Determining the Attitudes of Biology Lecturers towards the Use of Learning Management System for Instructional Delivery in North-Eastern Nigerian Public Universities.

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ABSTRACT

The purpose of this study was to determine the attitudes of biology lecturers towards the use of learning management system for instructional delivery in north-eastern Nigerian public universities. Survey design was adopted for the study, Stratified random sampling technique was used to classify fourteen public universities into six states and simple random sampling was used to select six public universities, one from each state in the area of the study. A questionnaire titled attitudes of biology lecturers towards the use of learning management system for instructional delivery in north-eastern Nigerian public universities (ABLTLMS) were used as instruments for data collection. The ABLTLMS was validated by three expert (Lecturers) from Science Education Department, the reliability of the instrument was determined using Cronbach alpha and a reliability coefficient of 0.92 was obtained. Data collected were analyzed by using mean and standard deviation and the hypotheses were tested using independent t-test where P is at 0.05 level of significance. The findings revealed that Biology lecturers have positive attitudes towards the use of Learning Management System for instructional delivery. The study recommended that; the universities should subscribe for more Learning Management System facilities, support the biology lecturers to maintain their positive attitudes towards use of Learning Management System.

Key words: *Leaning management system, Lecturers attitude, and Public universities.*

INTRODUCTION

The call for utilization of information, communication and technology (ICT) in various educational sectors is to infuse and inject efficiency and effectiveness in curriculum implementation. The advancement in ICT has revolutionized teaching and learning environment in different ways. Lecturers and students can easily access wealth of knowledge online, engage in synchronous and asynchronous learning, collaborate with one another and share information. Many tertiary institutions have integrated ICT into teaching and learning to prepare their students for work in modern society especially in developing countries (Dahlstrom, Brooks, & Bichsel, 2014).

Instructional technologies can enrich learning settings by showing things that are far away, those that took place in the past, those that are minute to see, too large to bring to class, too complex to understand at sight or things that cannot be seen, heard or perceived by other channels (Alghamdi & Bayaga, 2016). Due to rapid technological changes, instructional technologies have become part and parcel of the teaching and learning process. The use of instructional technologies can help to reduce the length of time, distance, cost of accommodation required for instruction leaving more time for practice of skills for the subject being taught. Most instructional technologies are effective in the delivery of content and also helps sustain learners' interest. Moreover, the students can study details of their courses at a time and place more convenient to them, this may aid effective learning (Epping, 2014). It is also observed that more modern media are also making it possible for lecturers to use all their senses. According to Epping 2014, any instructional setting or otherwise can become a classroom with the aid of instructional resources like tapes, records, films, transparencies, filmstrips and slides.

Nigerian education system was targeted by Boko Haram, Bandits and other criminals assaulting schools, students and teachers in North-Eastern Nigeria and disrupting access to education and social services, especially for young people. Teachers have been threatened and in some cases killed. Schools have been damaged and destroyed, and often transformed into shelters for internally displaced people (IDP) (BBC, 2021). Schools that remain in operation across Borno, Adamawa and Yobe states are overcrowded and unable to meet the needs of the host population and the IDP. In some states of North-Eastern Nigeria, dozens of schools have been closed for years because of insecurity. For a region with a high rate of dropout students, this is a massive disruption to gains that have been recorded in recent year made worse by the year 2020 restriction imposed because of COVID 19 (BBC, 2021).

Among the virtual form of learning that have gained acceptance in teaching and learning is learning management system (LMS). A Learning Management System (LMS) is web-based software that supports instructional planning, delivery, mentoring, tracking, and reporting of learners' progress in learning. However, there has been a strong craving for technology integration into teaching and learning particularly in Nigerian universities (Liverpool, Marut, Ndam, & Oti, 2016). An LMS is a set of software package that support administration of one or several courses to a student or group of students in a centralized repository resources (online) environment. Goh, Hong and Gunawan (2014) defined LMS as "a course management application that provides 24/7 accessibility to course materials". It is a platform that assist lecturers and instructors in delivering instructional resources, supports knowledge sharing and communication among students (Nair, 2011; Mabed, & Kohler, 2012; Choo, & Rahmat, 2013).

According to Goh *et al.*, (2014), the LMS learning process entails the use of three broad categories of technological tools: Real-time social media channels-WhatsApp, Telegram, YouTube, Facebook; Asynchronous learning processes which involve the use of a Discussion board and Digital library; and Video conferencing tools such as Microsoft Teams, Zoom, Google Hangout, WebEx, Skype, Google Meet, etc.,

However, researches have shown that effective learning takes place through interactive and collaborative learning approaches using ICT integrated learning environment such as LMS (Choo & Rahmat, 2013). In learning management system there is an e-learning on-line system in the form of portal where in students and lecturers can perform or share many of their classroom activities using the internet. Lecturers and students are able to interact outside the classroom through online forms and discussion more easily as opposed to learning in the real classroom (Alharbi & Drew, 2014).

The integration of LMS into the teaching and learning of biology by extension will facilitate instructional delivery and improve students' achievement in biology. The interactivity and intercreativity that will flow from the use of LMS in teaching and learning will increase students' participation, interest, and enhance their performance (Moses, Ali & Krauss, 2014).

However, Nigerian Universities are facing numerous problems from insecurity to lack of accommodation, insufficiency of water supply, low level of electric power, classroom over crowded, road traffic accident among others. The use of information technology facilities can help to resolve these issues by mean of providing the

lecturers with LMS facilities which help in providing students with course materials and other resources for individual learning (Alghamdi & Bayaga, 2016). Martin (2014) reported that many universities and higher educational institutions are embracing the use of LMS to facilitate teaching and learning activities and the effect associated with lack of LMS facilities or inadequate use of LMS can be seen in poor academic performance of students and their daily life struggle difficulties (Alharbi & Drew, 2014).

In other hand, readiness is a state of being prepared internally and externally to engage in a particular activity. Fisseha (2017) affirm factors such as attitudes, motivation, awareness, skills and management support as factors affecting lecturers' readiness to use computer during classroom session. The way students relate and interact with internet technologies are complex and they identify with its value and benefits, nonetheless they need lecturers without genders specification (being male or female) to guide them while using for educational purposes (Eristi, Kurt & Didar, 2012).

Also gender roles are the pattern of behaviors, attitudes and expectation association with a particular sex, with being either male or female. For clarity psychologists sometimes distinguish gender differences which are related to social roles from sex differences which related only to physiology and autonomy. Using this terminology, gender matters in teaching more than sex, the differences have to do with physical behavior, styles of social interaction, academic motivation behavior and choice. In recent years, gender studies have reflected an aspect of life which gains massive benefits from the utilization of technology (Martin, 2019). In the wider education sphere, gender differences have been recorded in term of classroom interaction, teaching practice, skills acquisition, information literacy behavior, professional development and reading habits (Alesina & Giuliano, 2013). Lecturers use technology in teaching when there exists positive attitude about such usage, both for effectiveness of the lecturers and for the learning outcome of their students. Lecturers attitude towards technology shape not only the lecturers' personal experiences but also the experience of the students being taught (Eristi *et al.*, 2012). Hence, successful adoption of technology in classroom depends largely on the school's administrators providing an individualized, differentiated process of training and implementation to the educators (Gray, 2017). The readiness to use e-learning fostered by the development of positive attitude by the university lecturers toward technology acquisition of requisite skills and external factors such as the institutional readiness which includes the school provision of e-learning enable environment as well as frequent motivation of staff to engage technology for classroom instructions (Fisseha, 2017).

Readiness or preparedness also has to do with awareness, availability, attitude to use as well as getting skilled and management support in the use of information technology. Padmavathi (2016) asserted that the degree of preparedness of lecturer to use ICT is traditionally measured in terms of their knowledge, skills and attitudes regarding the computer. This is also relevant in the case of lecturers' knowledge, skills and right attitudes have also been identified as important factors in lecturers' preparedness to use ICT (Wong, 2012). Therefore, the level of lecturers' readiness will be dictated in this work by their level of awareness, motivation, skills, availability, and attitude to information technology.

Lecturers' readiness in teaching and learning is very important in producing and creating effective teaching and learning methods (Jusoh, Chamili, Yahaya, & Pa, 2012). These highly-spirited teachers will frequently use various kinds of relevant approaches in their teachings in the classroom that makes learners assimilate information. Moreover another study in 1988, found that teachers' readiness and suitable teaching approaches had a highly significant relationship to the levels of student motivation, academic achievement and overall perception on the effectiveness of the lessons (Jusoh et al., 2012).

It is with the above factors in mind that the researcher want to determine the Attitudes Of Biology Lecturers Towards the Use of Learning Management System For Instructional Delivery In North-Eastern Nigerian Public Universities and challenges that institutions may face when adopting LMS and what factors should be taken into consideration before adoption.

PURPOSE OF THE STUDY

The Specific Objectives of this study was to:

1. Determine the attitudes of biology lecturers towards the use of learning management system for instructional delivery in North-Eastern Nigerian public universities.

RESEARCH QUESTIOS

In order to carry out the research, the following research question was formulated in line with the objectives of the study:

1. What is the attitude of biology lecturers towards the use of learning management system for instructional delivery in North-Eastern Nigerian public universities?

Theoretical Framework

This research is based on Technology Acceptance Model. The Technology Acceptance Model (TAM) was propounded by Fred

Davis in the year 1986. Davis' model anchored on Fishbein and Ajzen Theory of Reasoned Action (TRA). TAM modified TRA's attitude measures by focusing its intent on two technology acceptance cognitive beliefs, namely: ease of use, and usefulness (Fishbein, & Ajzen, 1975; Park, 2009).

The theorists believed that TAM is meant to explain reasons why an individual can accept or negate ICT by adapting TRA (Davis, 1989). To achieve the objectives of TAM, which is identifying reasons why lecturers fail to use ICTs facilities provided to them by management, how external variables influence information technology (ICT) users' belief, attitude, and intention, Davis extended TAM to include five psychological variables: "perceived ease of use, perceived usefulness, attitude toward using, behavioral intention to use, and actual system use" (Davis, 1989; Jonas, & Norman, 2014).

Davis (1989), argued that ease of use and perceived usefulness of LMS tool are the major determinants of actual system use and the two factors are influenced by external factors such as availability of LMS, administrators' support, LMS integration skills and positive attitudes of lecturers toward LMS integration. Behavioral intention refers to the degree of likelihood of an individual adopting the LMS facilities or tools. Still in Davis (1989), one of the major approaches of increasing LMS use in instructional delivery is by increasing its acceptance by user. This can be achieved by making deliberate inquiries on the lecturers to determine their awareness and future aspiration to use the LMS facilities in instructional delivery. Identifying the factors that influence lecturers' readiness would guide managements to manipulate the identified factors to increase users' acceptance and use of LMS for instructional delivery.

Authors are in agreement that one of the benefits of TAM is that as a theoretical model, it assists in explaining and predicting users' attitudes over ICT (Legris, Ingham, & Collerette, 2013). This has to do with degree to which a lecturer or student believes that the use of LMS will assist him/her in academic activities and set goals (Jonas, & Norman, 2014). This theory guides this study by helping the researcher to work under the assumption that if the lecturers' attitude towards LMS integration is positive, their perceived usefulness of LMS integration in instruction improves. At the same time, if the lecturers have the necessary LMS integration skills, have the required facilities necessary for LMS integration and they receive enough support from the University's administration in term of motivation, their perceived ease of LMS integration would improve. These two factors will lead to actual LMS integration in teaching and learning, which in turn leads to improved achievement in Biology.

TAM is related and relevant to the intent of this study because the extent to which biology lecturers believe that LMS will improve their performance in instructional delivery will determine if they accept it and if they will use it or not

METHOD

The research design used in this study was survey research design to find out biology lecturers' readiness to use Learning Management System for teaching in North-Eastern Public Universities of Nigeria. A survey research design is a procedure in quantitative research in which the researcher administers a survey or questionnaires to a sample or to the entire population of people to describe the attitudes, opinions, behaviors or characteristics of the population (Creswell, 2012).

The study was conducted in north-eastern public universities of Nigeria. North-Eastern Nigeria is one of the geopolitical zones of Nigeria consisting of Adamawa, Bauchi, Borno, Gombe, Taraba and Yobe state. The region is located between latitude 9^0 to 14^0N and longitude 8^0 to 15^0E. The area occupies a land mass of 280,419km^2 (National Bureau of Statistics [NBS], 2017). According to National Population Census [NPC] 2020 the region has population of 294,7062 people based on 2006 annual population growth rate of 3%. The main economic activities in the area include; farming (crop and livestock), hunting, fishing, food processing, transportation and craft with inputs largely source from government. The average population density is 89 persons per km^2, while the mean annual rainfall ranges from less than 250mm in Northern Sahel to 1500mm in the derived Savannah in line with the southern part and has a unimodal pattern (NPC, 2020) The vegetation of the zone ranges from sahelian in the extreme north of Yobe and Borno states to the derived savannah at the southern tip of Adamawa state. Three distinct sub-zoning of farming systems are discernible from north to south. These are arid (with less than 500mm of annual rainfall), semi-arid (with rainfall range of between 500-1000mm) and sub-humid (with rainfall range of between 1000-1500mm). Millet, sorghum and wheat cultivation are predominant in arid and semi-arid sub-zones, wheat, sorghum, cowpea, maize, cotton and rice feature predominantly in arid and semi-arid sub-zones. The crops growing period in most of the zone range from 90-140days. Beside crops, livestock rearing and fresh water fishing is two major activities of the zones. Crop production is the major occupation of the people in the zone and the driver of the economy. The region through it farming activities is making great contribution to the nation food security. The major ethnic groups across the region include Fulani, Hausa, Gerawa, Kanuri, Bachama, Mumuyi, and Tangale among others. The region is

bordered with republic of Cameroon and Chad in the east, Niger republic in the north, Jigawa, Kano and Plateau states in the west and the Benue and Plateau state in the south.

The population of this study consisted of all biology lecturers in public universities within North-Eastern Nigeria. All the fourteen public universities are offering biology education and biological science in North-Eastern Nigeria with the exception of Nigerian Army University Biu and Gombe state university of science and technology Kumo who offer only biological science.

The sample for this study was 213 biology lecturers. Stratified random sampling was used to classify North-eastern public universities into six states (federal and state universities), after the stratum, simple random sampling (balloting) was used to select one university from each stratum. According to Mugenda and Mugenda (2003), where time and resources allow a researcher should take as big as a sample as possible. This is because the smaller the sample, the bigger the sampling error.

In this study, data was collected by using questionnaire named 'Biology Lecturers' Readiness to Use Learning Management System for Teaching in North-Eastern Nigerian Public Universities' (BLRLMS), this was adapted from previous study by Johnson, (2015) tittle "Readiness of Pre-Service Teacher to Use ICT in Teaching Biology in Senior Secondary School in Taraba State (RPTICTTB). This was done because a researcher can adapt a measuring instrument from previous study relevant to the current research (Churchill, 2019). BLRLMS has two (2) parts A and B. Part A is demographic of the respondent which include gender, years in services, high qualification, university, faculty and the department. Part B has five (5) sections, the first section was on awareness of LMS (ALMS) with ten items and five scales; very much aware, aware, undecided, not aware, very much not aware, the second section was on availability of LMS (AVLMS) consist of twenty items and two scales of available or not available, the third section was on the attitude of biology lecturers towards use of LMS (ATBLMS) has an eleven items with five scales; strongly agree, agree, undecided, disagree, strongly disagree, the fourth section is on the university administrators' support towards use of LMS (ASLMS) containing a thirteen items and five scale of strongly agree, agree, undecided, disagree, strongly disagree and the fifth section (last section) has thirteen items on a biology lecturers' skills for effective use of LMS (BSLMS) with five scales of highly possess, moderately possess, undecided, fairly possess and lowly possess. (The detail can be seen in Appendix A and B).

According to Baykul (2000), the content validity of the instrument was established by experts' judgment. In order to ensure only that the instrument used in this study met its validity, the instrument was given to three experts in the field of biology in the faculty of Technology Education, Abubakar Tafawa Balewa University Bauchi., for the content and face validity. Their suggestions were incorporated to produce the final copy of the instrument and the evidence of validation (validation form) can be seen in Appendix D.

The reliability of the measurement instrument was established by testing the internal consistency of the measurement items. This was done by using Cronbach alpha because Cronbach alpha is recommended for social science research and is used quite frequently as a technique of measuring the internal consistency of the questionnaire items (Sekaran & Bougie, 2013) To determine the reliability of the instrument for this study, a pilot study was conducted in an area that is not included in the area of the study.

A pilot test was carried out in Federal University Dutse (FUD), thirty (30) biology lecturers were tested in order to determine the consistency of instrument. The purpose of this pilot study is to confirm the suitability, adequacy and effectiveness of the instruments (Kerlinger, Fred and Howard, 2000). The data generated from the pilot survey was subjected to data analysis to determine the internal consistency of the measuring instrument. The reliability coefficient of 0.922 was determined (see, Appendix C for detail). The results suggested that the instrument is reliable based on the recommendation given by Hair, Hult and Sarstedt, (2013). According to them Cronbach alpha coefficient of at least 0.70 is considered satisfactory and acceptable.

An introductory letter was collected by the researcher from the office of Head of Department Science and Technology Education, Abubakar Tafawa Balewa University Bauchi. The letter was used by the researcher to introduce himself to the sampled universities, it contains the name of researcher, registration number, course of study, research topic and also explained the purpose of the study. Therefore, this letter was used to get approval from the authorities of the respondents. Because of the widest area of the study, in order to ensure speedy data collection, seven (7) research assistants were trained on how to administer and retrieved the instrument which was lasted for fourteen (14) weeks, these research assistants are from various universities which include Unimaid, FUG Gashua, FUK Kashere, TSU Jalingo, and MAUTECH Yola. The research assistants aided in guiding, filling, observing and retrieving the instruments. After respondents completed the instrument immediately, the collected data were prepared for data analysis.

The data collected were analyzed by using Statistical Package of Social Sciences (SPSS) as follows. Descriptive statistics that involve means and standard deviation was used to answer the research questions 1, 3, 4 and 5 and the research question 2 was answered by used of percentage and the corresponding hypotheses where tested using t-test at 0.05 level of significance.

RESULTS

The result of descriptive statistics on the attitudes of biology lecturers toward use of learning management system in public universities presented in Table 5, indicated that all the items of the variable "attitudes of biology lecturers toward use of Learning Management System for instructional delivery" having mean scores of above 3.0. The mean scores of items were ranged from 3.38 to 4.30 and have a grand mean of 4.02. This result indicated that the biology lecturers in public universities in North Eastern Nigeria have the positive attitudes towards the use of Learning Management System for instructional delivery.

Table: Mean and Standard Deviation of Biology Lecturers Attitudes Towards the use Learning Management System (ATBLMS).

S/No	Statement	N	Mean	S.D	Remark
1	LMS helps me improve my work better	213	3.38	1.275	**Agreed**
2	LMS helps me organize my work better.	213	3.48	1.135	**Agreed**
3	LMS allows me to do more interesting and imaginative work	213	3.42	1.221	**Agreed**
4	LMS makes my work more productive.	213	3.50	1.287	**Agreed**
5	LMS are easy to use and adaptable to my needs.	213	3.46	1.159	**Agreed**
6	I find it easy to use LMS in delivering my lectures.	213	3.47	1.203	**Agreed**
7	I feel confident in using LMS	213	3.85	1.058	**Agreed**
8	I feel confident in solving LMS challenge	213	3.80	0.936	**Agreed**
9	As a lecturer, I will advise other lecturers to embrace LMS for instructional processes.	213	4.30	0.703	**Agreed**
10	During teaching and learning, I and my students prefer using LMS.	213	3.95	0.862	**Agreed**
11	If I have access to LMS, I will always use it to teach Biology courses.	213	4.19	0.715	**Agreed**
	Grand Mean		**4.02**		**Agreed**

Source: Fieldwork 2022

DISCUSSION

The finding of the study shows that the biology lecturers in public universities in north eastern Nigeria received have positive attitude towards use of learning management system for instructional delivery in their universities and there was no significant difference between mean rating score of male and female biology lecturers on their attitude towards used of learning management system for instructional delivery. The analysis revealed that all responses to the statement (items 1-11) have the mean score values greater than 3.0 and grand mean of 4.02. This indicated that biology lecturers in public universities in north eastern Nigeria have a positive attitude towards the use of learning management system for instructional delivery. The finding corroborate with that of Adesina (2018), Nas (2019) and William (2020) who found that lecturers have confidence in the ICT capacity and ICT regarding e-learning. Lecturers possessed preparedness on ICT integration and do access to on line technology. The finding of this study is also in line with the results of SkillBuilder, (2019), Alghamdi and Bayaga (2016) and Badri, Rashedi and Mohaidat (2013) which stated that LMS help the users to improved their work better, Allows them to do more interesting and imaginative work, Makes their work more productive, Have confident of using LMS, feel confident in solving LMS challenges during teaching and learning.

CONCLUSION

This study determine the Attitudes of Biology Lecturers towards the Use of Learning Management System for Instructional Delivery in North-Eastern Nigerian Public Universities. Positive attitude, administrators' support and skills for the use of LMS for teaching biology in north-eastern Nigerian public universities, this means that they are ready to adopt LMS for instructional delivery. University management and NUC should enforce the integration of LMS in instructional process in all north eastern universities this will facilitate the teaching of biology courses, encourage change for better with the use of LMS and justify the government efforts and investment in modern technologies in Nigerian universities.

RECOMMENDATION

The universities should support the lecturers to maintain their positive attitude by providing them with ICT gadgets and more LMS facilities for instructional delivery.

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