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Assessing the Adoption of E-Learning Management Systems in Institutions of Higher Learning in Zambia: A Case Study of the University of Zambia

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Abstract

E-learning has become the protagonist for change and serves as an avenue for the creation, storing and sharing of knowledge among members of the university communities. The adoption of e-learning management systems by higher education institutions in Zambia has continued to observe poor strides due to high costs in the using and maintaining of e-learning systems, cost of equipment and staff to maintain the products. The main objective of this research was to assess the adoption of e-learning management systems in higher learning institutions in Zambia: A case study of the university of Zambia and explore the challenges faced by The University of Zambia in adoption of e-learning management systems. The data analysis of this research revealed that about 50% of the lecturers remained neutral with only 41% agreeing that the e-learning platform was convenient for their studies. A larger proportion of the students was also neutral (67.28%), with a cumulative total of only 29% agreeing that it was convenient for all their academic work. This therefore means that there was no overwhelming evidence to show that the e-learning platform currently being used was convenient for lecturers' studies and students' academic work. These findings confirm the importance of the expected consequences of using e-learning, suggesting that training programs and organizational policies could be instituted to enhance or modify these expectations as proposed by Thompson, Higgins and Howell (1991).

Keywords

E-Learning, Higher Learning, Adoption, Management, Zambia

1. Introduction

E-learning has emerged as a pivotal force for change, facilitating the creation, storage, and dissemination of knowledge within university communities. Ghirardini et al. (2011) define e-learning as the use of computer and internet technologies to deliver a wide range of solutions for learning and performance improvement. It encompasses teaching and learning activities conducted wholly or partially through electronic devices or networks, marking a shift from traditional education to more personalized, flexible ICT-based systems.

The evolution of learning methods has been heavily influenced by technology throughout history. In the 1980s, instruction-based training was prevalent. Advancements in technology during the 1990s introduced CD-ROMs and web-based content delivery. By the early 2000s, streaming, synchronization platforms, and learning management systems became commonplace, followed by the integration of mobile handheld devices into e-learning processes around 2005.

While e-learning technology has improved education accessibility, challenges persist. Kunda, Chembe, & Mukupa (2018) identified insufficient internet bandwidth and hardware as major barriers to integrating ICTs in teaching and research. Despite the availability of e-learning systems for over a decade, comprehensive analyses of challenges and influencing factors in Zambia are lacking.

This study aims to investigate the challenges and factors affecting the adoption of e-learning management systems in Zambian higher education institutions, with a focus on The University of Zambia. Factors such as high costs, contextual dependencies, user and organizational characteristics, social environment, and ICT policies influence adoption. Understanding these challenges is crucial for institutions like The University of Zambia to address student, educator, and support staff needs, thereby improving e-learning management system adoption.

The study sheds light on the cost implications and adoption process of e-learning management systems for universities, offering insights on adoption strategies. It holds significance for higher education management, guiding efforts to enhance e-learning adoption and effectiveness.

2. Literature Review

2.1. E-Learning

According to Diana (2012), e-learning is the use of electronic media and ICT in education to facilitate knowledge sharing. It uses the internet technologies to deliver a broad array of solutions that enhance knowledge and performance. Similarly, Dei & van der Walt (2020) assert that e-learning is education and knowledge sharing based on modern methods of communication, including the use of computers and its networks, various audio-visual materials, search engines, electronic libraries and websites, whether accomplished in the class-

room or at a distance.

2.2. E-Learning Systems

Various technologies are used to facilitate e-learning (Sendall, 2018). Most e-learning uses combinations of techniques: blogs, collaborative software, ePortfolios, and virtual classrooms in knowledge dissemination (Alkhateeb et al., 2010). According to Diana (2012), the technologies are interactive technologies that support many different types of capability. These include internet access to digital versions of materials unavailable locally, internet access to search and transactional services, interactive diagnostic or adaptive tutorials, interactive educational games, remote control access to local physical devices, personalized information and guidance for learning support, and simulations or models of scientific systems.

2.3. Learning Management Systems in Education

Learning Management Systems (LMS) is learning organized and managed within an integrated system (Dalsgaard, 2016). E-learning management systems basically organize the leaner's materials or information into a harmonized format, to include segmented course units with assignments, assessments and discussions (Kamba, 2015).

2.4. Theoretical Framework

The Theory of Reasoned Action (TRA), developed by Martin Fishbein and Icek Ajzen, is a foundational theory in technology acceptance research (Qureshi et al. 1975). TRA posits that individuals are more likely to adopt technology if they perceive positive benefits associated with its use. It emphasizes attitude-behavior relationships and suggests that intentions are the primary determinant of behavior. Attitudes are shaped by beliefs about outcomes, while subjective norms reflect social influences on behavior. TRA has been widely applied in various contexts and is considered influential in understanding intentional human behavior (Mutisya & Makokha, 2016). It underscores the importance of attitudes and subjective norms in shaping intentions, particularly in the context of technology adoption (Kasse & Balunywa, 2013).

Al-Aulamie (2013) discusses the Theory of Reasoned Action as one of the earliest models developed to explain technology acceptance in Psychology. The theory was developed to predict and explain the individuals' volitional behavior and to understand their psychological determinants. The theory assumes that individuals are rational and will act based on the information available, with individuals' behavioral intentions being the primary determinant for their actions. The theory considers intentions as the main predictor of an individual's behavior, and any external effect toward behavior will be through their intentions. According to TRA Qureshi, et al. (1975) cited in Andersson, (2008) see Figure 1, the intention has two determinants for people's intentions:
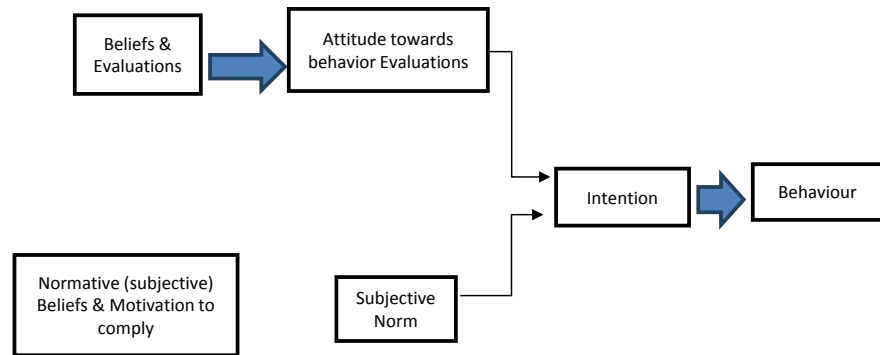
Figure 1. Theory of reasoned action. Source: Ajzen & Fishbein 2010 cited in Mutisya, & Makokha, 2016.

1) Personal influence represents attitude, which refers to the positive or negative evaluations of the behavior performed by the individual (Ajzen, 1985b).

Social influence is the subjective norm, which can be defined as the degree to which a person believes that people who are important to them think that they should or should not perform the behavior in matter (Ajzen, 1985a).

The weight of these two determinates will differ based on the person performing the behavior and the intention being investigated. According to TRA, attitude is formed throughout the person's salient beliefs about a specific behavior. These salient beliefs will connect the person's behavior with the performance outcome.

2.5. Conceptual Framework

The utilization of technology in education has seen a significant rise worldwide, particularly in the wake of the COVID-19 pandemic. Academic institutions have made substantial investments in enhancing their technological infrastructure and integrating it into educational practices. Despite these investments and efforts by higher education institutions globally, it remains apparent that students often underutilize e-learning platforms.

As emphasized earlier, behavioral intention, technology acceptance, and usage are pivotal factors in the successful implementation of e-learning platforms in university education. Among the critical determinants of the system's efficacy is the assessment of students' and teachers' behavioral intention to embrace the blended modern digital teaching and learning model.

We derive our conceptual framework from this understanding as illustrated in **Figure 2**.

3. Research Methodology

This was a cross-sectional, pragmatic and mixed methods study. This study employed both the qualitative and quantitative approaches. The former was appreciated for unstructured information while the latter was considerable for structured data.
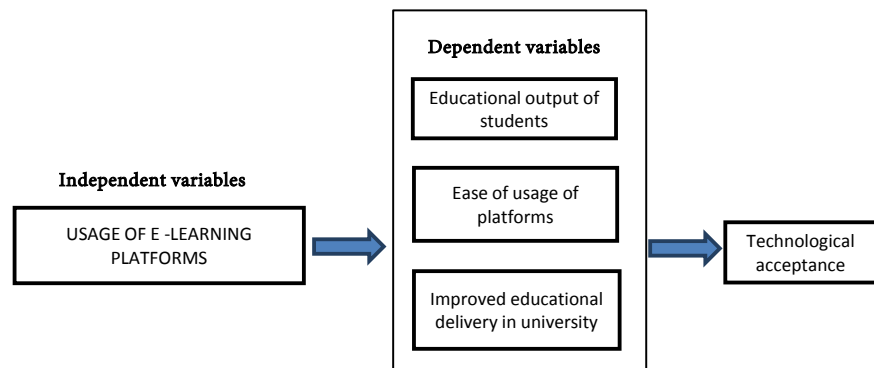
Figure 2. Conceptual framework.

Gall and Borg (1989) describe target population as all members or hypothetical set of people, objects, animals or events on which the researcher intends to conduct a study. This is in agreement with Kothari (2004), who state that a population is an entire set of objects and events or groups of people, with something in common, for the purpose of determining characteristics. Therefore, population provides space from which elements to be studied are chosen. The target population for this study consisted of current students, Part Time Tutors, Resident Lecturers senior managers in the University of Zambia. The justification for choosing, current students, Part-Time Tutors, Resident Lecturers and senior managers was that they were the ones acquainted with e-Learning management at the University of Zambia.

The sample size for this study was 138 students' respondents. This sample size also constituted the key informants (respondents that were more likely to offer the information tandem-wise to the main objective of the study). The key informant consisted of 10 technicians and 18 Lecturers.

What is a good sample size for generalizability?

For populations under 1000, a minimum ratio of 30 percent (300 individuals) is advisable to ensure representativeness of the sample. For larger populations, such as a population of 10,000, a comparatively small minimum ratio of 10 percent (1000) of individuals is required to ensure representativeness of the sample.

Looking at the population we were targeting, only 460 it was taken into consideration that 30 percent was representative of the general population of the university of Zambia students and lecturers who were available during the covid pandemic where we were only able to interview 30% of them. $Z = P * G\%/100$.

$Z = 460 \times 30/100$.

$Z = 138$.

This study employed both the simple-random probability sampling and purposive sampling.

This study categorized such instruments into primary and secondary sources. The former was taken to mean sources that generate firsthand information while the latter was aligned to the sources that offer second hand complementary information that were cardinal to fulfilling of the study.

4. Results and Analysis

On the basis of the responses from learners and lecturers, there was a statistically significant relationship between perceived ease of use of the e-learning platform with the institution of learning. About 84.9% of the lecturers agreed (79.14 for "Agree" and 5.76% for "Strongly agree") that the platform is fairly easy to use. On the other hand, 65.2% of the students also agreed (50.72% for "Agree" and 14.49% for "Strongly agree") that the platform is fairly easy to use.

Perceived ease of use of the e-learning platform among lecturers

E-learning platform is fairly easy to use	Percentage
Strongly Agree	5.76%
Agree	79.14%
Neutral	9.35%
Disagree	5.04%
Strongly Disagree	0.75%
Total	100%

Perceived ease of use of the e-learning platform among students

E-learning platform is fairly easy to use	Percentage
Strongly Agree	14.49%
Agree	50.72%
Neutral	21.02%
Disagree	8.7%
Strongly Disagree	5.07%
Total	100%

Source: Field Data (2021).

Students' perspectives by schools on their adoption of e-learning management systems

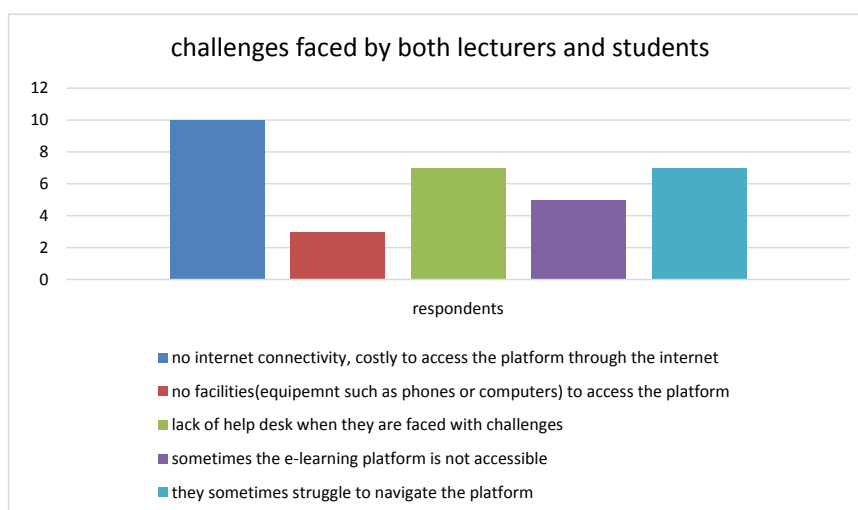| Institution		E-learning platform is relatively easy to use Respondents and students					
		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
School of Engineering	Frequency %	1	12	7	5	2	27
		3.7	44.4	25.9	18.5	7.4	100.00
School of Humanities	Frequency %	12	33	8	1	1	55
		21.8	61.8	14.5	1.81	1.81	100.0
School of Agricultural Science	Frequency %	4	18	8	3	2	35
		11.4	51.4	22.8	8.6	5.7	100.00
School of Natural Sciences	Frequency %	3	7	6	3	2	21
		14.2	3.33	28.5	14.28	9.5	100
Total	Frequency %	20	70	29	12	7	138
							100.00

Source: Field Data (2021).

The table above shows that 70 students agreed with the perception that the E-learning platform is fairly easy to use, with the highest number coming from the School of Humanities, with 61.8% of the students agreeing, while the lowest being the School of Natural Sciences with only 7 respondents agreeing representing 3.33%. This shows that several students found eLearning to be easy to use.

Elkaseh, Wong, and Fung (2015), in a study on The Acceptance of E-learning as a Tool for Teaching and Learning in Libyan Higher Education, found that perceived enjoyment has a significant direct effect on perceived ease of use and perceived usefulness on both teachers and learners. The results also revealed that social influence has a direct effect on students' perceived ease of use and perceived usefulness of e-learning, but no significant direct effect on teachers' perceived ease of use and perceived usefulness of e-learning.

When asked whether E-learning makes learner-lecturer interaction more effective i.e. feedback on assignments, clarifications on lessons and general academic guidance a majority of 51.4 agreed while a minority of 5% strongly disagreed.

Challenges faced by both lecturers and students to access current e-learning platform

challenges faced by both lecturers and students

respondents

- no internet connectivity, costly to access the platform through the internet
- no facilities(equipemnt such as phones or computers) to access the platform
- lack of help desk when they are faced with challenges
- sometimes the e-learning platform is not accessible
- they sometimes struggle to navigate the platform

Source: Field data (2021).

We asked our technical respondents what challenges they were aware of that both students and lecturers faced when using the current e-learning platform and the majority 10 (100%) responded that the biggest problem noticed was no internet connectivity and costly to access platform through internet café. Only one technician mentioned that the challenges where sometimes the navigation through the platforms. The rest of the responses were equally distributed where the second most mentioned challenge was found to be no facilities (equipment such as phones or computers) to access the platform.

The data analysis of this research however, revealed that about 50% of the lecturers remained neutral with only 41% agreeing that the e-learning platform was convenient for their studies. A larger proportion of the students was also neutral (67.28%), with a cumulative total of only 29% agreeing that it was convenient for all their academic work. This therefore means that there was no overwhelming evidence to show that e-learning platform was convenient for lecturers' studies and students' academic work. These findings confirm the importance of the expected consequences of using e-learning, suggesting that training programs and organizational policies could be instituted to enhance or modify these expectations as proposed by Thompson, Higgins and Howell (1991), in their study to help better understand the factors that influenced the use of PC technology.

Notwithstanding the above outcomes, significant proportions of both lecturers and learners indicated that they experienced challenges in using the e-learning platform. For instance, about 37.4% of the lecturers indicated having challenges in using the e-learning platform while about 8.5% of the learners indicated experiencing some challenges too. The majority for both the learners indicated a neutral stand point to this perspective which implies that while there were challenges experienced, they did not outweigh the perceived ease of use overall. Like any other system, e-learning also has some drawbacks.

Aware Of E-learning Policies
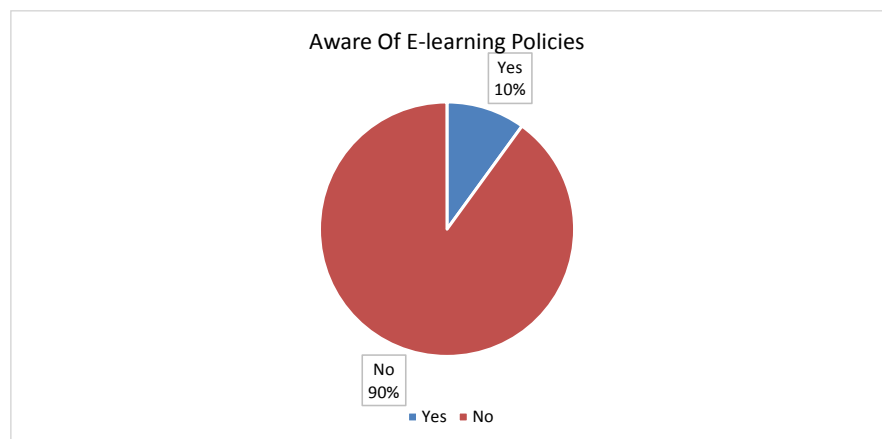
Source: Field data (2021).

A majority of our respondents had no clear knowledge on e-learning policies a majority of 90% of or respondent said no will only one agreed that he did have some knowledge on some policies not knowing if they are actually in effect in Zambia.

5. Conclusion and Recommendations

The reasons that came out to account for the levels of e-learning platform adoption in the university were that; e-learning platform is easy to use, the

platform was convenient for studies and assignments, e-learning platform was well-designed for anyone with basic computer skills, there was a perceived risk in using the e-learning platform (relatively low internet security protection, electricity outages having an effect, may encourage plagiarism and affect learners' privacy), and that the e-learning platform is useful (through providing creative compliment to the standard learning method, and that e-learning platform made learner-lecturer interaction more effective).

On the basis of the responses from learners and lecturers, there was a statistically significant relationship between perceived ease of use of the e-learning platform with the institution of learning. About 84.9% of the lecturers agreed (79.14% for "Agree" and 5.76% for "Strongly agree") that the platform is fairly easy to use. On the other hand, 65.2% of the students also agreed (50.72% for "Agree" and 14.49% for "Strongly agree") that the platform is fairly easy to use.

The four key elements under this perspective were; relatively low internet security protection, electricity outages, possible plagiarism and affect learners' privacy. While there was a statistically significant relationship between the perception of risk of the e-learning platform and institutions of learning based on lecturers' and learners' perceptions; the majority in both cases indicated a neutral stance to whether the platform had a relatively low internet security protection (46.8% of the lecturers were neutral and 75% of the students were neutral), with the second largest proportions falling on the end of Disagree in both cases. This therefore, means that the respondents did not perceive the e-learning platform to have a relatively low internet security protection.

We assessed how important it was for input from the organization paying for the app or platform when it comes app/platform creation, our technical respondents clearly stated it was important.

One of the interviewed technicians added on by mentioning that the best way to overcome these problems is setting up a good team, "the team is supposed to understand the task at hand so as to best communicate in building it up". The study demonstrated that the level of use of the e-learning platform usage in the three institutions of learning is relatively high and in as much as the respondents expressed that they frequently used the platform, that the platform is fairly easy to use, and that the platform was effective for their academic assessments and assignments, there were grey areas in many other issues. The study revealed four key factors that had significant and positive effects on users' intent to use online technology, including the perceived usefulness, perceived ease of use, teacher influence, university management commitment, and availability of student technical assistance.

The adoption of e-learning technology has become a major challenge for many academic institutions during the Covid-19 pandemic. More and more institutions are questioning the success of adopting this technology and are seeking to understand their adoption process.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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