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Exploring Academic Engagement with Learning Management Systems in Higher Education: A Case Study from the Developing World

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Abstract

Higher Education Institutions (HEIs) are widely recognised as key contributors to a country's economic development. In many developing countries, there are typically two or more HEIs, most of which acknowledge the pivotal role of Information and Communication Technology (ICT) in advancing teaching and learning, and in driving digital transformation within the education sector. The onset of the COVID-19 pandemic in 2020 underscored the critical importance of technology in sustaining education delivery. Institutions lacking Learning Management Systems (LMS) were compelled to close temporarily and reassess their digital readiness and integration strategies.

This study aimed to investigate the use of LMS by academic staff as a means to support digital transformation in HEIs. A qualitative research methodology was employed, guided by the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Diffusion of Innovation (DOI) theory as the theoretical frameworks underpinning LMS adoption and use. Findings revealed that a significant number of academic staff members lacked confidence in using LMS platforms, despite institutional mandates for their adoption. This hesitancy may be attributed to inadequate training, as evidenced by the data in Figure 4.10, which shows that only 15 out of 24 staff members had received formal training in LMS usage.



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KEYWORDS: Higher education Institution (HEI), Learning Management Systems (LMS), E-learning systems

1. INTRODUCTION

Higher Education Institutions (HEIs) are widely acknowledged as critical drivers of national economic growth and play a central role in the holistic development of a country (Chankseliani et al., 2021). In many developing nations, the presence of multiple HEIs reflects a growing recognition of the importance of Information and Communication Technology (ICT) in advancing higher education. ICT has increasingly been viewed as a transformative tool for enhancing teaching and learning and facilitating the digital transformation of educational systems. The COVID-19 pandemic, which emerged in 2020, further underscored the indispensability of technology in education, as it became the primary means for delivering instruction. Consequently, HEIs-including those without established Learning Management Systems (LMS)-were forced to suspend traditional operations and urgently reevaluate their digital technology strategies (Jarvis et al., 2021; Roy & Brown, 2022). The learning management system (LMS) has been adopted by most higher learning institutions around the world for decades now (Babo & Azevedo, 2012; Kadir & Aziz, 2016). LMS is used all over HEI (Babo & Azevedo, 2012), the need to know and understand its acceptance and is receiving ever increasing attention in academia (Giannakos et al., 2021). According to Kadir and Aziz (2016), LMS is based on the principle of an elearning platform in the end aims to effectively achieve the instruction which could be enhanced for supporting important institutional activities. Activities such as interaction, evaluation, information guidance, and instructional management. E-learning covers the integration of ICT to foster learning.

E-learning is used to cater to several approaches to digital learning environments such as online, virtual learning, and social learning technologies (Giannakos et al., 2021). Major crises, like the COVID-19 pandemic, highlight the great importance of the applicable development of e-learning systems and their adoption and processes in education (Alhumaid et al., 2020). However, in HEI academics seem to fail to keep pace with e-learning systems, despite the huge budget and resources spent by organisation in implementing the system (Nwagwu, 2020).

This research paper aims to answer the following research questions (RQs)

1. **RQ1:** How do we encourage the utilisation of Learning management systems (LMS), and e-learning systems for Academics in HEI?

The objective of this paper is to explain the utilisation of LMS to academics to enhance digital transformation in higher education institutions.

The following items are contributions to this paper's summary:

• highlighting the learning management system usage advantages in e-learning systems.

• increasing academic knowledge and skills in using e-learning in HEI;

This paper is divided as follows: Section 2 provides the literature review. In Section 3, the methodology of the research is discussed by describing the instruments, target population, and measurement model. Section 4 provides the results. The discussion is presented in Section 5. Section 6 provides a conclusion and future work.

2. LITERATURE REVIEW

2.1 Learning Management System

Learning Management Systems (LMS) reinforce the learning process through online classroom environments (Bradley, 2020). A standard LMS supports an inclusive learning environment for academic progress with interceding structures that promote online collaborative groupings, professional training, discussions, and communication among other LMS users.

Instructors should balance active learning with the use of LMS technological resources and the use of guidelines from the qualified curriculum. An LMS allows instructors to facilitate and model discussions, plan online activities, set learning expectations, provide learners with options, and assist in problem-solving processes for decision-making. An instructor's presence within an LMS creates an engaging learning environment. Students can retain their autonomy, enthusiasm, and motivation with LMS use. Stakeholders of the educational community must find scientific studies to support their contributions to LMS platforms to assist scholars in learning mathematics and other academic subjects.

2.2 The utilisation of Learning management systems (LMS) by Academics in HEI

The adoption of a Learning Management System (LMS) as an approach to curriculum delivery in the education system took a new dimension as a critical tool globally during the COVID-19 pandemic (Gamede et al., 2021). The advent of COVID-19 in December 2019 from Wuhan City, China took the whole world by surprise, as many countries were grounded to full lockdown to control the spate of infection that has resulted in several deaths (Gamede, Ajani, & Afolabi).

The WHO warned the global world of the imminent dangers of the COVID-19 pandemic and recommended wearing face masks, social distancing, frequent washing of hands, or use of alcoholicbased sanitiser for hands to prevent the spread of the deadly virus (Mitima-Verloop et al., 2022). With the lockdown, educational institutions in South Africa were shut down to prevent the large gathering of people as stipulated in the regulations for lockdown. Despite the lockdown, the cases of infection and death became unabated due to some factors. Restriction of the number of mourners at funerals was made without attending to rituals of mourning and meaning-making in communities

2.3 Academics' Knowledge and Skills of e-learning in HEI

With the advent of e-learning technology, academics are facing the challenges of acquiring and implementing IT skills for teaching (Islam et al., 2015). According to some distinguished researchers, the Internet is a perfect tool for learning that offers flexibility and expediency to learners while at the same time offering endless opportunities for innovative teaching. Other researchers stated that some of the reasons for e-learning success are that e-learning systems would likely encourage student learning resulting in a higher level of student engagement. Elearning can be better than face-to-face learning, the quality of interaction and timely feedback is superior, with good course design can untangle the geographical limitations of education (Islam, Beer, & Slack, 2015).

3. Theoretical Framework

The use of an appropriate theoretical framework in any study is to underpin the study with a framework that analyses the phenomenon for in-depth understanding. Thus, the adoption of an appropriate theoretical framework for this study is to strengthen the discursive understanding of the study. Various learning technologies are being employed globally in the education system to enhance efficiency and productivity, however, there exists significant resistance, especially among academics in developing countries. Technology acceptance theories are usually adopted into various studies that relate to online learning or the use of learning technologies, by different scholars, in an attempt to promote the use of technologies in education (Mutsvunguma, 2019). The study adopts the Unified Theory of Acceptance and Use of Technology (UTAUT) and Diffusion of Innovation Theory (DOI) theories to underpin the use of LMS as online learning during the COVID-19 lockdown. These theories explain why academics should adopt LMS to deliver learning content in higher institutions, especially during the COVID-19 pandemic, which restricts social gatherings in large numbers.

3.1 Unified Theory of Acceptance and Use of Technology (UTAUT)

This theory is a technology-driven model that was developed by Venkatesh, Morris, Michael, and Davis in 2003. The Unified Theory of Acceptance and Use of Technology (UTAUT) appropriately explains the key concepts that can enhance the effective use of technology in any organisation. Ajani (2023) asserts that UTAUT is efficient in promoting an in-depth understanding of technology adoption and integration among groups of people in an establishment. According to Ajani (2023), the theory provides more clarity for technology acceptance in any study than other similar theories, thus making it significantly appropriate for this study. Seemingly, Ajani (2023) posits that "various previous technology acceptance models have described an intention to use technology at 40 percent among the technology users while UTAUT describes the intention to use technology among the technology users at 70 percent p.38".

Hence, the adoption of the UTUAT model in any study strengthens the study with the systematic combination of eight key theories that distinguish UTAUT as an appropriate theory that comprehensively describes the use of various technologies in any organization (Gamede, Ajani, & Afolabi,2022). The model provides in-depth clarity on why users adopt and will use technology effectively despite variables that affect its use; hence, UTAUT is rich and significantly reliable to underpin any study (Bhatiasevi, 2016). According to Alshammari, (2021), "the model has four constructs that have been adapted to explain different factors influencing the behavioural intention of academics to use Moodle in this study.

These constructs are performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating condition (FC)". Andrews et al. (2021) assert that the application of UTUAT" 's key constructs controls variables such as age, gender, the experience of those likely to use technology. Ventakatesh et al. (2003: 429) describe "the constructs as performance expectancy (PE) as a user believes that using technology to perform a job function will promote his performance, effort expectancy (EE) refers to the level of ease at which a user uses technology to perform a function.

4. METHODOLOGY

The study used a qualitative research method, because of its appropriateness to assist the research in answering the research questions to meet the research objectives. To Mutelo and Hamunyela (2019) the reason for using the qualitative method is that the method is particularly important in the behavioural sciences where the aim is to realise the basic motives of human behaviour.

Data was collected through an online questionnaire, where the link was shared with participants through email. The participants include two (2) professors, six (6) lecturers, one (1) senior lecturer, and fourteen (14) students. A questionnaire was used to obtain qualitative data and data was analysed using thematic analysis.

5. DATA ANALYSIS AND PRESENTATION

The objective of the study as stated in the section is to explain the utilisation of LMS to academics to enhance digital transformation in higher education institutions. Data was collected from academics of different institutions in a developing country.

5.1 Questionnaire Data Collected

The type of HEI was to understand the types of institutions that have LMS in place.



Figure 4.1: Type of HEI Participated

The study was conducted in higher institutions, to find out as to what type of HEI participated, the results show that out of 17 participants who responded to this question (5.9%) fell under the

private category of higher education, and 16 out of 17 (94%). The results show that most of the respondents are from public HEI.

Work experience in HEI



Figure 4.2: Work experience

Out of the 23 engaged HEI participants, six (6)26.1% have less than 5 years working experience, four (4) 17.4% have worked between 10-15 years, eleven (11), 47.8% have worked about 5-

10 years in HEI marking it the largest groups of participants. The most experienced, only two (2) 8.7% of the 23 participants have worked for more than 15 years.

Position in Academia



Figure 4.4: Position in Academia and Course on Learning Management System

Figure 4.4 shows the response from 24 participants, with 58.3% students, and 42.7% composition of professors, associate

professors, senior lecturers, lecturers, Junior lecturers, and others. Most participants were students.

Courses on LMS



Figure 4.5: Course on LMS

A total of 24 participants responded to this question, eight (8) 33.3% of participants have more than 3 courses, and eight (8)

33.3% with one course. The lowest group 12.5% about 3 have 2 courses on LMS and five (5) have 3 courses on LMS.

The use Learning Management System in HEI



Figure 4.6: Learning Management System use

A total of 70.8% said Yes, 20.8% said NO, AND 8.3% said

HEI is implementing a Learning Management System

Maybe. Therefore, the majority feels it is mandatory to use LMS in HEI.



Figure 4.7a and b: HEI implementation of LMS

Figure 4.7 shows the feedback from participants when asked if their HEI has LMS. Out of 24 participants 21 said "YES" 87.5 percent, two of the 24 said No, their HEI have no LMS and 1 participant is not sure of their institution having LMS.

Furthermore, part of the 87.5% who indicated Yes, to their HEIs having LMS 87% are using the LMS, two of the 23 responded sometimes and 1 said not using LMS Therefore, this shows that most HEIs have LMS implemented.





Figure 4.8: Course on Learning Management System

The figure shows the number of courses each participant has on LMS, out of 24 respondents 13 said YES, marking it 54.2%, 7 said NO to their courses not on LMS, and 4 of participants two

(2) said maybe. This shows that even though LMS is implemented in HEI not all academics and students are using it even the majority said yes to HEI making it mandatory in figure 4.7.

Level of knowledge regarding the Learning Management System



Figure 4.9: Knowledge of Learning Management System

Figure 4.9 shows the participant's level of knowledge in LMS. The participants were asked to determine their level of knowledge in using LMS. Three categories of knowledge were offered from which the participants had to choose: High; medium and low. Figure 4.9 shows the distribution of the choices. The findings show that only 8 participants are at a high level 33.3%,

14 of the participants at the medium level (58.3%), and 3 at the lower level (12.5). For HEI with mandatory use of LMS, this shows that the largest group of participants in academia are not confident in using LMS. This could be because Figure 4.10 shows that only 15 out of 24 have received training to use LMS.



However, participants were asked in Figure 4.10 b if the training was relevant and helpful in their managing course on LMS. 16.7% of the participants disagreed, 8.3% said strongly disagreed, with 29.2% were neutral. On the other hand, another

8.5% strongly agree that the training was relevant and helped them manage courses on LMS. Only 37.5%, nine (9) agreed that the training was relevant and helped them manage courses on LMS.

Benefits of Learning Management System



Figure 4.11: Benefits of Learning Management System

Most participants are aware that LMS has benefits in HEI. When asked in Figure 4.12 to list benefits 22 participants, one responded that

"I am now able to set up students' materials through this system", "Easy to upload teaching materials such as notes, and videos presentations. Able to track student's participation in class and accessibility of materials. Use it for online assessment and assignments", "It allows me to create formative assessments, these are based on the various LOs and I can do diagnostics to gauge students' competencies vs expected LOs. Once done I then do corrective teaching where needed.", others say:

"Very convenient and easy to manage class, assessments, and communications with students, it helps with loading materials, setting up course assessments, managing course material, and giving feedback on time to students, easier making and offering lectures on LMS and reduce the cost of traveling to Campus".

Challenges faced by HEI when using the Learning Management System

Participants had several challenges categories in the following themes faced by their HEI:

Internet: Slow, not available, no connection, network challenges, no access, unreliable, Network stable.

Learning management systems; Not available, slow, it's not user friendly, the submission is always a struggle, lack of indepth knowledge and training, Notifications of activities announcements are not strong enough, Unrealistic expectations from the institution concerning LMS usage, because I was not trained well how to use it, sometimes our LMS is slow due to configuration challenges, network or maybe storage issues.

When participants were asked to further give details of the challenges they faced, participants had similar views. One of them said,

"Unavailability of LMS

Sometimes when I want to give an assessment, I have to ensure it is over a few days to counter the unavailability of the LMS due to a myriad of factors outside my and my students' control. It also brings the validity of assessments into question when students have to be granted additional opportunities due to these issues"., And another one had this to say,

"So far the only challenge is connection devices and data for students. The majority use their mobile phones meaning they cannot execute certain tasks directly thus creating interaction challenges",

And,

"It is always a challenge especially when students are new because most of them are not computer literate. Another challenge is internet access due to network coverage and disruption".

In addition, the rest of the participants cited similar challenges in themes 1 and 2.

• Improvement in the Learning Management System

About twenty (20) responded to these questions and different views were shared,

Others saying,

"My institution uses Moodle and MS Teams concurrently. I prefer an integrated system with a streaming function and not two separate systems. Moodle is excellent in everything except live session streaming due to their dysfunctional Webex (at least with my institution) so that needs improvements. Another challenge is that all LSMs need to provide alternative configuration options for session recording. Ms Teams for instance would record a video of very high quality which takes up a lot of time and data to access/retrieve the recording. Zoom on the other hand can be customized so users can choose accordingly meaning you can record a live video session for an hour which will hardly exceed 80MB.",

"Make it a zero-rated data platform and possibly make an offline version available considering the current electricity blackouts"., "Provide the pocket wifi for all who are using LMS", and make it user friendly, incorporate other assessments such as matching activities."

Others said they would improve the following by answering what they mentioned as challenges:

• Network, Avail internet, Make LMS easier to use, Improve the effectiveness of notifications, Make the features more visually appealing, Improve the system's capacity to function effectively and enact a vertical integration structure, Make it user-friendly, and incorporate other assessments such as matching activities.

Therefore, from the participant's views we can confirm that LMS in HEI, users are aware of LMS benefits and show interest to use. however, LMS is faced with many challenges that hinder its use by academics and students.

6. **DISCUSSION**

The study included institutions in developing countries, and the investigation discovered that 1 out of 17 respondents (5.9%) were in the private category of higher education, and 16 out of 17 (94%). The majority of participants' responses were from public HEI. Six (6) HEI volunteers participated in the study 26.1% have less than 5 years of job experience, four (4) 17.4% have worked between 10-15 years, eleven (11), and 47.8% have worked in higher education for 5-10 years, making it the largest group of participants. The study included 24 people, with 58.3% of them being students and 42.7% being professors, associate professors, senior lecturers, junior lecturers, and others. The vast majority of those who took part were students. Furthermore, 24 participants responded to this question, with eight (8) 33.3% having more than three courses and eight (8) 33.3% having only one.

The lowest group (12.5%) has two courses on LMS, while five (5) have three courses on LMS. Similarly, participants were asked to rate their level of proficiency with LMS. Participants were given three levels of knowledge to choose from: high, medium, and low. Figure 4.9 depicts the distribution of the options. According to the data, only 8 individuals are at a high level (33.3%), 14 are at a medium level (58.3%), and 3 are at a lower level (12.5%). This demonstrates that most participants in academia are not confident in utilising LMS in HEI with mandatory use of LMS. This could be because, as shown in Figure 4.10, only 15 of the 24 employees have received LMS training.

7. CONCLUSIONS

Learning management systems are extremely significant in higher education around the world. Because all study materials are centralised, students may simply access them at any time and from any location.

Everything is automated, from establishing courses to assigning tasks to grading, reporting, and feedback. The report suggests that higher education institutions in developing nations begin investing in the usage of learning management systems.

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