartlett test of sphericity was conducted, and a p-value of less than 0.05 suggested a statistically significant relationship between the variables, indicating that principal component analysis was appropriate.

4.3 Reliability and validity

The reliability of the 32 items was examined using Cronbach's alpha to determine the internal consistency, which was found to be 0.902. All variables had Cronbach's alpha values above 0.5, which is the recommended threshold, indicating good consistency. The reliability analysis of the seven constructs is shown in Table 4.

Table 4. Cronbach's alpha of items

Variable	No. of Items	Cronbach's Alpha
Perceived usefulness	6	0.911
Perceived ease of use	6	0.889
Facilitating condition	4	0.827
Management Support	3	0.851
Attitude toward use	5	0.907
Subjective Norms	4	0.895
Behavioral intention to use UDOM eClassroom	4	0.846

4.4 Identifying the factor structure

Factor analysis was conducted on 32 items using principal component analysis, Kaiser normalization, and Varimax rotation. This analysis was used to determine whether related items were grouped under the same construct. As a result, the items with factor loading values lower than 0.5 were eliminated. The factor loading values for each item are shown in Table 5.

Table 5. Factor loading per each item with Varimax rotation and Kaiser Normalization

Factor	Item with Varmax rotation	Loadings
Perceived usefulness	PUQ1	0.778
	PUQ2	0.732
	PUQ3	0.607
	PUQ4	0.705
	PUQ5	0.815
	PUQ6	0.782
	EUQ2	0.683
	EUQ3	0.784
	EUQ4	0.643
	EUQ5	0.692
	EUQ6	0.687
	FCQ1	0.523
Facilitating Condition	FCQ2	0.742
	FCQ3	0.882
	FCQ4	0.764
Management Support	MGQ1	0.697
	MGQ3	0.608

Continued on next page

Table 5 continued

Attitude towards use	ATTQ1	0.749
	ATTQ2	0.836
	ATTQ3	0.770
	ATTQ4	0.751
	ATTQ5	0.608
Subjective Norms	SNQ1	0.808
	SNQ2	0.724
	SNQ3	0.770
	SNQ4	0.768
Behavioral intention to use the UDOM eClassroom system	BIQ1	0.763
	BIQ2	0.658
	BIQ4	0.618

4.5 Model summary

Multiple linear regression was used to assess the models' performance and identify the variables that influence students' acceptance of the UDOM eClassroom, based on the six factors. These factors were the usefulness of UDOM eClassroom, perceived ease of use, facilitating conditions, management support, subjective norms, and students' attitudes toward using the UDOM eClassroom. The results indicated that the variance (adjusted $R^2=0.520$) suggests that 52% of students' usage of the UDOM eClassroom is influenced by the factors identified in this research model. A summary of the research model is presented in Table 6.

Table 6. Summary of the research model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.741 ^a	.549	.520	2.31499

4.6 Hypothesis Testing

Multiple regression was used to determine the statistical significance of each hypothesis and its effect on the UDOM eClassroom system. The study found that five hypotheses were statistically significant in UDOM eClassroom usage, with a p-value of $p < 0.05$ for both H1(0.000), H2(0.000), H3(0.000), H4 (0.000) and H6 (0.000) while H5 had a p-value of 0.224 which is greater than 0.05.

The perceived usefulness of the UDOM eClassroom system was found to be a statistically significant factor in predicting the students' behavioral intention to use it. These findings align with previous research by⁽¹²⁾. Students are more likely to have positive intentions to use the UDOM eClassroom system if they perceive it as essential to their learning. Therefore, educational institutions should ensure that students are made aware of the advantages of the eLearning system to their learning. This is also supported by a study done by, which found that perceived usefulness influenced university students' acceptance of eLearning in Indonesia. Furthermore, no significant difference was found between the locally developed and openly available eLearning systems in terms of the perceived usefulness for the students. In accordance with the present results, previous studies have demonstrated that perceived usefulness influences student intention to use the eLearning systems^(12,23).

The findings of this result showed that perceived ease of use was a significant factor in predicting students' behavioral intention to use the UDOM eClassroom system. These findings are consistent with the previous research, which revealed the easier an eLearning system is, the stronger the positive intention to use it⁽¹²⁾. Therefore, educational institutions should implement eLearning platforms that are more accessible and user-friendly, allowing students to use them comfortably in their learning. The study didn't find a significant difference between perceived ease of use and the student intention to use both openly available and locally developed eLearning system⁽²³⁾.

The results also indicate that management support influenced students' usage of the UDOM eClassroom system. Thus, if the students receive support from the management, they will feel more confident in their intention to use UDOM eClassroom. When the students lack support, they cannot use CIVE eClassroom comfortably. Therefore, University management should provide adequate support to students in using the eLearning system effectively. According to the findings, management support from the CIVE was found to influence student satisfaction with the eLearning system. University management should foster an environment that promotes and facilitates the use of eLearning platforms by providing the necessary support for students to

utilize such systems.

Additionally, the results revealed that facilitating conditions were statistically significant in influencing students' behavioral intention to use the UDOM eClassroom system. This result is somewhat consistent with that of⁽²⁴⁾, who found that resources such as supporting infrastructures and internet access influence the behavioral intention to use online learning platforms. CIVE However, this contradicts, who observed that individuals may struggle to accept a web-based technology when they receive insufficient help, delayed support, inaccurate information, or inadequate resources. Similarly⁽¹⁹⁾, observed that a lack of facilitating conditions in schools can negatively affect ICT usage. Therefore, higher education management must increase the availability of resources to optimize the use of various eLearning platforms.

Contrary to expectations, this study did not find a significant difference between subjective norms and students' behavioral intention to use UDOM classrooms. It seems possible that these results are because the majority of the participants have similar ICT backgrounds. This finding is contrary to previous studies which have suggested that subjective norms influenced students' intention to use automatic feedback on MOOC platforms. Consequently, it is crucial for higher education management to encourage peer groups among students to support one another and raise awareness of the eLearning system, helping them to recognize its usefulness and encourage its adoption.

The findings had a significant impact on students' attitudes and behavioral intentions toward using the UDOM eClassroom. However, attitudes towards ICT use can vary, with some being positive or negative, depending on differences in ICT experience, skills, and training. Thus, educational institutions need to offer ICT training programs to increase student's awareness of the potential benefits of the eLearning system.

5 Conclusion

The research is based on a survey conducted among students at the CIVE of the UDOM (Tanzania) in June-July 2022. The university implemented and adopted the UDOM eClassroom during COVID-19 and continued to use it even after the pandemic impacts subsided. A quantitative analysis was employed on data collected from 101 participants. The result indicated that perceived usefulness, ease of use, facilitating condition, management support, and students' attitudes significantly impact student acceptance of the UDOM eClassroom. This research provides valuable insight for educational institutions in case COVID-19, or other disasters and normal situations necessitate the continuation of online teaching and learning. However, this study has limitations as it only focused on one college at the UDOM. Conducting comparative research across different fields of specialization would be beneficial to better understand the factors influencing the use of the UDOM eClassroom system at the university. Therefore, the educational institution management should provide support, training, and facilitating conditions to enhance the use of the eLearning system usage among the students at the universities.

References

- 1) Al-Mamary YHS. Understanding the use of learning management systems by undergraduate university students using the UTAUT model: Credible evidence from Saudi Arabia. *Int J Inf Manag Data Insights*. 2022;2(2). Available from: <https://doi.org/10.1016/j.jjime.2022.100092>.
- 2) The Tanzania Commission for Universities: Guidelines for Online and Blended Delivery Modes of Courses for University Institutions in Tanzania.. 2022. Available from: <https://www.tcu.go.tz>.
- 3) Barz N, Benick M, Dörrenbächer L, Franziska U. Students' acceptance of e-learning: extending the technology acceptance model with self-regulated learning and affinity for technology. *Discov Educ [Internet]*. 2024. Available from: <https://doi.org/10.1007/s44217-024-00195-7>.
- 4) Zacharis G, Nikolopoulou K. Factors predicting University students' behavioral intention to use eLearning platforms in the post-pandemic normal: an UTAUT2 approach with 'Learning Value. *Information Technology Journal [Internet]*. 2022;27(9):12065–82. Available from: <https://doi.org/10.1007/s10639-022-11116-2>.
- 5) Ullah MS, Hoque, Rakibul, Aziz MA, Islam M. Analyzing students' e-learning usage and post-usage outcomes in higher education. *Computer and Education Open*. 2023;5. Available from: <https://doi.org/10.1016/j.caeo.2023.100146>.
- 6) Matete RE, Kimario AE, Behera NP. Review on the use of eLearning in teacher education during the coronavirus disease (COVID-19) pandemic in Africa. *Heliyon [Internet]*. 2023;9(2). Available from: <https://doi.org/10.1016/j.heliyon.2023.e13308>.
- 7) Balogun NA, Adeleke FA, Abdulrahman MD, Shehu YI, Adedoyin A. Undergraduate students' perception on e-learning systems during COVID-19 pandemic in Nigeria. *Heliyon [Internet]*. 2023;9(3). Available from: <https://doi.org/10.1016/j.heliyon.2023.e14549>.
- 8) William FK, Abdon E, Mbepera J. eLearning During the COVID-19 Pandemic in Tanzanian Universities: Policy Challenges and Implications. *Rwandan J Educ [Internet]*. 2024;7(2):128–172. Available from: <https://www.ajol.info/index.php/rje/article/view/269910>.
- 9) Mtani H, Mbelwa J. Factors affecting Learning Management Systems Usage in Higher Learning Institutions in Tanzania: A Case of University of Dodoma. *Int J Educ Dev using Inf Commun Technol*. 2022;18(1):7–26. Available from: <https://eric.ed.gov/?id=EJ1345322>.
- 10) Buluma A, Walimbwa M, Mbulankende JS, Nabiryo R. In-service teachers' readiness to adopt technology-enhanced pedagogy in a Sub-Saharan country. 2023. Available from: <https://www.unesco.org/en/data-center>.
- 11) Education and Statistics: Covid-19 impact on education. UNESCO. 2023. Available from: <https://www.unesco.org/en/data-center>.
- 12) Sukendro S, Habibi A, Khaeruddin K, Indrayana B, Syahrudin S, Makadada FA. Using an extended Technology Acceptance Model to understand students' use of e-learning during Covid-19: Indonesian sports science education context. *Heliyon [Internet]*. 2020;6(11). Available from: <http://dx.doi.org/10.1016/j.heliyon.2020.e05410>.

- 13) Munir F, Anwar A, Kee D. International Review of Research in Open and Distributed Learning Online Learning and Students' Fear of COVID-19 : Study in Malaysia and Pakistan Online Learning and Students' Fear of COVID-19 : Study in Malaysia and Pakistan Abstract. *International Review in Reseach Open and Distributed Learning*. 2021;22(1):1–21. Available from: <https://hipkinjateng.org/jurnal/index.php/jci/article/viewFile/69/68>.
- 14) Yunusa A, Temitayosanusi I, Dada O, Oyelere S, Agbo F, Obaido G. The Impact of the COVID-19 Pandemic on Higher Education in Nigeria: University Lecturers' Perspectives. *Int J Educ Dev using Inf Commun Technol*. 2021;17(4):43–66. Available from: <https://www.diva-portal.org/smash/get/diva2:1624059/FULLTEXT01.pdf>.
- 15) Sok J, Borges JR, Schmidt P, Ajzen I. Farmer Behaviour as Reasoned Action: A Critical Review of Research with the Theory of Planned Behaviour. *J Agric Econ*. 2021;72(2):388–412. Available from: <https://doi.org/10.1111/1477-9552.12408>.
- 16) Szyszka M, Tomczyk Ł, Kochanowicz AM. Digitalization of Schools from the Perspective of Teachers' Opinions and Experiences: The Frequency of ICT Use in Education Attitudes towards New Media, and Support from Management. *Sustainability*. 2022;14. Available from: <https://doi.org/10.3390/su14148339>.
- 17) Alturki U, Aldraiweesh A. Application of the learning management system (Lms) during the covid-19 pandemic: A sustainable acceptance model of the expansion technology approach. *Sustainability*. 2019;13. Available from: <https://doi.org/10.3390/su131910991>.
- 18) Ambarawati R, Harja YD, Thamrin S. The Role of Facilitating Conditions and User Habits: A Case of Indonesian Online Learning Platform. *J Asian Financ Econ Bus*. 2020;7(10):481–490. Available from: <https://doi.org/10.1016/j.chb.2023.107994>.
- 19) Eze NU, Obichukwu PU, Kesharwani S. Perceived Usefulness, Perceived Ease of Use in ICT Support and Use for Teachers. *IETE J Educ*. 2021;62(1):12–20. Available from: <https://www.researchgate.net/publication/346241220>.
- 20) Hamid MA, Salleh S, Laxman K. A Study on the Factors Influencing Students' Acceptance of Learning Management Systems (LMS): A Brunei Case Study. *International Journal of Technology in Education and Science*. 2020;4(3):203–217. Available from: <https://dx.doi.org/10.46328/ijtes.v4i3.101>.
- 21) Cabellos B, Siddiq F, Scherer R. The moderating role of school facilitating conditions and attitudes towards ICT on teachers' ICT use and emphasis on developing students' digital skills. *Computers in Human Behavior*. 2024;150:107994–107994. Available from: <https://dx.doi.org/10.1016/j.chb.2023.107994>.
- 22) Mohebi L, Bailey F. Exploring Bem's self-perception theory in an educational context. *Encyclopaedia*. 2020;24(58):1–10. Available from: <https://encp.unibo.it/article/view/9891/11974>.
- 23) Arif A, Kurniawan T, Handayani D, Hidayati R, Armiwati. EFL University Students' Acceptance and Readiness for e-Learning: A Structural Equation Modeling Approach. *Electron Journal of e-Learning*. 2024;22(1):1–16. Available from: <https://doi.org/09747338.2021.1908177>.
- 24) Almulhem A. Investigating the effects of quality factors and organizational factors on university students' satisfaction of e-learning system quality. Available from: <https://doi.org/10.1080/2331186X.2020.1787004>.
- 25) Kamaghe JS, Luhanga ED, Kisangiri M. The Challenges of Adopting M-Learning Assistive Technologies for Visually Impaired Learners in Higher Learning Institution in Tanzania. *International Journal of Emerging Technologies in Learning*. 2020;15(1):140–151. Available from: <https://research.moodle.org/480/>.
- 26) Ulfa S, Surahman E, Fatawi I, Tsukasa H. Task-Technology Fit Analysis: Measuring the Factors that influence Behavioural Intention to Use the Online Summary-with Automated Feedback in a MOOCs Platform. *Electron Journal of e-Learning*. 2024;22(1):63–77. Available from: <https://doi.org/10.34190/ejel.22.1.3094>.