Lecturers' Readiness and Adoption of Leaning Management System in Nigerian Universities

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Abstract

Information and Communication Technology (ICT) has brought changes in all human activities in the 21st century and education is not an exception. This has rendered the existing teaching principles and methods unsuitable for the achievement of the educational objectives. In this paper, the researchers examined lecturers' readiness towards adoption of Learning Management System (LMS) in Universities in South-west Nigeria. The specific objectives of the study were to: (i) examine the readiness of lecturers towards using LMS in universities; (ii) examine the influence of gender, age and ICT skill on lecturers' readiness to adopt LMS. The population comprised of 6,252 lecturers in the six selected universities. Stratified, proportional and random sampling techniques were used to select 538 lecturers. The research instruments used for the study were validated researcher-designed questionnaire tagged "Lecturers' Readiness on LMS Adoption Questionnaire" (LRLMSAQ). The reliability coefficient of (LRLMSAQ) were 0.8. Four research hypotheses were tested. The data collected were analyzed using correlation, T-test and ANOVA. The findings of the study were that lecturers' readiness and adoption of LMS had positive significant ($b = 0.539$, $P < 0.005$), also, there was no significant difference in the responses based on gender, age and ICT skills of lecturers on their readiness to use LMS (Male = 4.0261, Female = 4.0278); (Young = 3.97; Old =4.02); and (skilled 3.96; unskilled 4.21) respectively. The study concluded that lecturers' readiness could guarantee successful adoption of LMS in Nigerian universities.

Keywords: *Lecturers' readiness, LMS adoption, Nigerian universities, moderating variables*

Background to the Study

Almost all sectors of human endeavor have witnessed operational changes as a result of the introduction of computers and its associated Information and Communication Technologies (ICTs). Educational institutions are not exceptions in this regard as the dictate by the emerging technology-driven society of the 21st century has no boundary. Hence, previous researches in the field of education have

revealed that the required skills and knowledge in the 21st century cannot be delivered without the use of appropriate technologies . Similarly, revealed that there are inadequacies with regards to the provision of facilities and instructional materials in Nigerian tertiary institutions. Therefore, tertiary institutions are incapacitated to deliver the 21st century skills and knowledge.

Defined stakeholder as the constituency of any organization. Following this definition, Learning Management System (LMS) lecturers are those affected by it. So, students, instructors, educational institutions, employers and others are considered to be some of the main stakeholders of eLearning and LMS. Therefore, the acceptance and success of LMS in Nigeria depend on the degree to which the needs and concerns of its stakeholders especially lecturers are met depending on cultural background, and this was reported in . Consequently, the potential developments that e-leaning can provide to the Nigeria Institutions are affected directly by the adoption and attitudes of its lecturers. Thus, in order to adopt a new technology in Nigeria institutions, lecturers cannot be ignored .

Improvement on teaching and learning in traditional higher education courses can be supported by an introduction of LMS . LMS provides facilities for design, development and sharing of learning materials, individual and group learning activities, evaluation and assessment of student work, management and administration of course work at classroom and organisational level . LMS with its orientation to student-centred teaching, which is not content-driven but activities-driven, supports the individualization of the study process i.e. student-centred teaching. LMS can significantly impact the development of new organisation of higher university teaching and learning and blend traditional organisation with eLearning . Individual student's progress can be tracked in the process of learning and adopt teaching and learning approaches to the individual learning style, prior knowledge and abilities.

LMS supports various teaching and learning methods for individuals, peers and group learning. Again, effectiveness, efficiency and quality of teaching and learning can additionally foster communication patterns with synchronous and asynchronous communication modes. The computer mediated communication (CMC) with its "integrative nature has led to a rather spectacular transformation: The CMC has been able to replace the traditional oral dimension of education without destroying but with improvement in the classical face-to-face classroom situation. LMS serves as an integration tool in the planning, operationalization and monitoring of teaching-learning task. It serves as a team office for students, where all theory, tasks, communication, reports and business information were located. Since all activities except for class lessons and for milestone deliveries were up to students, a lot of work and collaboration took place at home and in their free time. Group and reverse brainstorming, for example, were undertaken on LMS team forums, where all members of a team, located in different places (home, library, internet café etc) all over the country, had to attend at the same time.

During the COVID-19 pandemic era, there has been widespread implementation and adoption of Learning Management Systems (LMS) across various levels of education, both locally and internationally. Among the widely published work is that, that addressed the increasing need for online collaborative learning in Nigerian educational systems due to the COVID-19 pandemic . The study seeks to assist instructors in achieving pedagogical goals, organizing course content, collaborating, monitoring, and supporting students' online learning. This was achieved by developing an Android-based system, implemented, and tested to be robust and achieve predefined goals. It was developed using the Rapid Application Development (RAD) methodology and provides a secured and reliable platform for implementing online learning in schools, colleges, and universities in Nigeria. Similarly, analyse how the COVID-9 pandemic imposed a change globally especially in the area of digital transformation between lecturers and students. The introduction of digital technology to aid learning management system is a show of lecturer interest in advancing traditional system of learning. The impact of LMS assessments over-time indicate an adequate way forward in solving higher education problems in Nigeria .

Although LMS seems to be an optimal solution that would solve some of the higher education problems in Nigeria, still it is not utilised according to its capacity (Afify, 2011; El Gamal, 2011; Hegazy & Radwan, 2010). Therefore, to make LMS more familiar, and to successfully adopt this technology in higher education, it is necessary to understand some of the LMS stakeholder group's perception, readiness and preferences in the Nigerian context. A number of studies have investigated the perception of LMS and social awareness. Unfortunately, the studies have come to their conclusions based on sampling only students as the main LMS users.

Among the numerous studies is the case where many colleges and universities are seeking to evaluate and enhance their education and teaching systems. study focuses become blending classroom and practical teaching, emphasizing both on-campus and off-campus experiences. proposes an AI-driven evaluation and adjustment of college education systems. By integrating AI algorithms, particularly reinforcement learning's actor-critic approach, into instructional design, the system aims to enhance students' understanding, mastery, and application of knowledge. Initial results suggest that AI-driven designs are well-received by students and yield higher evaluation scores compared to traditional methods. Overall, study that seems students centred, uses the AI-driven teaching system aims to strengthen practical abilities and enhance students' technical knowledge, ultimately improving their overall quality and innovation skills.

work discusses teaching an introductory programming course using interactive and collaborative learning methods, addressing challenges of traditional lecture-based approaches, particularly for freshmen. Interactive platforms and tools, such as repl.it classroom and online eBooks, were utilized alongside in-class exercises, assignments, and lab projects. Collaborative learning was introduced through

teamwork on projects, facilitated by task management tools and repl. It's multiplayer feature. Pre- and post-surveys were conducted to evaluate the impact of this approach, showing increased student motivation, engagement, and learning outcomes for entry-level computer science students. Like many other studies, the LMS has been on focusing the use of LMS.

According to Wagner (2008), students are not only the significant LMS users, lecturers and others such as instructors, employers and government representatives should also be taken into consideration in order to build a complete picture that represents the Nigerian context.

The Influence of Age and Gender on the Adoption of Learning Management Systems

Despite the fact that prior researchers have empirically demonstrated the importance of several variables associated with the adoption of different technologies, especially, learning management systems, far little studies paid attention to the significance of the demographic characteristics of lecturers . Also, there are no much theoretical models explaining the role of demographic variables on the adoption of learning management systems. argued that, prior researchers have adopted a stationary approach towards understanding the factors that explain lecturers' readiness, intention and willingness to adoption of learning management systems at Technical Vocational Education and Training College. Thus, researchers exert less interest on the apparent influence of demographic factors on the relationship between contextual factors of technology adoption and the actual adoption of learning and teaching related technologies (Altawallbeh et al., 2015; Brown, Murphy & Hammond, 2020; Yakubu, Dasuki, Abubakar & Kah, 2020) Consequently, this present study aims at examining the moderating role of demographic factors such as; age and gender on the relationship between the factors that affect the adoption of learning management systems among lecturers in Nigeria.

Few theorists have considered the role of age in the context of technology adoption (Venkatesh & Morris, 2000). For instance, Venkatesh et al. (2003) revealed that age is a significant moderating factor on the relationship between perceived usefulness, perceived ease of use, subjective norm and behavioral intention to use technology. Similarly, Altawallbeh et al., (2015) employed hierarchical regression analysis to analyze the data collected from 450 university students in Jordan and examined the moderating effects of age and gender on the factors that affect users' intention to adopt e-learning. The findings of the study statistically demonstrated that, age and gender are significant moderating role on the relationship between different factors such as (attitude, subjective, norms and perceived behavioural control) and intention to adopt e-learning technology.

In another study conducted on behavioural intention of educators in higher institutions in Kenya, Africa, employed both self-administered questionnaire and face-to-face interview to survey 600 respondents involving educators, students and

administrative staffs from three different universities in Kenya. The findings revealed that, age of users, gender and experience moderate the relationship between expected performance, enabling infrastructures, institutional policies, training support and leadership and ease of effort use and the adoption of learning management systems.

In addition, many technologies acceptance-based studies have considered and reported the significance of age, gender and experience at different levels . The implication of these findings is that, people have different reactions and attitude towards the adoption of technology and these reactions are manifestation of their demographic features which include; their age, gender and their experience of technology usage . For instance, argued that, males have more favorable attitudes towards technologies than females. Females generally experience greater computer anxiety and negative perceptions than males. Meanwhile, the perception of both male and female might not be different towards the usage and adoption of technology (Leong & Saromines-Ganne, 2002).

Also, indicated that age have a salient moderating effect on the relationship between performance expectancy and behavioral intention. Stressing that, younger people are more enthusiastic to use technology than old people. Similarly, examined the moderating effect of experience on performance expectancy, effort expectancy and facilitating conditions on technology acceptance and found no significant moderating effect. study analyzed students' adoption of Moodle at Hashemite University in Jordan, using the Unified Theory of Acceptance and Use of Technology (UTAUT). It found that performance expectancy and effort expectancy influenced students' intentions to use Moodle, while social influence did not. Behavioral intentions and facilitating conditions directly impacted actual usage. Therefore, this present study considers the moderating impact of gender, age and experience on the adoption of learning management systems.

In addressing the concerns in this research, the following hypotheses were formulated:

***H0$_1$**: There is no significant relationship between Lecturers' Readiness and Adoption of LMS in selected universities;*
***H0$_2$**: There is no significant difference between male and female lecturers in their level of readiness to use LMS in selected universities;*
***H0$_3$**: There is no significant difference between old and young lecturers in their level of readiness to use LMS in selected universities;*
***H0$_4$**: There is no significant difference between ICT skilled and unskilled lecturers in their level of readiness to use LMS in selected universities.*

Methodology

Survey research method was employed to collect data using a self-administered questionnaire. The study investigated lecturers' readiness and the role of moderating variables of (Gender, Age and ICT skills of lecturers) on the adoption of LMS among Nigerian universities. In addition, because the target population of the study is individual lecturer and the unit of analysis in this study is considered individual. The target population for this study constitute the 6,252 lecturers in the government owned universities in the six states of South-west Nigeria, to reflect a good representation of the six states of the geo-political zone and also to capture all generations based on year of establishment.

The universities were stratified based on federal and state institutions, while the purposive sampling technique was employed to select four federal and two state universities in the South-west of Nigeria based on their location and ownership, this implies that six out of 15 government owned universities in South-west Nigeria were sampled for this study. Proportional sampling technique was used to select 538 respondents out of the 6,252-target population which signifies 8.7% of the population, apparently, this allows the researcher to determine the number of adequate respondents from each of the sampled universities. The selected universities were named universities A to F.

A questionnaire tagged “Lecturers' Readiness on LMS Adoption Questionnaires' (LRLMSAQ) were administered to the teaching staff of the selected universities. The entire items adapted in the questionnaires for the measurement of the variables understudied in this research were answered using a five-point scale. The use of a five-point scale format is considered the most appropriate because it has been found to enhance the reliability of measures and reduce social desirability bias that could lead to contamination of the substantive results (Hair et al., 2014). The instrument was subjected to both content and construct validation. Cronbach's alpha was used to test the construct validity using a pilot study. As part of the data collection procedure, the researcher applied for authorization and permission to collect data from the officials of the targeted universities prior to the time of data collection. Collection of data was carried out through a process of responses to paper and pen survey questionnaires. A maximum of 30 minutes was devoted to respond to the questionnaire. The researcher and/or assistants were responsible for the distribution and collection of research instrument. The assistant researcher was properly briefed and trained to enable him/her acquire a desired professional ethics for a smooth data collection exercise.

The unanimous rule of thumb established by most experts is that an acceptable Cronbach's Alpha value must be higher than 0.600. Following this rule of thumb, Table 1 shows that the Cronbach's alpha values of the items of the measured variables in this study are considered acceptable.

Table 1 Cronbach's alpha values of Items

Variables	Number of Items	Cronbach's Alpha
Lecturers' Readiness	11	0.771
Adoption of LMS	6	0.639

The quantitative data were coded and analyzed using Statistical Package for Social Sciences (SPSS). Various descriptive methods were used for preliminary, demographic, correlation and regression analysis to show the relationships and the degrees of such relationships for the adoption factor (Lecturers' readiness) involved in the study. Independent Sample T-test was used to examine the moderating effects of the moderating variables involved in the study.

Results and Discussions

$H0_1$: There is no significant relationship between Lecturers' Readiness and Adoption of LMS in selected universities

The result presented in Table 2 revealed the relationship between lecturer's readiness and adoption of LMS ($b = 0.534$, $p < 0.05$). The result indicates that, there is a significant relationship between Lecturers' Readiness and Adoption of LMS. Therefore, this hypothesis is rejected thus alternative hypothesis that "there is no significant relationship between Lecturers' Readiness and Adoption of LMS in selected universities" is accepted.

Table 2: Testing Hypothesis $H0_1$

Coefficients

Model		Unstandardized Coefficients		Standardized coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.435	.183		7.827	.000
	LR Mean	.635	.046	.534	13.941	.000

a. Dependent Variable: LMS-Mean

Testing Hypothesis $H0_2$ the Moderating Effect of Gender

The findings presented in this section is to test the $H0_2$ which in other words is to identify the significant difference between male and female lecturers' level of readiness to use LMS in selected universities. For this purpose, Independent Sample T-Test and Levene Test were conducted to compare between means of both female and male respondents. Hence, to examine the significant difference between male and female. Table 3 shows that there was no significant difference in the mean of male (4.0261) and female (4.0278) scores. Furthermore, the Levene test revealed that, there is no significant difference between male and female lecturers' readiness to adopt LMS. Therefore, this hypothesis is accepted

Table 3: ***Independent Sample T Test on the Differences Between Genders***

	Gender	N	Mean	Std. Deviation	Std. Error Mean	Levene's Test for Variance
Adoption of LMS	Male Female	198 252	4.0261 4.0278	.35705 .41243	.02537 .02598	F 1.880

Testing Hypotheses ($H0_3$): The Moderating Effect of Age Group

This hypothesis is formulated to examine the differences between the age groups of the respondents namely; youths and adults. This is in the aim of determining the moderating role of age on the level of lecturers' readiness to adopt LMS. For this purpose, the respondents in this study were divided into two groups of youths and adults. The youth group consists of respondents between the ages of 20 and 39, while, the adult group entails the respondents with the ages between 40 and 60. The results presented in Table 4 shows that, there is a slim difference between the mean scores of youths (3.97) and adult (4.02) group. The result of the Levene's Test shows that, there is no significant difference between youth and adult lecturers ($p < 0.751$). On this basis, this hypothesis is accepted. This result implied that, there age does not moderate the relationship between the readiness of lecturers and their adoption of LMS.

Table 4: Independent Sample T Test on the Differences between age groups

	Age Groups	N	Mean	Std. Deviation	Std. Error Mean	Levene's Test for Equality of Variances	
						F	Sig.
Readiness	Youth	240	3.9795	.45298	.02924	.101	.751
	Adult	249	4.0208	.44767	.02837		

Testing Hypotheses ($H0_4$): The Moderating Effect of ICT Skill

The fifth hypothesis suggests that, there is no significant difference between ICT skilled and unskilled lecturers on their level of readiness to adopt LMS. To test this hypothesis, Independent Sample T-Test was conducted using Levene's test to determine the equality of variances between two groups of ICT skilled and unskilled lecturers. For the purpose of grouping the lecturers, the researcher recomputed and grouped the respondents based on their level of familiarity. Both the "Not very familiar" and "Somewhat familiar" were considered as unskilled group. As shown in Table 4, this grouping amounts to 85 unskilled respondents. Furthermore, both the "Very familiar" and "Exceptionally familiar" were grouped as skilled. This group amounts to 397 respondents. The result presented in Table 5 revealed a significant difference between the mean scores of the ICT skilled (3.96) and Unskilled (4.21)

groups. Furthermore, the result of the Levene's test evinced that, there is a significant difference between the ICT skilled and unskilled lecturers ($p < 0.05$). On this basis, the $H0_5$ is rejected. This result implied that, there is a significant difference between the ICT skilled and unskilled group suggesting that, ICT skill moderates the level of LMS readiness among lecturers. This suggestion is clearly demonstrated in the differences in the mean scores between the groups. The mean score of skilled respondents is greater in comparison with the mean of unskilled respondent. With this result, there is need for digital skill acquisition programme for Lecturers to create a leverage.

Table 5: Independent Sample T Test on the Differences between ICT Skilled and Unskilled

	Not very familiar and somewhat	N	Mean	Std. Deviation	Std. Error Mean	Levene's Test for Equality of Variances	
						F	Sig.
Readiness	Youth	85	3.9615	.50817	.05512	4.139	.751
	Adult	397	4.2094	.43996	.02208		

In summary, the findings revealed as follows:

(i) The estimated value of ($b = 0.534$, $p < 0.05$) indicates that, there is a significant relationship between Lecturers' readiness and Adoption of LMS.

(ii) The result of t-test showed that there was no significant difference in the mean of male (4.0261) and female (4.0278) scores. Therefore, there is no significant difference between male and female lecturers' readiness to adopt LMS.

(iii) Given the result of the Levene's Test, there is a slim difference between the mean scores of youths (3.97) and adult (4.02) group. It means that there is no significant difference between youth and adult lecturers ($p < 0.751$). This result implied that, age does not moderate the relationship between the readiness of lecturers and their adoption of LMS.

(iv) **It was** revealed that there exists a significant difference between the mean scores of the ICT skilled (3.96) and Unskilled (4.21) groups. This implies a significant difference between the ICT skilled and unskilled lecturers ($p < 0.05$). Thus, ICT skill moderates the level of LMS readiness among lecturers.

Conclusion

Lecturer's readiness and self-efficacy has not been complemented by institutional

policy implementation which implies that adoption of LMS in Nigerian universities cannot be successful without the policy been put in place. Unlike in the previous studies, gender and age of Lecturers do not influence their readiness to use LMS. Thus, they exhibit no moderating effect in this domain. ICT perceived self-efficacy positively influenced the readiness of lecturers to use LMS. Therefore, emphasis should be placed on ICT self-efficacy to pave way for successful adoption of LMS. Thus, perceptions of Lecturers about using LMS in Nigerian universities should be greatly considered to pave way for its successful adoption.

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