LECTURERS' AWARENESS, READINESS AND ATTITUDE TOWARDS THE **UTILIZATION OF LEARNING MANAGEMENT SYSTEMS FOR INSTRUCTIONAL DELIVERY IN COLLEGES OF EDUCATION NIGER STATE, NIGERIA**

BY

NUHU, Frama Victor
Mtech/SSTE/2017/6790

DEPARTMENT OF EDUCATIONAL TECHNOLOGY,
FEDERAL UNIVERSITY OF TECHNOLOGY MINNA, NIGER STATE.

MAY, 2021

ABSTRACT

This study investigated lecturers' awareness, readiness and attitude towards the utilization of Learning Management System for instructional delivery in Colleges of Education in Niger State, Nigeria. Descriptive survey research design was employed and lecturers at the faculty of education were sampled for the study. The population for this study constituted all lecturers from faculty of education in colleges of education in Niger State. The sample size for this study was made up of 86 lecturers from the faculty of education in the selected institutions. Six research questions were answered and three null hypotheses were formulated and tested at 0.05 alpha level of significance. A 23-item questionnaire was used as instrument for data collection. The questionnaire was validated by two educational technology experts. Pilot test was carried out and reliability coefficients of 0.72, 0.82 and 0.75 were obtained for awareness, readiness and attitude variables respectively. Data collected from the administration of the research instrument were analyzed using descriptive statistics of Mean and Standard Deviation for research questions and inferential statistics of t-test analysis for research hypotheses. A decision rule was set, in which a mean score of 3.0 and above was considered agreed, while a mean score below 3.0 was considered disagreed. Findings revealed that lecturers are aware of the existence of Learning Management System with a grand mean of 3.98 which was greater than the decision mean of 3.0. Also, lecturers ready to adopt it for their teaching with a grand mean response of 3.98 which was greater than the decision mean of 3.0. Also lecturers have positive attitude towards the adoption of Learning Management System for instructional delivery with a grand mean of 4.05. Based on these findings, it was recommended that government in collaboration with school administrators should put in place the facilities that will encourage the use of various Learning Management System platforms by lecturers in order to improve the quality of their teaching.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

Appendix

Page

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Study

Information and Communication Technology (ICT) within a very short time, has emerged as one of the basic constructing blocks of modern society. Many countries including Nigeria now regard understanding ICT and getting to know its fundamental capabilities and concepts as a critical need in education. This is because Information and Communication Technology adds values to the approaches of learning and to the organization and administration of learning institutions (Mulder, 2008). ICTs are broad range of technologies that are facilitated by electronic means in the acquisition, processing, transmission, dissemination and storage of information in form of text, voice, graphics and video. The high demand placed on education by our society can be effectively responded to through the use of technological tools in all educational sectors in Niger State. With the advancement in technology, digital resources such as; prints, audio, video and software among others can be used, re-used, adapted, copied (Mulder, 2008).

The advancement of information and communication technology (ICT) and the internet has been the driving force behind new mode of teaching and learning which has transformed the entire academics settings and altered the educational equation in a fundamental way, therefore, using ICT is an essential tool in supporting and creating new approaches of teaching and learning (Aduwa-Ogiegbaen, 2013). Also, the usage of ICT creates a new learning environment and transforms teaching and learning techniques into an avenue where lecturers and learners can interact with knowledge

medium in an energetic and optimistic way through the use of internet facilities through different digital learning platform.

The computer has changed society in the 21st century as much as the industrial revolution changed society in the eighteenth and nineteenth centuries. One may interact with computers in many fields of which education is left out. Others discipline includes health care, science, publishing, travel, and engineering. Computers are used in education, among others, as an electronic means of supporting teaching and learning (Al-Mutairi, 2015).

Today, educators are turning to computers to assist with education by the use of digital technologies to support teaching and learning. Due to the advantages and benefit with the use of Information and Communication Technology (ICT) in teaching and learning process, governments of countries in the world tend to provide policy and implementation support for ICT in order for schools to use e-learning to support teaching and learning. The widespread use of the internet, and the ease of using the technology tools to browse the extensive range of information resources and services on the web have made digital teaching very effective and popular in teaching and learning field especially in higher institution (Aljarrah, 2011).

Higher institutions around the world have increasingly adopted information and communication technologies (ICTs) and the Internet as tools for teaching, curriculum development, staff development and student learning (Usluel *et al*., 2008). Institutions in developed countries are extensively using ICTs and the Internet to develop alternative options for delivering courses to students, a task that entails guaranteeing the effective use of technologies in facilitating communication and activities that support education (Alkhalaf *et al.,* 2012). Employing such innovations ensures that the learning

process continues to move forward, regardless of where or when it occurs. Given that the Internet is an excellent information source, educators can use specific web-based applications such as learning management system (LMS) as teaching resources. These applications, which are often termed e-learning platforms, enable lecturers to provide students with different materials and to interact with them in real time even when they are not located in the same physical space. This platform also allows faculty lecturers to track the evolution of the learning process and monitor student performance on specific tasks (Martín-Blas & Serrano-Fernández, 2009). In recent years, higher institution around the world have become increasingly interested in digital learning to meet the growing student population, provide a broad and fast information base, and open up other areas of communication between students and teachers and among students themselves on the other hand through the use of information and communication technology (Khaddash and Al-Hadhrami, 2006).

The integration of information and communication technology into teaching and learning has been the focus of 21st century innovative education. Specifically, the application of computer technology in classroom environment continues to play a vital role in enhancing teaching and enriching learning (Falode, 2018). Through the emergence and use of Learning Management Systems (LMSs) in schools for instance, teaching and instructional delivery is being shifted from traditional to technology-enhanced method.

Learning management system are web-based tools for conducting quality online teaching and training. They are platforms for user management in their interaction with educational content that is created and presented in a suitable format (Angelova *et al*., 2015). LMSs are software applications meant for the administration, documentation, tracking, reporting and delivery of educational contents. They help teachers deliver

instructional content to students, and also help to administer tests and assignments, track student progress, and manage the classroom situation. Prabha and Sanjeev (2015) stated that LMSs help to deliver and manage instructional contents to the learners, help to adequately handle students' registration, course registration and other personal details of the students for administrative purpose, help to track students' academic progress and reports of student work and also provide performance management systems which encompass learners' appraisals, competency-based learning management, and multi-rater assessments.

On daily basis, the number of LMSs is increasing and the choice of the most appropriate one depends on its suitability to users, service provided and cost implications (Angelova *et al*., 2015). Dobre (2015) classified LMSs into three (proprietary LMSs, open-source LMSs, and cloud-based LMSs). Proprietary LMSs are platforms licensed by developers so as to produce profits through vendors (for example, Blackboard, D2L, and eCollege), open-source LMSs are platforms made publicly available to the source code and available free of charge to all users (for example, Canvas, Moodle, and Sakai) while cloud-based LMSs are convenient and low-cost way of using an array of cloud-based tools in higher education institutions (for example, Amazon Web Services Talent, and WizIQ) (Dobre, 2015). The utilization of this innovative LMSs for instructional delivery depends on several factors which include its' availability, accessibility, and level of awareness and readiness of stakeholders.

Awareness can be regarded as the state of being informed about the existence of an innovation. It can be described as the state of consciousness of a thing and it can to a large extent determine whether an individual will accept or reject such thing. For instance, Edumadze *et al*. (2014) attributed the failure of lecturers to use e-learning tools to low level of awareness and proficiency in usage. For lecturers to use LMS

platforms for instructional delivery in institutions of higher learning, there is the need for them to be aware of it, know its' features, benefits and procedures for usage.

Awareness can be generated in the forms of seminars and announcements through emails and higher institutions webpage. After this stage, training for using this LMS must commence starting with the basic going to the advanced skills such as developing e-content. What is needed is the full force and commitment by the institutions as a whole to ensure not only a successful adoption of e-learning but also the adoption is effective and efficient. The adoption of LMSs by teachers does not only depend on their level of awareness as they may be aware but not ready to use it for instructional delivery. Readiness refers to the state or condition of an individual that makes it possible for him or her to engage profitably in a given activity. It can be regarded as the preparation and anticipation for a task. Borotis and Poulymenakou (2008) described readiness as the mental or physical preparedness of an individual for electronic teaching and learning. Schreurs, Ehlers and Sammour (2008) stated that, for a particular technology to be adopted in teaching and learning, stakeholders' readiness must be ensured.

This was buttressed by Falode *et al*. (2016) that, technologies meant for distance learning require mental, physical and financial readiness, also positive attitude on the part of the users before success can be recorded. Readiness of lecturers to use learning management system for instructional delivery requires discipline in using appropriate instructional strategies for delivery instruction.

Attitude is the behaviour, feelings, pre-disposition of someone towards a particular thing/object whether good or bad, positive or negative and so on. Attitude plays an important role in the

Teaching and learning process. lecturers attitude toward the use of learning management system for content delivery must be taken into consideration. Willingness

to use LMS as a lecturer will have an effect on the online interaction with the learners. Attitude is a summary evaluation of a psychological object captured in such attribute dimensions as good-bad, harmful-beneficial, pleasant-unpleasant, and likable-dislikable (Ajzen, 2001).

Beliefs influence attitudes which are considered the basis of behavior. In other words, having a negative or positive view influences the intention of performing or not performing in an activity, or the amount and quality of participation. A positive attitude starting from the school administrators can spread to the teaching faculty in the school and hence to the classroom and the students. People's positive or negative attitudes towards any issue will influence their degree of acceptance and the nature of their interactions.

1.2 Statement of the Research Problem

The uses of information and communication technology (ICT) have become an essential part of learning and teaching. In this regards, digital learning becomes a key factor in teaching field Alkhalaf *et al.* (2012). The introduction of ICT in teaching has opened new horizons for teachers to have more interactive and learner-centered classroom environment.

The mode of learning in educational sector is changing, given that the growth of ICTs has dramatically reshaped the teaching and learning processes. Learning management systems (LMS) are computer programs that integrate functions for teaching, evaluation and administration of courses. LMS have many features which include sharing of documents, discussion board, assessments, grade book and chat room. LMS is increasing in higher education especially in developed countries, but many lecturers in developing countries like Nigeria, especially in Niger state use only the parts or functions that replace older techniques for reproducing and distributing documents. The

instructional significance of Learning Management Systems as innovative instructional delivery platforms is enormous. If adopted, teaching becomes easier, lecturers become more efficient and learners' performance would be greatly improved. Despite the enormous benefits and several learning management systems that exist currently, it is not definite whether lecturers in colleges of education in Niger state are utilizing those platforms for instructional delivery in developing country like Nigeria, especially colleges of education in Niger state. Could it be because lecturers in colleges of education in Niger state are not aware? If they are aware, what is their attitude towards its usage? If they have positive attitude, are they ready to use it? Hence, the need for this study (Edumadze *et al*., 2014).

Thus, this study is carried out to investigate lecturers' awareness, readiness and attitude towards the utilization of LMS's for instructional delivery in Colleges of Education in Niger State, Nigeria.

1.3 Aim and Objectives of the Study

This study investigated the awareness, readiness and attitude of lecturers towards the utilization of Learning Management System for instructional delivery in Colleges of Education in Niger State, Nigeria. Specifically, the study had the following:

1. To Determine the awareness of lecturers on Learning Management System in Colleges of Education in Niger State.
2. To Determine the readiness of lecturers to utilize LMS for instructional delivery in Colleges of Education in Niger State.
3. To Assess the attitude of lecturers towards the utilization of LMS for instructional delivery in Colleges of Education in Niger State.

4. To Examine the influence of gender on the level of awareness of lecturers on LMS in Colleges of Education in Niger State

5. To Examine the influence of gender on the readiness of lecturers to utilize LMS for instructional delivery in Colleges of Education in Niger State.

6. To Examine the influence of gender on the attitude of lecturers towards the utilization of LMS for instructional delivery in Colleges of Education in Niger State.

1.4 Research Questions

The following research questions were raised to guide the study:

1. To what extent are lecturers in Colleges of Education in Niger State aware of the existence of learning management system?
2. To what extent are lecturers in colleges of education Niger state ready to utilize learning management system for instructional delivery in Colleges of Education in Niger State?
3. How does the attitude of lecturers towards the utilization of learning management system for instructional delivery in Colleges of Education in Niger State?
4. To what extent does gender influence the level of awareness of lecturers on learning management system in Colleges of Education in Niger State?
5. To what extent the influence of gender on the readiness of lecturers to utilize learning management system for instructional delivery in Colleges of Education in Niger State?
6. How does male and female lecturers' attitude differ towards the utilization of LMS for instructional delivery in Colleges of Education in Niger State?

1.5 Research Hypotheses

The following null research hypotheses were formulated tested at 0.05 level of significance:

HO_1: There is no significant difference in the ean response of male and female lecturers on awareness of Learning Management System (LMS).

HO_2: There is no significant difference in the mean response of male and female lecturers' readiness towards the utilization of LMS for instructional delivery.

HO_3: There is no significant difference in the mean response of male and female lecturers' attitudes towards the utilization of LMS for instructional delivery.

1.6 Significance of the Study

Findings of this research would be of benefits to Lecturers, Students, Government and Non-governmental organization and Researchers.

Lecturers would benefit through this study because awareness would be created among lecturers on innovative teaching platforms and this will help them be more efficient in the discharge of their teaching responsibilities. They can also use the platform to interact, pass relevant information and manage academic progress of the students.

Students would benefit from this research, because it would help them to realize that there are several learning platforms which can complement their learning activities. It would also enlighten them that their technological tools such as phones can be used for informative and educational purpose rather than using them for entertainment only. It will also increase their level academics achievement, retention and development of student's skills.

This work will stir up government and non-governmental organization in the field of technology and education to emphasize the importance of learning management system during seminars, meetings, workshops and conferences so that the lecturers will be aware of the existence of LMS and its usefulness in academic setting.

Findings of this work could also be of great help and a reference points to researchers who would like to embark on related work in the future by carrying out a similar study in other tertiary institutions in Niger State or the federation at large. It can also serve as a source of literature to the researchers.

1.7 Scope of the Study

The study investigated lecturers' awareness, readiness and attitude towards the utilization of LMS for instructional delivery in Colleges of Education in Niger State, Nigeria. The geographical scope of this study was limited to Niger State, Nigeria. The study was carried out in the Colleges of Education in Niger state. Niger State is one of the six states in the North-Central geopolitical zone of Nigeria. Lecturers in colleges of education in Niger state served as respondents and the independent variable is the learning management system (LMS) while the dependent variables are awareness, readiness and attitude and the moderating variable is gender. The study lasted for six weeks.

1.8 Operational Definitions of Terms

Attitude: behavior or feeling of lecturers about learning management system towards its use for instructional delivery.

Awareness: ability of lecturers to perceived, feel or be cognizant of learning management system platform for educational content delivery.

Information Communication Technology: broad range of technologies that are facilitated by electronics means in the acquisition, process, transmission and dissemination of information inform of text, voice, graphics and videos to create platform for instructional delivery.

Learning Management System: tools for conducting quality online teaching and training by lecturers in institutions of learning.

Readiness: preparation and anticipation of lecturers to use learning management system for instructional delivery.

Utilization: The act of using learning management system for educational content delivery by lecturers in institutions of learning.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Conceptual Framework

2.1.1 Information and Communication Technology in the 21st Century

In this 21st century, we are living in a world where Information Communication Technology (ICT) is being diffused into almost all spheres of human activities at an unprecedented rate. Alongside this development, is an intense debate on the contribution of this technology towards productivity and growth on the one hand; and human welfare on the other in both developed and developing countries. Internationally, the spread and appropriation of ICTs has been a key dimension of globalization, urging societies to build communications systems, manage them well; develop infrastructure and capacity to use it; and implement good policy and regulation (Kuyoro *et al*., 2017). The role of Information and Communication Technologies (ICTs) in the 21st century has been described as vital to keeping abreast with rapidly changing technologies.

The term Information and Communication Technology (ICT) is a confluence from information technology (IT) and communication technology (CT). ICT is technology that supports activities involving information. Such activities include gathering, processing, storing and presenting data. Increasingly these activities also involve collaboration and communication. According to Khan *et al.* (2015) information communication technology refers to technologies that provide access to information through communications. Also, ICT is an umbrella term that includes any communication device, encompassing radio, television, cell phones, computer and network hardware, satellite systems and so on, as well as the various services and appliance with them such as video conferencing, distance learning, e-learning, learning management system and so on. A more pertinent role of information and

communication technology (ICT) is the transmitting, transferring, inculcating desirable goals and values through education that cannot be overemphasized in any society (Akarowhe, 2017).

Information Communication Technology (ICT) has numerous definitions. Some scholars professed it to be a term that entails a lot of actions involving the acquisition, storage, processing and information dissemination through the use of suitable hardware and software designed for such purpose (Abubakar, 2010). Womboh and Abba (2008) explained that ICT and Information Technology (IT) are comparable concepts that can be interchangeably used. According to them IT suggests communication and therefore the two terms are synonymous. ICT therefore can be seen as device, software and materials that help to encode, decode, and transmit information.

Information and Communication Technology (ICT) refers to a range of technologies that are applied in the process of collecting, storing, editing, retrieving, and transferring information in various forms. In recent years, there has been an exponential growth in the use of ICT tools and this has made great impact both on society and on people's daily lives. It is therefore not surprising to see the increasing interest, attention and investment being put into the use of ICT in education all over the world (Saddam, Gellie & Shelanee, 2012). Information and Communication Technology (ICT) has taken a vital role in all spheres of human life and their role in the educational development has been seen to be pervasive. This clearly shows that ICT now serve as a backbone for the development of a society in all aspects (Abubakar, 2010). This means for a nation that desires growth, ICT cannot be left out because it will go a long way in the development of a nation generally.

The developments on Information Technology (IT) led to Information and Communication Technology (ICT) through the advent of Internet, broad wave transmission energy and broadband connections to enable a broader application of information in education, business and so on (Onuma, 2007). Information and Communication Technology (ICT) is defined as computer instruments used by people to work with the information and using technology to process the needs of an organization. It includes both hardware and software computer components and several other devices such as audio, audiovisuals, visuals, video, photography, camera and so on that convert information into common digital form. Onuma, (2007) stated that ICTs are wide range of technologies that is enabled by electronic means in the acquisition, storage, process, transmission and dissemination of information in form of text, voice, graphics and video.

The rapid growth in Information Communication and Technologies (ICTs) has brought remarkable changes in the twenty-first century, as well as affected the demands of modern societies. ICT is becoming increasingly important in our daily lives and in our educational system. Therefore, there is a growing demand on educational institutions to use ICT to teach the skills and knowledge students need for the 21st century. Information and communication technology has become, within a very short time, one of the basic building blocks of modern society. Agbetuyi and Oluwatayo (2012) also lay emphasis on the effective usage of Information Technology to produce new way for learning that is self-directed as one of efforts to improve achievement of the student.

2.1.2 Roles of Information and Communication Technology in Education

The philosophy of Nigeria on education is based on: fully integrating an individual into the community, developing an individual into a sound and effective citizen, and

provision of equal access to educational opportunities for all citizens at primary, secondary and tertiary levels. In order for the philosophy to be in harmony with Nigeria's national goals, education has to be channeled towards national consciousness, national unity, self-realization, individual and national efficiency, better human relationship, effective citizenship, as well as economic, social, cultural, political, scientific and technological progress (FRN, 2009). The national goals as stated on National Policy on education (FRN, 2009) are building of: A free and democratic society; A just and egalitarian society; A united, strong and self-reliant nation; A great and dynamic economy; A land full of bright opportunities for all citizens.

The evolution of Information and Communication Technology (ICT) and the Internet have been the (enabler) driving force behind new mode of managing teaching and learning process which has transforms the entire educational terrain and altered the educational system in a fundamental way (Aduwa-Ogiegbaen, 2013). ICT is therefore an important instrument in supporting and creating new methods of managing teaching and learning thereby developing students' and instructors' skills of cooperation, communication, problem solving and life-long learning. ICT integration is the blending of ICTs into the whole school structure of the school system.

The roles of ICT in the Nigerian educational system cannot be over emphasized especially in the process of integrating technology into educational activities. Aims and objectives of ICT implementation in education are: To implement the principle of life-long learning / education; To increase a variety of educational services and medium / method; To promote equal opportunities to obtain education and information; To develop a system of collecting and disseminating educational information; To promote technology literacy of all citizens, especially for students; To develop distance

education with national contents; To promote the culture of learning at school (development of learning skills, expansion of optional education, open source of education, and so on) (FRN, 2009).

The application and use of ICT is beneficial in improving Nigeria's educational system and giving lecturers a good management of students' information and teaching experience and to students a better education. When the workforce is advanced technologically, it will lead to the expansion of ICT in Nigeria, with the potential to progress military technology and telecommunications, media communications and expert ICT professionals who will be well equipped to solve IT problems in Nigeria and other parts of the world (Goshit, 2006). The capacity to use computers efficiently has become a crucial part of everyone's education. This demand for computer and ICT literacy skill has increase in Nigeria, because employers realize that with the acquired skills workers can boost their efficiency and can go about their work efficiently. Employees on the other hand have also seen the need to be computer literates as they realized that computer can be a treat to their jobs, and having these required skills their jobs can be secured. Undoubtedly the need for educational institutions to make sure that lecturers are able to display appropriate levels of information and technology literacy, the ability to discover an issue, situate and assess relevant information so as to solve a problem arising from its emergence and the management of student's information is of necessity (Aduwa-Ogiegbaen, 2013). This simply means that for a lecturer to fit properly into the world of academic, he or she will need to familiarize him/herself to the use of ICT and are also required to be equipped with the basic skills so as to meet up with present-day qualities and requirement to be able to remain relevant in the academic environment. Institutions now see the need to train and re-train their workers to

establish or enhance their knowledge of computers and other ICT facilities (Adomi, 2006).

Information and communication technology has become an indispensable tool for quality education in the society. There is abundant evidence in the literature that ICT is a critical key to quality education for all. In education, ICT has become a subject of study on its own, it is also having a remarkable impact across all curriculum areas. According to Smaldino *et al.* (2008), in education information and communication technology can be used to aid management and administrative activities, as an object of instruction for teaching and instructional purposes. Using ICT as an object to aid management and administrative activities require knowledge and skills to be able to cope with challenges in educational system. Using ICT for teaching and instructional purposes focuses on the use of it to acquire an integrated set of knowledge and skills useful for dissemination of information in educational system and to effectively perform in the world of academic.

Agbetuyi and Oluwatayo (2012) stressed that, in Nigerian educational system, it is an interesting thing that ICT is also a transformational tool that has promoted shift to a learner centered environment. The quality of education and training has been improved as technological tools increases lecturers and learners' motivation and engagement, facilitating the acquisition of basic skills. The use of technological tools such as videos, televisions and multimedia computer software that merge text sound and colorful moving image is used to provide challenging and authentic content that engages the student to be more involved. Through the use of ICT learners and staff information can be well managed.

2.1.3 Usefulness of Information and Communication Technology

Modern information and communication technology tools are adapted and adopted by many institutions, and they are handy and most for free, captivating and exciting to adopt, which makes them necessarily important to be incorporated into education and most specially to enhance and enable learning (Hamid *et al*., 2014). The growth of global access, ease of use, resilience and functionality of ICT tools have turned them to become more attractive and interesting as flexible educational tools to be used in educational institutions of higher learning (Brown, 2006). Most authors proposed that ICT tools advocates for constructivist perspectives in education and that it has the possibility to connect online learning to a wider range of people compared to what is previously witnessed in the conventional educational environments (McLoughlin & Lee, 2008).

Educational technologies can enable resilience in educational process and also encourage trouble free publication, re-use of learning content, sharing of knowledge and description. They also encourage connections to important materials and resources in information setting that are controlled and administered by learners and instructors (Brown, 2006). Most literature works have exposed numerous usefulness of ICT tools for educational purposes. These are useful in enhancing learners' discussions, improving learning stimuli and experience and taking individualized subject materials (Racthman & Firpo, 2011). Using direct examples, the adoption of ICT educational tools has largely led to effective and competent operation of task (Tower *et al*., 2014). ICT pedagogical activities might improve learners' involvement in a classroom setting, most especially amongst learners with greater focus.

Furthermore, by adopting ICT educational tools, such as learning management system, instructors and learners are majorly seen to be more active members in creating their

own personal experience and idea (Preece & Shneiderman, 2009). Adopting ICT educational tools can build both teachers and learners stimulus, motivation and support their focus to details, which will further lead to a total improved quality of work. Rifkin *et al.* (2009) in their study notified that when teachers create and publish their content, materials or work online for numerous viewers or audiences, such works most times are firsthand, captivating and interesting for others to view; this leads to a more proper evaluation from colleagues.

The part ICT plays in education is fast becoming a pertinent and vastly deliberated issues in modern education policy. Majority of experts in educational line agreed that, if it is properly utilized, ICT possesses a huge capacity to increase instructional and learning aid to organize work force opportunities. ICT importance is very glaring from the educational approach. ICT adoption in classroom settings provides numerous usefulness since it builds a quality teaching and learning surroundings (Heide & Henderson, 2001).

Educational technological tools are most times seen as a booster for modification, alteration in teaching patterns, modification in assimilation processes and in retrieval of information or data. Rubina *et al.* (2011), perceived ICT as technological tools that creates access to data via communication tech tools; and also views its capability to be important to enrollment and participating in the contemporary information society. Educational technological tools can be adopted in discovering, developing, implementation, evaluation and presentation of information, and also to sample situations and issues and finally solve possible problems. Teaching and learning scene is the most important area for technology application. ICT tools can assist in creating optional opportunities for education (Casal, 2007).

ICT tools has also helped learning processes via numerous intelligence as it has revealed learning through games simulation; this allows for active learning via all senses (Gateway, 2014). Adoption of various ICT tools has been unavoidable for teaching and learning process. Through adopting ICT tools, instructors can create data and learning materials while learners can collect their expected data in a short range of time. Instructor can create and distribute electronic information, for example, e-journals, e-resources and can develop their teaching ability through various newer information and communication technology patterns of wireless connections, web, search sites, databases and web technologies, learning management system among others (Rubina *et al*., 2011). Information and communication technology will enable the achievement and immersion of knowledge, presenting growing nations like Nigeria an extraordinary prospect to improve pedagogical methods, advance strategy preparation and implementation, and broaden the variety of chances for commercial and the needy.

2.1.4 Challenges of using ICT in Education

Integrating ICT into teaching and learning is a complex process and one that may encounter a number of difficulties. These difficulties are known as "challenges". A challenge is defined as "any condition that makes it difficult to make progress or to achieve an objective" (Schoepp, 2005). The following are some of the key challenges that have been identified regarding the use of ICT tools in education.

Limited accessibility and network connection: Several research studies indicate that lack of access to resources, including home access, is a complex challenge that prevent instructors from integrating new technologies into education. Various research studies indicated several reasons for the lack of access to technology. In Sicilia's study (2005), instructors complained about how difficult it was to always have access to computers. According to Becta (2004), the

inaccessibility of ICT resources is not always merely due to the non-availability of the hardware and software or other ICT materials within the school. It may be the result of one of a number of factors such as poor resource organization, poor quality hardware, inappropriate software, or lack of personal access for instructors.

The challenges related to the accessibility of new technologies for instructors are widespread and differ from country to country. Empirica's (2006) European study found that lack of access is the largest barrier and that different challenges to using ICT in teaching were reported by instructors. Similarly, Al-Alwani (2005) found that having no access to the Internet during the school day and lack of hardware were hampering technology integration

School with limited technical support: Without both good technical support in the classroom and whole-school resources, instructors cannot be expected to overcome the obstacles preventing them from using ICT. In Sicilia's study (2005), technical problems were found to be a major barrier for teachers. These technical barriers included waiting for websites to open, failing to connect to the Internet, printers not printing, malfunctioning computers. Technical barriers impeded the smooth delivery of the lesson or the natural flow of the classroom activity. Korte and Hüsing (2007) argued that ICT support or maintenance contracts in schools help instructors to use ICT in teaching without losing time fixing software and hardware problems.

Lack of effective training: The challenge most frequently referred to in the literature is lack of effective training. The issue of training is certainly complex because it is important to consider several components to ensure training effectiveness (Ghavifekr *et al*., 2015). These were time for training, pedagogical training, skills training, and an ICT use in initial teacher training. Providing pedagogical training for instructors, rather than

simply training them to use ICT tools, is an important issue. They explained that this is because the courses only focused on teachers acquiring basic ICT skills and did not often teach instructors how to develop the pedagogical aspects of ICT.

Fundamentally, when there are new tools and approaches to teaching, instructor training is essential if they are to integrate these into their teaching. However, according to Balanskat, *et al*. (2006), inadequate or inappropriate training leads to instructors being neither sufficiently prepared nor sufficiently confident to carry out full integration of ICT in the classroom.

Limited time: Several recent studies indicate that many instructors have competence and confidence in using computers in the classroom, but they still make little use of technologies because they lack the time. A significant number of researchers identified time limitations and the difficulty in scheduling enough computer time for classes as a barrier to teachers' use of ICT in their teaching (Schoepp, 2005). According to Sicilia (2005), the most common challenge reported by all the instructors was the lack of time they had to plan technology lessons, explore the different Internet sites, or look at various aspects of educational software. These include the time needed to locate Internet advice, prepare lessons, explore and practice using the technology, deal with technical problems, and receive adequate training.

Lack of instructors' competency: Another challenge directly related to instructor confidence is instructors' competence in integrating ICT into pedagogical practice (Becta, 2004). Many teachers lacked the knowledge and skills to use computers and were unenthusiastic about the changes and integration of supplementary learning associated with bringing computers into their teaching practices. In the developing countries, instructors' lack of technological competence is a main barrier to their acceptance and adoption of ICT. Many instructors still chose not to use ICT and media in teaching situations because of their lack of ICT skills rather than for pedagogical/didactics reasons. Hence, lack of instructor competence may be one of the strong barriers to integration of technology into education. It may also be one of the factors involved in resistance to change (Becta, 2004).

2.1.5 Concept of Educational Technology

Education is a broad discipline that is responsible for changing behavior of individual with the help of suitable method, strategies and techniques of teaching and learning. From the past generations till date drastic changes have been observed in the field of education (Bates, 2015). In this modern era of science and technology, the complex process of teaching and learning has been modified and simplified by the use of technology which is nothing but application of modern tools in the field of education. A better understanding of educational technology can be derived by dividing the terms into two words: education and technology (Dugger & Nalik, 2001). Education is the process of acquiring and imparting cognitive, affective, psychomotor development on the part of the learner with a suitable strategy. Education is a discipline which is both science and art. It is a mixture of science of learning and art of teaching. However, technology refers to the systematic application of scientific principles in terms of tools, machines and other expertise to achieve an objective which as a result of use can design

and create new devices that enriches human productivity as well as solving the problems. Hence technology is applied for human development and worked as a problem solving inventions (Agboola, 2006).

Educational technology, sometimes shortened to EduTech, is a wide field. Educational technology as an academic field can be considered either as a design science or as a collection of different research interests addressing fundamental issues of learning, teaching and social organization. Educational technology as practice refers to any form of teaching and learning that makes use of technology (Perkins & Lowenthal, 2016). Educational technology includes numerous types of media that deliver text, audio, images, animation, and streaming video, and includes technology applications and processes such as audio or video tape, satellite TV, CD-ROM, and computer-based learning, as well as local intranet/extranet and web-based learning. Information and communication systems, whether free-standing or based on either local networks or the internet in networked learning, underlie many e-learning processes.

There have been several definitions of educational technology developed over time. The Association for Educational Communications and Technology (AECT) denoted instructional technology as "the theory and practice of design, development, utilization, management, and evaluation of processes and resources for learning. Educational technology is an application of scientific knowledge about learning and conditions of learning to improve the effectiveness and efficiency of teaching and learning (AECT, 2004). Lou *et al*. (2006), defined educational technology as "the study and ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources". According to UNESCO, Educational technology is a communication process resulting from the application of

the scientific methods to the behavioral science of teaching and learning. This communication may or may not require the use of media such as television broadcasts, radio, cassettes among others.

Spector (2013) define educational technology as a science of techniques and methods by which educational goals can be realized. It is helpful for preserving, transmitting and advancing the knowledge utilizing suitable tools and techniques such as computer, television, CD etc. Hence educational technology utilizes several machines such as television, radio, tape recorder, video tapes with principles engineering and principles of physical sciences and behavioral science for improving the teaching and learning process of education. According to Reiser and John, (2006), Educational technology deals with: analysis of instructional tasks/challenges and setting the educational objectives; selection and construction of suitable machine, tools, instrument; selection and use of appropriate techniques to run the machine/devices to achieve the educational objective; Integration of scientific and technological skills/ techniques with appropriate behavioral outcome.

Educational Technology (ET) aids plenty of resources to enhance the teaching skills and learning ability. With the help of ET, it is easy to provide audio visual education. Now with this vivid and vast technique as part of the ET curriculum, learners are encouraged to regard computers as tools to be used in all aspects of their studies (Anderson, 2003). In particular, lectures need to make use of the new multimedia technologies to communicate ideas, describe projects, and order information in their work. The significance includes: access to variety of learning resources; immediacy to information; anytime learning; collaborative learning; multimedia approach to education; authentic and up to date information; access to online libraries; teaching of different subjects

made interesting; educational data storage; distance education opportunities; access to the source of information; multiple communication channels, such as e-mail, chat, forum, blogs, video conference among others; access to open courseware; better accesses to learners with disabilities among others (Dugger & Nalik, 2001).

2.1.6 The Concept of Open and Distance Learning

Open and distance learning is a general term for the use of telecommunication and the internet to provide or enhance learning. It makes learners free from constraints of time and place and offer flexible learning opportunities to individuals and group of learners.

The Federal Ministry of Education (2002) defines ODL as any form of learning in which the provider enables individual learners to exercise choices over any one or more of a number of aspects of learning and distance learning as an educational process in which a significant proportion of the teaching is conducted by someone removed in space and/ or in time from the learner. Alaezi (2005) refers to open and distance learning as educational patterns, approaches and strategies that permit people to learn with no barriers in respect of time and space, age and previous educational qualification – no entry qualification, no age limit, no regard to sex, race, tribe, state of origin etc.

The provision of quality education to several people has been one of the struggles facing developing countries such as Nigeria. Experiences both nationally and internationally have shown that conventional education is extremely hard pressed to meet the demands of today's socio educational milieu especially for developing countries like Nigeria. The limitation of spaces in the universities imposes restrictions on access, thus this paves a way for open and distance education.

Open and Distance Learning (ODL) programme has been considered as one of the most important educational innovations in Nigeria. Open and Distance Learning has provided

opportunities for those who could not afford to leave their job to attend to full time conventional education. UNESCO, (2002) stated 'in efforts to meet the new and changing demands for education and training, open and distance learning may be seen as an approach that is at least complementary and under certain circumstances, an appropriate substitute for the face-to-face methods that still dominates most educational systems'. Open and Distance Learning (ODL) has offered access to many people who would have previously been denied access to educational opportunities based on where they live and work, poor-economic circumstances, social status among others. Open and Distance Learning remains the primary mechanism for the information-driven age, a tool that has bridged the gap between developed and developing communities (Morayo, 2013).

There are several approaches to defining the term Open and Distance Learning (ODL). Adebayo, (2007) defined open and distance learning as the type of education that takes place outside the conventional school system; it is imparted without necessarily having personal interaction with students or learners. Creed (2001) defined distance learning as 'an educational process in which a significant proportion of the teaching is conducted by someone far removed in space and /or time from the learners. According to UNESCO (2002), ODL is one of the most rapidly growing fields of education, and its potential impact on all education delivery systems has been greatly accentuated through the development of Internet-based information technologies, and in particular the World Wide Web presenting approaches that focus on opening access to education and training provision, freeing learners from the constraints of time and place and offering flexible learning opportunities to individuals and groups of learners.

Distance education aims at increasing access to education for those who have difficulty in accessing it within the mainstream such as the poor, illiterate, women, marginalized and those living in remote areas. Distance education is the means by which the teacher is taken literally to the student. It is a teaching and learning process in which students are separated from the teachers by a physical distance which is often bridged by communications technologies (Dhanarajan, 2001). Open learning on the other hand refers to policies and practices that permit entry to learning with no or minimum barriers with respect to age, gender or time constraints and with recognition of prior learning (Glen, 2005). Generally, open and distance learning education courses are made up of a number of course components or learning materials which can include any of the following: teaching texts, study guides, course guides, readers or anthologies, assignments (with or without an accompanying tutor guide), television broadcasts or videotapes, radio broadcasts or audiotapes, software or online information and data, CD-ROMS, textbooks and laboratory materials. Tuition materials are sent with questions to be answered, it could be recorded electronic materials and the students do this at their spare time. In addition, some students support may be provided, either through personal communication at local universities or through online student tutors. Both the media used for open and distance learning and the student support arrangements affect the possible level of interaction in open and distance learning courses.

2.1.7 The Evolution of Distance Learning in Nigeria

Distance learning in Nigeria dates back to the colonial time. Owoeye (2004) opine that since the colonial period, correspondence colleges from United Kingdom have provided intermediate and advanced level training to a number of qualified Nigerians via correspondence courses. Distance studies in Nigeria started around the 70s at the

University of Ibadan and this was followed by correspondence study, part time programs offered by conventional universities and other schools, continuing education programmes of Adult Education Department of the universities, programmes offered by the NTI, the National Open University of Nigeria and sandwich programmes offered by universities and other institutions. The sandwich programmes were established in the mid-80s and run by some Nigerian Universities and Colleges of Education. The sandwich programmes were originally designed and run during the school long vacations to create opportunities for participation by workers, especially teachers. These programmes are open to all categories of learners with varied entry qualifications ranging from Primary School Certificate, attempted School Certificate, School Certificate holders, TCII teachers, NCE and first degree holders. More women enrolled in this programme. This was to create access for those who are not able to make it to the conventional schools because of time and other factors (Owoeye, 2004).

The emergence of the system of ODL is an inevitable and unparalleled advancement in the history of educational development in Nigeria and internationally. Unlike the formal system of education which has its inherent limitations with regards to expansion, provision of access, equity and cost- effectiveness, the growth of open and distance mode of education has now made education flexible by providing increased educational opportunities to a larger population in different situations and needs. Thus, we are moving gradually from the exclusive, closed system mode of '' privileged'' access to education, towards a more inclusive educational model, which supports and is reflective of UNESCO's goal of Education for All for the 21st century (Morayo, 2013).

The practice of ODL in Nigeria takes various forms, which include correspondence study education, distance learning (Sandwich programmes), Part-Time Teacher

Training Programme (PTTP), Open University, weekend programmes, adult literacy education programmes, National Teachers Institute (NTI) and e-learning. From the beginning of correspondence courses during the first half of the 19th century to the modern conception of Open and Distance Learning (ODL), students have been provided with useful knowledge, skills, attitudes and abilities.

2.1.7.1 Relevance of open and distance learning to Nigerian education

According to Nwaocha. and Iyiama (2008) the relevance of ODL to Nigerian Education include the following:

Access: It increases people's access to education. People who would have found it impossible to attend the conventional school system benefit from ODL. Many stakeholders in the education sector are interested in open and distance learning because it allows greater access to educational opportunities. This is in keeping with the stated objectives of the National Policy on Education that 'maximum efforts shall be made to enable those who can benefit from higher education to be given access to it. Such access may be through universities or correspondence courses or open universities or part time, e learning and work study programmes (NPE, 2004).

Social Enhancement: Open and distance learning schemes hold a number of potential benefits for various stakeholders in the education and development process. To the learners, ODL means more freedom of access as well as a wider range of opportunities for learning and qualifications, thereby improving their social status. It is often cheaper means of attending school for the student since some people may not be able to leave their places of work to go to school for full time study. Men of the armed forces and other security agencies are registered in large numbers for distance learning to enhance their social status. (Nwaocha & Iyiama, 2008).

Economic Growth: ODL is an avenue for institutions to improve their Internally Generated Revenue (IGR). It is also an avenue for many people to become learned and be better workers in any profession they choose or are currently engaged in. Students are allowed to read up to whatever level they want, hence contributing to the economical growth of the nation through better performance. For employers, ODL offers the possibility of organizing in-service training for their staff without necessarily releasing them for long periods of productive time. With sufficient number of employees being trained, ODL is often the most cost-effective means (Nwaocha & Iyiama, 2008).

2.1.7.2 E-learning and its importance

Morgan (2003) explained e-learning as a learning method that includes an internet based features, supporting co-operation and access to resources that stretches far beyond the normal classroom setting. Equally to this explanation according to Morgan, e-learning was quite further differentiated from online and distance learning, as both online and distant learning are seen as more precise examples or courses involving e-learning. Explicitly online is adopted when referring to courses that possesses majority of online features and distance is adopted to courses that the teacher and learners are actually in same practical teaching and classroom setting or area.

Aside the initiative enlisted by Morgan, that e-learning supports the expansion of enrollment in institutions, grows their revenue, and enhances their goodwill and reputation and further more in the streamline of curricula; she further enlists e-learning's importance to instructors and students.

Flexibility: The highest gain e-learning gives to learners is increased flexibility, either in subject taking or in the entrance to subject materials. Modifications in activities or

family issues usually leaves learners not been able to undertake subjects on the school settings or on a set period. If subjects are taken online, learners usually have access to instructors and other subject materials on their own time and chance.

Improved and Revitalized Teaching: E-learning plans and strategies usually always includes course redesign. Teachers must often enroll into training and retraining before instructing online courses, and enhanced education outcomes when novel strategies are brought on board and there is a concerted aim to show learning objectives. Due to educational heads and faculty have a lot of worries on the quality of instructions, online education is usually more open to evaluation and review. At this, teachers and subject designers spend more efforts to build a structured, huge quality experience for learners (Kristina & Leslie, 2013).

Enhanced Learning Experience: The learning pattern now created by numerous LMSs enhance and quick response to learners with high information gathering and just-in-time evaluations. Learners can usually check their performances as against that of their colleagues, which is displayed to enhance learning and grow learner's ownership in their assimilation experience and involvement in the subject. E-learning enhances chances for cooperation between learners. Interaction of subject resources is no longer hindered to an hour period thrice weekly in a practical classroom setting. Learners can now and most times mandated to involve in interactions in an online platform that is related to the educational material. Study sessions are held online, send blogs about their learning experiences, and distribute information online among their colleagues regarding subject materials. This twenty-four hours' interaction usually goes beyond the period of the course (Kristina & Leslie, 2013).

Learners can have access to e-learning subjects' materials on numerous periods anytime they go online, leading to more chances to unify and integrate data. This can be specifically useful for learners with studying ailment or those for whom English is a second language. Learners who are quick readers and fast assimilators may excel, usually have lower dead period, and experience less frustration with the speeding content; exceptional learners may excel their path via degree programs more efficiently.

Improved Time to Degree: So many focus group participants during a study quoted that online subject taking enable learners finish school faster. Online subjects usually enable by growing the volume of the sections of a subject offered, the amount of learners who can enroll on a course or the rate with which a course is taken. This can be particularly needful when learners fail from required subjects which are among major subjects and should engage in retaking them before proceeding to the next subject level. More so, the focus group participant stated that workers and military students in particular are gaining through the flexibility of online subject enrollment and are viewing decreased time to degree (Jones, 2004).

Considering knowledge management, contemporary media pedagogy cannot be thought of without information technologies and it can be said that the part of e-learning is of endless importance. However, perhaps, it does not modify conventional education, it just broadens and perfects instruction methods. ICTs are intermediaries amongst learners and professors. Technologies can improve the value of pedagogy in numerous means: by growing student inspiration and involvement by enabling the attainment of rudimentary expertise, and by improving instructor teaching.

Technologies are also revolutionary devices which, when adopted properly, will support the move to a student focused surroundings (Virkus, 2008).

2.1.8 The Concept and Evolution of Learning Management System (LMS)

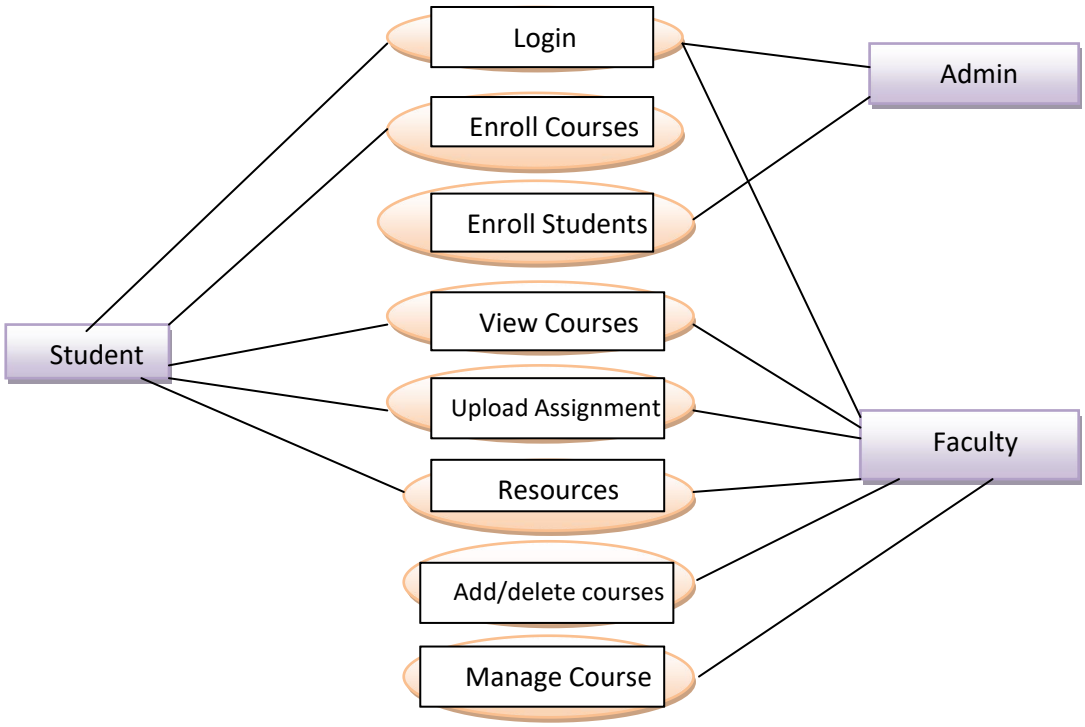

Figure 2.1: Case design for learning management system (Ankita and Sonia, 2013).

The software which is managing the learning process that is created in different types of platforms, either can be used in traditional IT or cloud-based are called "Learning Management System" (LMS). There are many types of LMS some are used to keep and maintain learning process, like web portals that assemble different links in the web and offer them to a learner, it may also view video files library to assist learner achieve their search (Kaewkiriya & Utakrit, 2012). LMSs are known by various names such as course management system (CMS), learning content management system (LCMS), virtual learning environment (VLE), and virtual learning system (VLS) (Wright *et al.,* 2014). The Learning Management System is the backbone of e-learning which provides the essential components required for hosting of the e-learning contents. The

Learning Management System is a software application which is used to automate the administration, tracking and reporting the education and training activities. According to Wright *et al*. (2014), learning management system is a software that is use in learning content presentation which have a significant role and complexity in e-learning environment. Dobre (2015), defined LMS as a software (web) application used to plan, implement, and assess learning processes. An LMS provides instructors with a way to create and deliver content, monitor learner participation, and assess performance. E-Learning is now becoming the primary delivery mode of the education in higher education sector.

According to Angelova *et al*. (2015) LMSs are web-based tools for conducting quality online teaching and training. They are platforms for interaction with educational content that is created and presented in a suitable format. LMSs are software applications meant for the tracking, administration, reporting, documentation and delivery of educational contents. They help lecturers deliver instructional content to students, and also help to administer tests and assignments, track student progress, and manage the classroom situation. The course related activity such as lecture, online assignments, discussion and quizzes are available to the students through this system. It provides common platform to both teacher and student for online learning and training (Prabha & Sanjeev, 2015).

Most general feature of any e-Learning system has: Centralized and automate administration; Uploading and publishing of course content; Delivery of course content over web-based system; Interaction between students and teacher, such as instant messaging, email, and discussion forums; Assessment and Grading. Other LMS may offer some kind of online exams and analysis the whole level performance in order to get to higher stage or level, while many other LMS can offer the learner some special

functions, this function may draw higher cost which mad it over budget for some learners (Kaewkiriya & Utakrit, 2012).

2.1.9 Types of Learning Management System

Learning management system are web-based tools for conducting quality online teaching and training. They are platforms for user management in their interaction with educational content that is created and presented in a suitable format (Angelova *et al*., 2015). LMSs are software applications meant for the administration, documentation, tracking, reporting and delivery of educational contents. They help teachers deliver instructional content to students, and also help to administer tests and assignments, track student progress, and manage the classroom situation.

2.1.9.1 Open Source LMS

The open source Learning Management System is a software which source code is available to public. Which allow anybody to copy and make changes without any restriction. The Open source LMS source code is freely available. It means that we can access the code customized according to our need without any license and copy right issue. For high level of customization according to our requirements. The open source e-Learning System are Moodle, eFront, sakai among others.

Moodle: Moodle (modular object-oriented dynamic learning environment**)** is a good alternative to proprietary commercial online learning solutions, and is distributed free under open source licensing. An organization has complete access to the source code and can make changes if needed. Moodle's modular design makes it easy to create new courses, adding content that will engage learners. It is free web based application available to the educator to create the online learning courses effectively. Moodle.org is the community site where Moodle is made and discussed. There are various features

available in Moodle such as Forums, Wikis, Databases and online student tracking, Grading and many more to build richly collaborative communities of learning around their subject matter, while others prefer to use Moodle as a way to deliver content to students (such as standard Shareable Content Object Reference Model (SCORM) packages) and assess learning using assignments or quizzes (Mirashe & Kalyankar, 2010).

Sakai: Sakai LMS is a community of academic institutions, commercial organizations and individuals who work together to develop a common collaboration and Learning environment. Sakai is also a free, community source, educational software platform distributed under the Educational Community License (a type of open source license). Sakai is used for teaching, research and collaboration. Systems of this type are also known as Course Management Systems (CMS), Learning Management Systems (LMS), or Virtual Learning Environments (VLE). The Sakai Project's software is a Java-based, service-oriented application suite that is designed to be scalable, reliable, interoperable and extensible (Bassam, 2018).

E-Front: E-Front has been designed to minimize the clicks to go from one point of the interface to another. The sidebar helps as a central navigation or search point throughout the system.

E-Front comes with a complete set of features to create content, tests, assessments, track progress, issue certifications and dozens of add-ons to support wikis, blogs, youtube videos, picture lists, external links etc. It has also been tested and improved from a wide community of users throughout the world that is very active and helpful. In all aspects, e-Front is a mature system that has been built to offer a rich learning experience, to be better than open-source systems and at the same time more effective than other

professional learning solutions. E-Front is certified for its compliance with Shareable Content Object Reference Model (SCORM) standard (Prabha & Sanjeev, 2015).

Forma LMS: Forma LMS is an open-source web-based e-learning platform used to manage and deliver online training courses. It's based on a network of companies that support its development and it's focused on corporate training needs, rather than on academic needs as many other open-source projects forma LMS is an open-source, web-based e-learning platform (Learning Management System - LMS), used to manage and deliver online training courses. It's based on a network of companies that support its development and it's focused on corporate training needs, rather than on academic needs as many other open-source projects (Dobre, 2015).

2.1.9.2 Cloud Based LMS

The idea of connecting users to the services like storing, retrieving and manipulating the data via the internet are called cloud computing, for instance a user can solve an acquisition or manipulate data using high performance system available only via the internet, some of these services are free to use, and some other may draw some cost to user, it is still optional as many services are offered to be paid as much as consumer need to use. Cloud computing is a powerful utility offered to users having the Internet connection, this utility is divided into three layers (Mirashe & Kalyankar, 2010).

Cloud-based LMSs have been introduced as a convenient and low-cost way of using an array of cloud-based tools in higher education institutions (Dobre, 2015). For instance, Google Drive can be used for document sharing and collaboration, Dropbox for file storages, Skype serve as communication tool, Flickr for photo sharing, and YouTube for useful video sharing. The use of LMS in cloud created a huge development change in the way the users think about using the internet as media for e-learning, and give

more flexibility for a user to learn and interact with learning system, users can create their accounts and benefits from different services available (Kaewkiriya & Utakrit, 2012). Example of some well-known LMS platforms based cloud computing, that provide wide verity of tools online to a learner includes.

WizIQ: This one of the biggest platforms offering LMS-based cloud globally, WizIQ was first established in 2007. Today WizIQ have around four hundred thousands of tooters to design and deliver different teaching materials in one platform to over four millions of users spreads around two hundred countries worldwide. With this LMS software user will be able to have actual experience of training that simulates the real time experience, this can be achieved using some fixable tools that aid user to design their own experiences like setup, ship and maintain their own training programs to reflect the user thinking and allowing learner to create their own environment (Hassan *et al*., 2017).

Docebo: Docebo LMS is known for it's easy to use front page with multi functions, user can be in full control of the system. Docebo make it possible for companies and organization to create their own platform as online learning brand, and it enable the learners to use the learning system as much as they pay for, using online trainer or mobile application. Docebo is serving companies as well as academic organization, with it you can have many models that gives multi options for learners to select from. Moreover, Docebo has the ability to support external interface systems like video conference and CRM (Creeger, 2009).

Litmos: Litmos is a cloud based learning management system, and it is situated in the Software as a service (SaaS) layer of the cloud structure. Litmos was basically designed and is frequently used to deliver online trainning courses for organizations members

(lecturers), giving a platform for many academic organizations, health care, small enterprise business and government different departments. This LMS was first developed and introduced at Silicon Valley in San Francisco Bay Area of California, United States. Right now there are around four million subscribers in Litmos (Hassan *et al*., 2017).

TalentLMS: TalentLMS is a SaaS eLearning platform, and it's very powerful platform to create e-learning courses, design the content, plan for test and do survey among your learners. All this can be achieved with many fixable tools and utilities provided to ease learner work and because of all this they call it course management system (CMS) (Creeger, 2009). This platform is frequently used by medium to small organization to train their members and keep them updated. As this platform can be run in ios and android, it also gives an option for a user to work offline which make it a good option for many learners. TalentLMS spreads for training purpose in many areas like health organization, public departments, retail sector and some other unprofitable organization may use it also for different purposes, this platform was first developed in 2011 and its first vibration was in market in 2012 (Papagelis & Zaharias, 2015).

2.1.10 Awareness, Attitude and Readiness towards the utilization of LMSs

The issues of awareness, attitude and readiness amongst academics must be properly addressed. This suggests that the organizational and structural support of the higher institution must attend to aspects such as policies, authorities and administration of new technologies. The absence of e-learning policy together with the information communication technology policy has been the main key that hinders a widespread acceptance of e-learning practices and ultimately the LMS usage. It is not surprising then that academics do not pay close attention to the importance of using the LMS. It is argued that it is not the matter of under-utilization of the LMS that is so disquieting, but

the fact that students need to have viable learning options and academics should be using the 'right tool for the right job' (Benson & Palaskas, 2006). At the end of the day, students will select learning strategies that best suit them. Whether they are open to the use of the LMS depends on the support from academics and quality content in the LMS. Second, the application of the LMS will be improved only if the awareness of academics is comprehensive.

Awareness can be regarded as the state of being informed about the existence of an innovation. It can be described as the state of consciousness of a thing and it can to a large extent determine whether an individual will accept or reject such thing (Falode *et al*., 2018). Awareness can be generated in the forms of seminars and announcements through emails and higher institutions webpage. After this stage, training for using this LMS must commence starting with the basic going to the advanced skills such as developing e-content. What is needed is the full force and commitment by the institutions as a whole to ensure not only a successful adoption of e-learning but also the adoption is effective and efficient. The use of e-learning tools by lecturers depend on their level of awareness and proficiency in usage of the tools. For lecturers to use LMS platform for instructional delivery in higher institutions of learning, there is need for them to be aware of it, know how it works, benefits and procedures for usage. The adoption of LMS does not only depend on their level of awareness as they may be aware but not have positive attitude to use it for instructional delivery.

Attitude is the behavior, feelings, pre-disposition of someone towards a particular thing/object whether good or bad, positive or negative (Folarin, 2016). A positive attitude starting from the school administrators can spread to the teaching faculty in the school and hence to the classroom and the students. Attitude is a summary evaluation of

a psychological object captured in such attribute dimensions as good-bad, harmful-beneficial, pleasant-unpleasant, and likeable-dislikeable (Ajzen, 2001).

Readiness refers to the state or condition of an individual that makes it possible for him or her to engage profitably in a given activity. It can be regarded as the preparation and anticipation for a task. Borotis and Poulymenakou (2008) described readiness as the mental or physical preparedness of an individual for electronic teaching and learning. For a particular technology to be adopted in teaching and learning process, stakeholders' readiness must be ensured. Technologies meant for distance learning require mental, physical and financial readiness on the part of the users before success can be recorded (Falode *et al*., 2018). For LMS usage to be effective and efficient in learning process, lecturers in higher institutions must be ready to the technology tools for instructional delivery.

2.2 Theoretical Framework

2.2.1 Diffusion of Innovation Theory

Rogers (1995) propounds the diffusion of theory in his book, ''Diffusion of Innovations'', innovation in this context is seen as technological advancement. Diffusion of Innovations seeks to explain how innovations are taken up in a population. An innovation is an idea, behaviour, or object that is perceived as new by its audience (user). Researchers from different disciplines have used the model as a framework. Dooley (1999) and Stuart (2000) mentioned several of these disciplines such as; political science, public health, communications, history, economics, technology and education, and also defined Rogers' theory as a widely used theoretical studies in the area of technology diffusion and adoption. Rogers' diffusion of innovations theory is

one of the most appropriate for investigating the adoption of technology in higher education and educational setting around the world (Medlin, 2001; Parisot, 1995).

Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system. Diffusion is a special type of communication concerned with the spread of messages that are new ideas. Communication is a process in which participants create and share information with one another in order to reach a mutual understanding. The four major factors that influence the diffusion process are the innovation itself (the technological trend in educational setting), how information about the innovation is communicated (the level of awareness, attitude and readiness to adopt LMSs), time (the time rate at which the developed countries and developing countries like Nigeria take in adopting new innovation), and the nature of the social system into which the innovation is being introduced (the educational environment and the curriculum pattern of each country) (Rogers, 1995). Diffusion research, in its simplest form, investigates how these major factors, and a multitude of other factors in terms of technological tools interact to facilitate or impede the use of learning management system in the academia among the embracer of the development. The study of diffusion theory is potentially valuable to the field of instructional technology and innovation to integrate new technology tool into the field of education, that is teaching and learning processes.

Almost all of the new ideas discussed in this book are technological innovations. A technology is a design for instrumental action that reduces the uncertainty in the cause-effect relationships involved in achieving a desired outcome. Most technologies have two components: hardware, consisting of the tool that embodies the technology as material or physical objects, and software, consisting of the knowledge base for the tool.

The software information embodied in a technology serves to reduce one type of uncertainty, that concerned with the cause-effect relationships that are involved in achieving a desired outcome in teaching and learning process through learning management system. Rogers (1995) points out that a 1943 study by Ryan and Gross at Iowa State University provided the genesis of modern diffusion research. The Ryan and Gross (1943) study, from the field of rural sociology, used interviews with adopters of an innovation to examine a number of factors related to adoption. The interview-based methodology used in the Ryan and Gross study has remained the predominant diffusion research methodology ever since (Rogers, 1995). A number of researchers from rural sociology (e.g., Fliegel and Kivlin, 1962) and other disciplines (e.g., Weinstein, 1986) have built on the Ryan and Gross' work to conduct studies and develop theories related to the diffusion of innovations. The researcher who have done the most to synthesize all of the most significant findings and compelling theories related to diffusion is Everett M. Rogers. Four of the theories discussed by Rogers are among the most widely-used theories of diffusion: Innovation Decision Process; Individual Innovativeness; Rate of Adoption; and Perceived Attributes.

The Innovation theory (Rogers, 1995) states that diffusion is a process that occurs over time and can be seen as having five distinct stages. The stages in the process are Knowledge, Persuasion, Decision, Implementation, and Confirmation. According to this theory, potential adopters of an innovation such as LMSs must learn about the innovation, be persuaded as to the advantages of the innovation, decide to adopt, implement the innovation, and confirm the decision to adopt the innovation. This theory has been so widely cited in the instructional technology literature, one might get the impression that the only important thing we need to know about how to encourage the adoption of innovations of learning management system or how to be better change

agents, is that there are five stages to the innovation adoption process. While Sachs correctly concludes that many other important theories of innovation diffusion area overlooked, the Innovation Decision Process theory remains among the most useful and well known.

The Individual Innovativeness theory (Rogers, 1995) states that individuals (lecturers) who are predisposed to being innovative about the current trend in education will adopt an innovation of learning management system platform earlier than those who are less predisposed. Adoption of an innovation does not happen simultaneously in a social system; rather it is a process whereby some people are more apt to adopt the innovation than others. Researchers have found that people who adopt an innovation early have different characteristics than people who adopt an innovation later. When promoting an innovation to a target population, it is important to understand the characteristics of the target population that will help or hinder adoption of the innovation. There are five established adopter categories, and while the majority of the general population tends to fall in the middle categories, it is still necessary to understand the characteristics of the target population. When promoting an innovation, there are different strategies used to appeal to the different adopter categories. They are:

Innovators: The adoption process begins with a tiny number of visionary, imaginative innovators. They often lavish great time, energy and creativity on developing new ideas and gadgets (creating learning material). They love to talk about them. Unfortunately, their one-eyed fixation on a new gadget can make them seem dangerously idealistic to the pragmatic majority. Yet no change program can thrive without their energy and commitment.

Early adopters: Once the benefits start to become apparent, early adopters leap in. They are on the lookout for a strategic leap forward in their lives or businesses and are quick to make connections between clever innovations and their personal needs. They love getting an advantage over their peers and they have time to invest into new innovation. Their natural desire to be pace setters causes the "take-off" of an innovation. Early adopters tend to be more educational successful, well connected and well informed and hence more respected. Others watch to see whether they prosper or fail, and people start talking about the results. And early adopters like to talk about their successes. What early adopters say about an innovation determines its success. The more they crow and preen, the more likely the new learning platform such as LMSs will be perceived positively by the majority of a population.

Early majority: Early majorities are pragmatists, comfortable with moderately progressive ideas, but won't act without solid proof of benefits of innovation around them. They are looking for simple, proven, better ways of doing things (teaching and learning process). They require guaranteed off-the-shelf performance, minimum disruption, minimum commitment of time, minimum learning, and either cost neutrality or rapid payback periods, and they hate complexity. Strategies to appeal to this population include success stories and evidence of the innovation's effectiveness.

Late majority: They are conservative pragmatists who hate risk taking and are uncomfortable with the new idea. Strategies to appeal to this population include information on how many other people have tried the innovation and have adopted it successfully.

Laggards: Meanwhile laggards hold out to the bitter end. They are people who see a high risk in adopting an innovation. Some of them are so worried they stay awake all

night, tossing and turning, thinking up arguments against it. And don't forget they might be right! It's possible they are not really not laggards at all, but innovators of ideas that are so new they challenge your paradigms! In the early stages, where you are focusing on early adopters, you can probably ignore the views of laggards, but when you come to work with late majorities you'll need to address their criticisms, because late majorities share many of their fears.

Each of these adopter personalities is very different. It's vital to know which one the innovator is addressing at a given time. Rogers went as far as assigning precise notional percentages for each segment: Innovators: 2.5%; Early Adopters: 13.5%; Early majority: 34%; Late majority 34%; Laggards 16%.

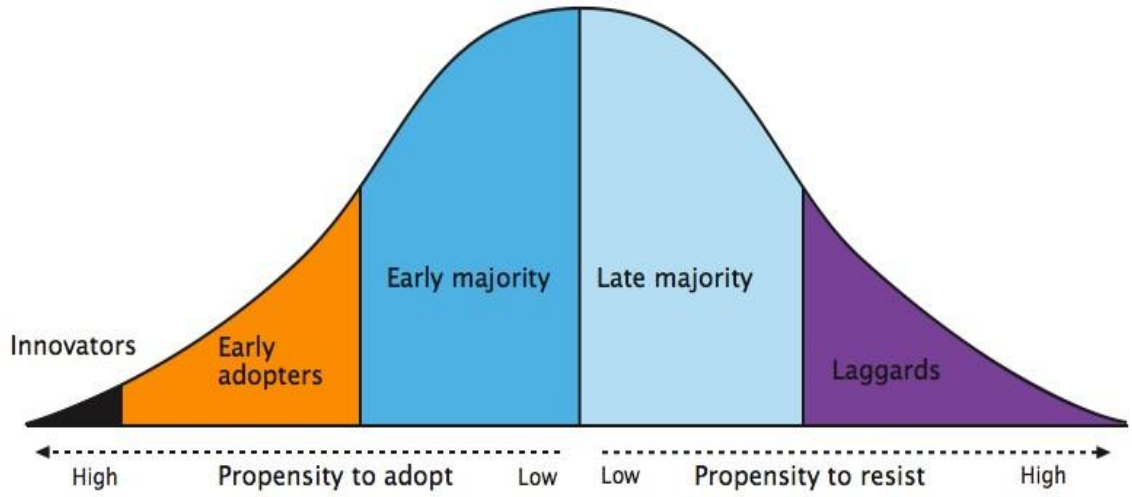

Figure 2.2: Individual Innovativeness.
Source: Diffusion Theory of Innovation and Instructional Technology (Everett Roger 1995).

On one extreme of the distributions are the Innovators. Innovators are the risk takers and pioneers, who adopt an innovation such as in the case of learning management system very early in the diffusion process. On the other extreme are the Laggards who

resist adopting an innovation until rather late in the diffusion process because they don't want to go beyond traditional method of teaching.

The third widely-used diffusion theory discussed by Rogers (1995) is the theory of Rate of Adoption. Rate of Adoption theory states that innovations are diffused over time in a pattern that resembles an s-shaped curve. Rate of Adoption theorizes that an innovation goes through a period of slow, gradual growth before experiencing a period of relatively dramatic and rapid growth. In this case since LMS is a new mode of teaching and is just coming up in developing country like Nigeria it seems difficult for most of the lecturers in higher educational institutions in Nigeria to blend the traditional way of teaching with the current technological innovation.

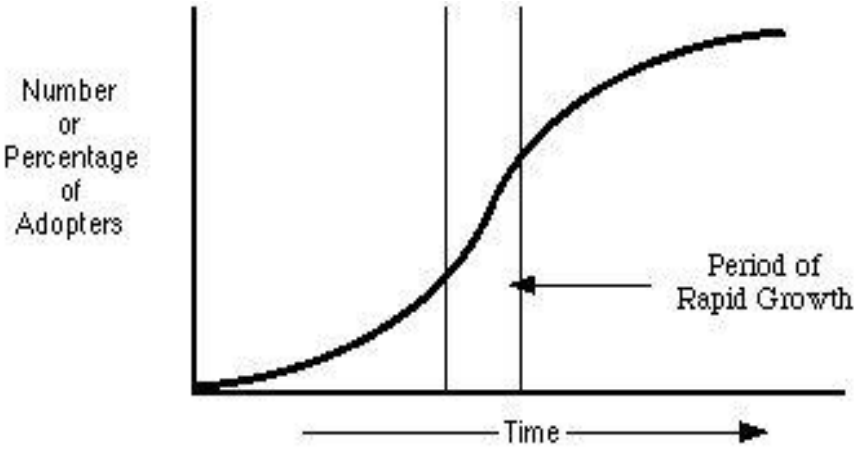

Figure 2.3: How rate of adoption might typically be represented by an s-curve.

Source: Diffusion Theory of Innovation and Instructional Technology (Everett Roger 1995).

The theory also states that following the period of rapid growth, the innovation's rate of adoption will gradually stabilize and eventually decline. The Theory of Perceived Attributes Rogers, (1995) states that potential adopters as in the case of learning management system judge the innovation based on their perceptions in regard to five attributes of the innovation. The stages by which a person adopts an innovation, and whereby diffusion is accomplished, include awareness of the need for an innovation,

attitudes of lecturers towards the innovation, initial use of the innovation to test it, and continued use of the innovation. Diffusion of Innovations takes a radically different approach to most other theories of change. Instead of focusing on persuading individuals to change, it sees change as being primarily about the evolution or "reinvention" of products and behaviours so they become better fits for the needs of individuals and groups. In Diffusion of Innovations it is not people who change, but the innovations themselves. Why do certain innovations spread more quickly than others? And why do others fail?.

According to Roger (1995), the characteristics of an innovation determine its rate of adoption. Five attributes of innovations are:

Compatibility with existing values and practices: This is the degree to which an innovation is perceived as being consistent with the values, past experiences, and needs of potential adopters. An idea is that incompatible innovation, norms or practices will not be adopted as rapidly as an innovation that is compatible. In this case the adopter of innovation want to know whether the new learning technique like LMS is compatible with the traditional method of teaching.

Simplicity and ease of use: This is the degree to which an innovation is perceived as difficult or easy to understand and use. New ideas that are simpler to understand are adopted more rapidly than innovations that require the adopter to develop new skills and understandings. The adopter want to know whether the LMS is more ease to use compare to other method of teaching.

Trial-ability: The extent to which the innovation provides tangible results. An innovation that is trial-able represents less uncertainty to the individual who is considering it.

Observable results: The easier it is for individuals to see the results of an innovation, the more likely they are to adopt it. Visible results lower uncertainty and also stimulate peer discussion of a new idea, as friends and neighbours of an adopter often request information about it.

The Theory of Perceived Attributes has been used as the theoretical basis for several studies relevant to the field of instructional technology. Perceptions of compatibility, complexity, and relative advantage have been found to play a significant role in several IT- related adoption studies. Eads (1984) found compatibility to be one of the most important attribute among lecturers, students and school administrators. Technological determinists, united in their belief that technology is an autonomous and revolutionary force, often differ in their opinion of the morality of technology. Determinists commonly have either a radically utopian or radically dystopian opinion on technology (Kaplan, 1996). Utopian determinists believe that technology is a positive and uplifting force that will, over time, mitigate or eliminate most or all of the ills that afflict educational sector and humanity at large. They believe technology is leading society towards an ever more utopian existence. With the existence and the proper use of LMS, teaching and management of students' information will be easy. Karl Marx is the most often cited example of a utopian determinist philosopher, although the exact nature of his philosophy is a hotly debated question.

Dystopian determinists believe that technology is an inherently evil, or dehumanizing, force that will lead, inevitably, to the moral decadence, intellectual or physical destruction of humankind. Opposed to the determinist philosophers are the instrumentalist philosophers. Human control over technology is the issue that most dramatically divides instrumental philosophers and determinist philosophers.

Technological instrumentalists, as their name may imply, view technology as a tool that can drive education to the next level. The instrumentalists often cite the knife as an example of their philosophy (Levinson, 1996). While determinists see technology as the most powerful force for change, instrumentalists see social conditions and human aspiration as the primary causes of change. The other major difference between the two philosophies is that instrumentalists view the growth of technology as an evolutionary process, not as a series of revolutions or technological leaps (Levinson, 1996). They see technological growth as the ultimate culmination of a long history of slow, gradual expansion.

The impact of the theory of innovation of diffusion has tremendously contributed to the present face of the technological advancement in education, which includes the innovation of learning management system for teaching and learning in higher educational institutions both in the developed and the developing countries like Nigeria. The use of LMS in education will reshape the mode of teaching in the educational sector and bring in the opportunity of being technological inclined, so that as the technology and innovation are gaining more grounds in the present dispensation, the field of academic, which is one of the most contributing factors to the development of any nation will not be lag behind.

2.2.2 Concept of Teaching and Learning

Teaching and learning strategies in education is to inculcate the basic knowledge, attitudes and practical skills necessary for self-reliance and national development. The practical know-how, scientific skills and knowledge are to make the recipient (individual) to be creative and productive in order to function as a performing member of the society. In essence the main goals of teaching in Nigerian are to prepare students for the world of work through the acquisition of theoretical and practical skills (FRN,

2004 as cited in Ali & Muhammad, 2012). This implies that; the teachers' and institutions are expected to train and produce students who are equipped with the practical rudiments which can be enhanced through information and communication technology. Therefore, to impart these qualities in any individual, effective teaching strategy and evaluation method should be put in place through learning management system platform during the teaching and learning process (Ali & Muhammad, 2012).

Teaching in general context has often been referred to as an occupation, enterprise and an act of explaining, reading and writing (Suleiman & Nuhu, 2009). Though, this basic definition of teaching also applies to the regular classroom setting but, in the teaching in modern era, there are various teaching methods and techniques available to be adopted, just as in all other fields and to all teachers; the most appropriate teaching methods to adopt in teaching should be that which can motivate the students and sustain their interest in the course of instruction (Yinusa, 2014). Furthermore, in terms of skills acquisition, it is very appropriate to adopt a teaching method that can bring out the exploration of materials into the classroom situation (Yinusa, 2014). An effective teaching strategy is believed to be a source of critical thinking or inspirational disposition on the part of the students (Johanesse, 2012). That is, teaching strategies utilized by teachers in the classroom must improve in line with the changing needs (ICT in education) in the contemporary society (Okoye, 2010). The following characteristics of teaching methods are outlined by (Okoye, 2010) are as follows:

It should progress from simple activities to the more complex tasks; It should possess qualities capable of arousing the interest and enthusiasm for active participation of the students; It should be flexible to accommodate individual differences of the learners; It should be structured in such a way that will satisfy the basic needs of the students; It should be motivating for achievement without boredom.

2.2.3 History of Teacher Education in Nigeria

The coming of the missionaries according to Fafunwa (1974), into Nigeria in the 1840s marked the beginnings of the development of modern western education. Right from its inception, missionary education which much later metamorphosed into western education, the need for teachers became obvious. The quality and quantity of teachers being churned out from the mission houses through the tutelage of pastors and reverends in charge of the various church denominations was simply not enough. The Church Missionary Society (CMS) set up Teacher Training Institutions. The Grade III Teachers certificate was the qualification most of these Institutions award. Later on Teachers Colleges awarding the Grade II sprang up. The Grade I Teacher Training was later introduced and aspired by ambitious teachers willing to enhance their status to qualify for teaching in Secondary Schools.

The Ashby commission report however observed a lot of anomalies in the then colonial education in Nigeria, including Teacher Training that was seen to be highly in adequate. Many teachers were un-certificated and improperly trained (Ashby, 1960). This resulted in the recommendation for massive expansion of intermediate education for teachers aimed at upgrading the existing teaching force. This brought about the existence and emergence of Advanced Teachers Colleges, and which later metamorphosed into Colleges of Education. The first of these Advanced Teachers Colleges designed and established by the Federal Government with the assistance of UNESCO, were meant to produce well-qualified non graduate teachers for secondary schools to replace the older well established Grade II Teachers who were not qualified to perform the task (UNESCO, 1996). The scheme provided teachers with the Nigeria Certificate in

Education (NCE), that are of good quality and the right quantity to meet the educational needs as at that time. The number of these colleges gradually increased to cater for expansions in demands for education and qualified teachers.

These Colleges award the NCE certificate with some of them upgraded to award B. Ed degrees of affiliate Universities. The duration of the NCE is usually three years for the full time students, while the part time students spend upwards to five years to complete their programme of studies. Universities established prior to independence, at independence and post-independence, also provided teacher education programmes. The number of both Universities and colleges of Education offering teacher education courses has however increased during the last few years.

2.2.4 Objectives of Teacher Education in Nigeria

The Nigerian National Policy on education is the document that states the philosophy of Nigerian education. The same document also stated the goals of other components of the Nigerian educational system including teacher education. The policy (FGN, 2004) gave the following as the goals of teacher education as to produce highly motivated, conscientious and efficient classroom teachers for all levels of our educational system; encourage further the spirit of enquiry and creativity in teachers; help teachers fit into social life of the community and society at large and enhance their commitment to national goals; provide teachers with the intellectual and professional background adequate for their assignment and make them adaptable to changing situations; enhance teachers' commitment to the teaching profession.

The policy went further to state that, all teachers in educational institutions shall be professionally trained. Teacher education shall be structured to equip teachers for the effective performance of their duties. Since no education system may raise above the

quality its teachers, the policy pegged the minimum qualification for entry into teaching profession to be the Nigeria Certificate in Education (NCE).

2.2.5 National Commission for Colleges of Education and Teacher Education in Nigeria

To effectively monitor, supervise and enhance the quality of a uniformly standardized teacher education programme at the NCE level in Colleges of Education in Nigeria, the National Commission for Colleges of Education (NCCE) was established in 1989. The NCCE was given the mandate of ensuring adequate supervision of all aspects of non-degree teacher education and teacher professionalization (Isyaku, 2000). The Commission was also mandated to, among other things; make recommendation on the national policy necessary for the full development of teacher education and the training of teachers; determine the qualified teacher needs of the country for the purpose of planning training facilities and in particular, prepare periodic master plans for the balanced co-coordinated development of Colleges of Education; enquire into and advise the Federal Government on the financial needs of the colleges and receive block grants from the government and allocate to the Colleges based on approved formula; lay down minimum standards for all programmes of teacher education and accredit their certificates and their academic awards; undertake periodic review of terms and conditions of service of personnel in the Colleges of Education and make recommendations thereon to the Government; collate, analyse and put together information relating to teacher education in the country; and make recommendations on the development of Pre-Vocational, Technical, Agricultural, Business and Home Economics Education in all our Primary and Junior Secondary Schools and advise Government as to the necessary facilities for them, the course requirements, the relative

contribution of government and industry and how to ensure that women take full part in the programmes (NCCE, 1996).

2.3 Empirical Studies

2.3.1 Empirical studies on attitude

Garrote and Pettersson (2007), carried out a research to examine lecturers' attitudes towards learning management systems (LMS). The population of the study covered all lecturers in the School of Engineering at the University College of Borås, who conducted a course that was registered in *WebCT* during the first nine months of 2006, 22 lecturers who had used *WebCT* during the previous 9 months were interviewed. Qualitative method of data analysis through the use of questionnaire and interview were adopted. Data collected were analyzed using inferential and descriptive statistics. The results show that most of the lecturers, including those who only used minor parts of the LMS, believed that they could benefit from using a LMS in the future and have positive attitude towards the use of LMS.

Hisham (2011), in his study titled Attitudes of Saudi Universities Faculty Members Towards Using Learning Management System. Ninety (90) participants in this research were asked to complete a 5-point Likert scale questionnaire, which consists of (34) items, classified in three main categories, and (2) items as probe statements. Validity and reliability of the questionnaire were ensured. Statistical treatments such as percentages, means, frequencies, and analysis of variance ANOVA were conducted. The results showed a positive Attitudes of the members of the faculty at Saudi University towards learning management system. Moreover, results showed no difference in attitudes towards using the system among the faculty members regarding gender or the types of colleges humanitarian, scientific and health.

Saleh (2016), carried out a research on the use and attitude towards Learning Management Systems (LMSs). Underpinning this study was a questionnaire distributed to 222 faculty members in six universities. Cross-tabulation in a bar graph and chi-square test were conducted to verify observed differences. The findings revealed that older generation (over 40 years) tended to use LMS for many of their teaching activities than the younger counterparts. LMS was not actively used for most teaching purposes. Attitude of faculty members who do not use LMS in pedagogy differ from those who use it for some and most teaching activities in terms of online examination and social media.

Bassam (2018) carried out a research on the attitudes of university faculty members and students towards the use of the Learning Management System (LMS) in teaching and learning. The descriptive analytical approach was used, and the data were collected using two different tools constructed by the researchers. The first was related to the attitudes of faculty members towards the use of the Learning Management System in teaching, and the other was linked to the students' attitudes towards using the Learning Management System in learning. The sample included 95 university faculty members and 307 students. Mean, standard deviations and ANOVA were calculated. The study revealed that the attitudes of university faculty members and students towards using the Learning Management System in teaching and learning were positive. The results showed statistically significant differences in the attitudes of university faculty members due to gender and in favor of the males.

2.3.2 Empirical studies on readiness of lecturers to use LMS

Saleem *et al*. (2016), in their study entitled “Readiness and Acceptance of Moodle as a teaching and learning tool by the faculty of the Department of Information Studies (IS) at Sultan Qaboos University (SQU) in the Sultanate of Oman”. The researchers

employed the Unified Theory of Acceptance and Use of Technology (UTAUT) to examine the effects of performance expectancy, effort expectancy, social influence and facilitating conditions on the behavioural intention of SQU faculty members to employ Moodle in their instruction. Data were collected by the interview method. Results showed the emergence of two faculty groups: one uses Moodle and one does not use Moodle. The moderators are gender, age, experience and the voluntariness of use, amongst which gender exhibits the least influence on Moodle adoption. That is, male and female faculty generally both use the learning platform. Although some members of the group that does not use Moodle exhibit optimistic performance expectancy for technology, the overall readiness in this regard for Moodle is negative. The other UTAUT constructs exert no influence on this group's adoption of the learning platform.

Rusdin (2018) in his study entitled teachers' readiness in implementing 21st century learning (LMS). A total of 107 teachers was involved in the survey. The sample was chosen randomly. The data were analyzed by using descriptive analysis of mean and standard deviation, Pearson Correlation test and one-way analysis of variance (ANOVA). The findings show that teachers' readiness in implementing 21st century learning is high, there is significant correlation between academic level and the level of understanding 21st century learning skills and there is significant difference between certificate holder and master's degree holder in understanding 21st century learning skills. The implication of the study is that teachers are ready to implement LMS in classroom.

2.3.3 Empirical studies on lecturers' awareness of the existence of LMS

Edumadze *et al.* (2014), carried out a research on the awareness and perception of lecturers in using LMS tools for teaching were assessed. The study concentrated on 128 respondents who were lecturers in the University of Cape Coast and questionnaires

were used as research instruments. Findings revealed that 75.8% of the respondents are aware of the existence of Learning Management Systems since they have heard of the term LMSs. However, only 2% of the respondents could specifically mention the various types of LMS in existence. The low awareness of specific LMSs was therefore attributed to lack of experience in using the technology. In the same study, 95.3% of the respondents indicated willingness and readiness towards the adoption of LMSs to supplement teaching and learning.

Khalid (2016) carried out a research to evaluate English teachers' awareness and perceptions in using e-learning tools. A total of 22 English teachers from Yanbu educational Department participated in the online survey. The majority of the participants (77.3%) were male. Different e-learning parameters were measured like; skill in using educational technology, teachers' personal use of technology, type of technology used in the classroom, e-learning confidence, barriers to e-learning, perceived effectiveness of e-learning, and willingness to adopt e-learning tools for teaching. The result of the study showed that English teachers are aware and familiar with popular e-learning tools and perceived its usefulness in teaching and learning.

2.4 Summary of Reviewed Literature

Information Communication Technology (ICT) is being diffused into almost all spheres of human activities at an unprecedented rate. Alongside this development, is an intense debate on the contribution of this technology towards productivity and growth on the one hand; and human welfare on the other in both developed and developing countries. Information and Communication Technology (ICT) refers to a range of technologies that are applied in the process of collecting, storing, editing, retrieving, and transferring information in various forms. In recent years, there has been an exponential growth in

the use of ICT tools and this has made great impact both on society and on people's daily lives. It is therefore not surprising to see the increasing interest, attention and investment being put into the use of ICT in education all over the world (Saddam *et al*., 2012).

The application and use of ICT is beneficial in improving Nigeria's educational system and giving lecturers a good management of students' information and teaching experience and to students a better education. When the workforce is advanced technologically, it will lead to the expansion of ICT in Nigeria, with the potential to progress military technology and telecommunications, media communications and expert ICT professionals who will be well equipped to solve IT problems in Nigeria and other parts of the world (Goshit, 2006).

Education is a broad discipline that is responsible for changing behavior of individual with the help of suitable method, strategies and techniques of teaching and learning. From the past generations till date drastic changes have been observed in the field of education (Bates, 2015). Educational technology is a communication process resulting from the application of the scientific methods to the behavioral science of teaching and learning. This communication may or may not require the use of media such as television broadcasts, radio, cassettes among others (UNESCO).

Educational technologies can enable resilience in educational process and also encourage trouble free publication, re-use of learning content, sharing of knowledge and description. They also encourage connections to important materials and resources in information setting that are controlled and administered by learners and instructors (Brown, 2010). Adopting ICT educational tools, such as learning management system,

instructors and learners are majorly seen to be more active members in creating their own personal experience and idea (Preece & Shneiderman, 2009).

The emergence of the system of ODL is an inevitable and unparalleled advancement in the history of educational development in Nigeria and internationally. Unlike the formal system of education which has its inherent limitations with regards to expansion, provision of access, equity and cost- effectiveness, the growth of open and distance mode of education has now made education flexible by providing increased educational opportunities to a larger population in different situations and needs.

The Learning Management System is the backbone of e-learning which provides the essential components required for hosting of the e-learning contents. The Learning Management System is a software application which is used to automate the administration, tracking and reporting the education and training activities. LMS as a software (web) application used to plan, implement, and assess learning processes (Dobre, 2015).

Awareness can be regarded as the state of being informed about the existence of an innovation. It can be described as the state of consciousness of a thing and it can to a large extent determine whether an individual will accept or reject such thing (Falode *et al*., 2018). Attitude is the behavior, feelings, pre-disposition of someone towards a particular thing/object whether good or bad, positive or negative. Readiness refers to the state or condition of an individual that makes it possible for him or her to engage profitably in a given activity. To this end, this study is carried out to investigate lecturers' awareness, readiness and attitude towards the utilization of LMS's for instructional delivery in Colleges of Education in Niger State, Nigeria.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Research Design

The research design that was adopted for this study is a cross-sectional survey design. A cross-sectional survey study is a type of observational research that analyzes data of variables collected at one given point in time across a sampled population or a pre-defined subset, it is also known as transverse study or prevalence study. Survey research is suitable where a group of people or items is studied by collecting and analyzing data from their representatives. The descriptive survey design is used to identify the relationship between variables and describing them.

3.2 Population of the Study

The population of the study consisted of 1,526 lecturers from the government-owned Colleges of Education in Niger State. These institutions are: Federal College of Education, Kontagora and Niger State College of Education Minna. The target population for the study is made up of 95 education lecturers from the two selected schools.

3.3 Sample and Sampling Techniques

The sample for this study was made up of 95 lecturers from the school of education from the two Colleges of Education. Purposive sampling technique was used to select Federal College of Education, Kontagora and Niger state College of Education, Minna, Niger State because they are the only two Colleges of Education in the study area. The sample size for this study comprised 86 lecturers (65 males, 21 females) in the school of education from the two selected schools. Education lecturers were selected because, it is difficult to sample lecturers from all academic disciplines and considering the fact that the school that is mostly common to the two institutions in Niger State is school of education. The researcher was unable to draw sample from all the respondents from the school of education because some lecturers were not available due to the position they held in the faculty, while some were on study fellowship.

3.4 Research Instrument

The instrument that was used for data collection was questionnaire design by the researcher named "Questionnaire on Lecturers' Awareness, Readiness and Attitude towards LMS (QLARALMS)" was used for data collection in this study. QLARALMS consist four sections (Sections A, B, C and D). Section A was used to collect data on respondents' demography. Sections B, C and D contained eight, five and ten items respectively which was used to collect responses from the respondents regarding their awareness, readiness and attitude towards the utilization of Learning Management System for instructional delivery in Colleges of Education in Niger State. A five-point Likert scale of Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree was used and was rated from 5 points to 1 point. A decision rule was set in which grand mean score of 3.0 and above was considered as Agreement while grand mean score below 3.0 was considered as Disagreement.

3.5 Validity of Research Instrument

The questionnaire was validated by three lecturers, all from the Department of Educational Technology, Federal University of Technology Minna, for face and content validity in terms of clarity, suitability, use of language, logical arrangement of the items among others. Based on their suggestions, recommendation and vital inputs by the lecturers, the instrument was modified.

3.6 Reliability of Research Instrument

A pilot study was carried out in College of Education Minna, where, 20 lecturers from School of Languages who are part of the population but did not constitute sample of the main study. The Questionnaire was administered once and reliability coefficients of 0.72, 0.82 and 0.75 were obtain for the variable awareness, readiness and attitude respectively using Cronbach Alpha formula. Based on the coefficient obtained, the instrument was considered reliable.

3.7 Method of Data Collection

The researcher trained one research assistant for a period of one week for the purpose of the study. The researcher visited the schools selected for the study to obtained permission from administrators of these two Colleges of Education in Niger state. after approval has been granted, the researcher enlightens the respondents (lecturers) about the purpose of the study. Thereafter, with the help of the trained research assistant, the questionnaire was administered and retrieved back after they have been duly completed by the lecturers.

3.8 Method of Data Analysis

Data that was obtained from the administration of the research instrument were analyzed using descriptive and inferential statistics. Descriptive statistics of Mean and Standard Deviation were used to answer research questions one to six, while t-test statistics was used to test the three null hypotheses at 0.05 level of significance. When the p-value is greater than 0.05, the hypothesis was retained, but when the p-value is less than 0.05 the hypothesis was rejected. The analyses were carried out using Statistical Package of Social Science (SPSS version 23).

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Results

The data collected for the purpose of this study were analyzed based on the research questions and hypotheses formulated.

Research Question 1: Are lecturers in Colleges of Education in Niger State aware of the existence of learning management system?

The descriptive statistics of mean and standard deviation was used to answer research question one which is presented in Table 4.1.

Table 4.1: Lecturers' Mean Response on Awareness of Learning Management System

No	Items	N	$\bar{x}$	S.D	Decision
1	I am aware of the existence of WIZIQ	86	4.41	0.803	Agree
2	I know that google classroom can be used to deliver instructional	86	4.07	0.955	Agree

	contents to students				
3	I am aware that my lectures can be delivered through e-tutor	86	4.48	0.731	Agree
4	I am aware that my students can watch my lecture video online through moodle platform.	86	3.99	0.819	Agree
5	I know that I can assess and monitor my students' learning progress online through docebo platform	86	4.12	0.846	Agree
6	I am aware canvas helps to connect both instructors and students in a virtual environment	86	3.87	1.015	Agree
7	I am aware that lecturers in some institutions of higher learning do use talent LMS for instructional delivery	86	2.91	0.953	Agree
8	I am aware that litmos can be used to give immediate feedback to students	86	3.97	0.988	Agree
	Grand Mean		**3.98**		**Agree**

Decision Mean = 3.00

Table 4.1. shows the Mean and Standard Deviation of education lecturers' response on their awareness of learning management system. Table 4.1 reveals the computed mean score of 4.41with Standard Deviation of 0.803 for item one, mean of 4.07 with Standard Deviation of 0.955 for item two, mean of 4.48 with Standard Deviation of 0.731 for item three, mean of 3.99 with Standard Deviation of 0.819 for item four, mean of 4.12 with Standard Deviation of 0.846 for item five, mean of 3.87 with Standard Deviation of 1.015 for item six, mean of 2.91 with Standard Deviation of 0.953 for item seven and mean of 3.97 with Standard Deviation of 0.988 for item eight. Table 4.1 reveals further that, the grand mean score of responses to the eight items was 3.98 which was greater

than the decision mean score of 3.00. This implies that education lecturers in Niger State are aware of Learning Management System.

Research Question 2: Are lecturers in colleges of education Niger state ready to utilize learning management system for instructional delivery in Colleges of Education in Niger State?

The descriptive statistics of mean and standard deviation was used to answer research question two which is presented in Table 4.2.

Table 4.2: Lecturers' Mean Response on readiness to utilize Learning Management System

S/No.	Statement	N	$\bar{x}$	S.D	Decision
1	I consider LMS as an innovation and I am ready to adopt it for lecture delivery.	86	4.77	0.524	Agree
2	My computer knowledge and skills will help me deliver lectures online using LMS	86	4.15	0.952	Agree
3	Irrespective of my location and time of the day, I have computer and internet facilities that afford me opportunities to relate with my students and deliver my lecture online through LMS	86	3.42	0.727	Agree
4	I am prepared to attend to all my students' enquiries and respond to all their questions while using LMS in real time	86	3.15	1.133	Agree
5	With enabling environment, I am ready to deliver my lecture online using LMS platform	86	4.41	0.582	Agree
	Average Mean		**3.98**		**Agree**

Decision Mean= 3.00

Table 4.2. shows the Mean and Standard Deviation of Education lecturers' response on their readiness to utilize in Learning Management System. Table 4.2 reveals the computed mean score of 4.77 with Standard Deviation of 0.524 for item one, mean of 4.15 with Standard Deviation of 9.52 for item two, mean of 3.42 with Standard Deviation of 0.727 for item three, mean of 3.15 with Standard Deviation of 1.133 for item four and mean of 4.41 with Standard Deviation of 5.82 for item five. Table 4.2 reveals further that, the grand mean score of responses to the eleven items was 3.98 which was greater than the decision mean score of 3.00. This implies that Education lecturers in Niger State are ready to use Learning Management System for instructional delivery.

Research question 3: What is the mean scores of lecturers on their attitude towards the utilization of learning management system for instructional delivery in Colleges of Education in Niger State?

The descriptive statistics of mean and standard deviation was used to answer research question three which is presented in Table 4.3.

Table 4.3: Lecturers' Mean Response on their attitude towards the utilization of Learning Management System

S/N	Items	N	$\bar{x}$	SD	Decision
1	I feel it is important to be able to find any information whenever I want through LMS	86	4.37	0.532	Agree
2	I feel it is important to be able to access various LMS platform any time I want	86	4.17	0.923	Agree
3	I think it is important to keep up with the latest information about my discipline through ICT.	86	4.84	0.402	Agree
4	I regularly use LMS because I find information on LMS to be useful	86	3.63	0.921	Agree
5	LMS make me interact with my students whether outside or inside school.	86	4.20	0.918	Agree

6	LMS allow me to interact with my professional friends	86	4.35	0.682	Agree
7	Interaction and teaching through LMS is enjoyable	86	3.87	0.764	Agree
8	I get useful information through ICT and use it for instructional delivery	86	3.69	0.690	Agree
9	Information on LMS are never misleading	86	3.65	0.699	Agree
10	I feel interaction on LMS enhances learning	86	3.77	0.680	Agree
	Grand Mean		**4.05**		**Agree**

Decision Mean = 3.00

Table 4.3: shows the Mean and Standard Deviation of Education lecturers' response on their attitude towards the utilization of learning management system. Table 4.3 reveals the computed mean score of 4.37 with Standard Deviation of 0.532 for item one, mean of 4.17 with Standard Deviation of 0.923 for item two, mean of 4.84 with Standard Deviation of 0.402 for item three, mean of 3.63 with Standard Deviation of 0.921 for item four, mean of 4.20 with Standard Deviation of 0.918 for item five, mean of 4.35 with Standard Deviation of 0.682 for item six, mean of 3.87 with Standard Deviation of 0.764 for item seven, mean of 3.69 with Standard Deviation of 0.690 for item eight, mean of 3.65 with Standard Deviation of 0.699 for item nine, mean of 3.77 with Standard Deviation of 0.680 for item ten. The table reveals further that, the grand mean score of responses to the ten items was 4.05 which was greater than the decision mean score of 3.00. This implies that Education lecturers in Niger State have positive attitude toward the use of Learning Management System.

Research Question 4: How does gender influence the level of awareness of lecturers on learning management system in Colleges of Education in Niger State?

The descriptive statistics of mean and standard deviation was used to answer research question four which is presented in Table 4.4.

Table 4.4: Mean and Standard Deviation on Awareness Responses of Male and Female Lecturers

Gender	N	$\bar{x}$	SD
Male	65	31.83	5.496
Female	21	31.71	4.303

Table 4.4: shows the mean response of Male and Female Education lecturers on awareness of Learning Management System. Result 4.4 indicated that there was difference in the mean response of male and female education lecturers with a mean score of 31.83 and standard deviation of 5.496 for male lecturers and mean score of 31.71 with standard deviation of 4.303 for male lecturers. To determine if the difference in mean is significant, a corresponding hypothesis is tested and presented in Table 4.7.

Research Questions 5: What is the influence of gender on the readiness of lecturers to utilize learning management system for instructional delivery in Colleges of Education in Niger State?

The descriptive statistics of mean and standard deviation was used to answer research question five which is presented in Table 4.5.

Table 4.5: Mean and Standard Deviation Responses of Male and Female Education Lecturers on their readiness to utilize Learning Management System

Gender	N	$\bar{x}$	SD
Male	65	20.06	1.793
Female	21	19.38	1.936

Table 4.5: shows the mean response of male and female Education lecturers on their readiness to utilize Learning Management System. The result indicated that there was difference in the mean response of male and female Education lecturers with a mean score of 20.06 and standard deviation of 1.793 for male lecturers and mean score of 19.38 with standard deviation of 1.936 for female lecturers. To determine if the

difference in mean is significant, a corresponding hypothesis is tested and presented in Table 4.8

Research Questions 6: Do male and female lecturers' attitude differ towards the utilization of LMS for instructional delivery in Colleges of Education in Niger State?

The descriptive statistics of mean and standard deviation was used to answer research question six which is presented in Table 4.6.

Table 4.6: Mean and Standard Deviation on responses of male and female Education lecturers on their attitude toward the use LMS

Gender	N	$\bar{x}$	SD
Male	65	40.72	4.523
Female	21	39.95	3.905

Table 4.6: shows the mean result of male and female Education lecturers' response on attitude toward the use of Learning Management System. The result indicated that there was difference in the mean response of male and female Education lecturers with a mean score of 40.72 and standard deviation of 4.523for male lecturers and mean score of 39.95 with standard deviation of 3.905 for female lecturers. To determine if the difference in mean is significant, a corresponding hypothesis is tested and presented in table 4.9.

4.2 Hypotheses Testing

Hypothesis One (HO_1): There is no significant difference in the level of awareness of male and female lecturers on Learning Management System (LMS).

To test this hypothesis, inferential statistics of sample t-test independent is applied on the male and female Education lecturers mean responses score regarding their awareness of Learning Management System as presented in Table 4.7.

Table 4.7: t-test Result on Mean Awareness Responses of Male and Female Education lecturers

Group	N	Df	$\bar{x}$	SD	t-value	p-value
Male	65		31.83	5.496		
		84			0.930^{ns}	0.089
Female	21		31.71	4.303		

NS: Not significant at 0.05 level

Table 4.7 shows the t-test analyses of mean response of Education lecturers' awareness of Learning Management System. The result indicated that there was no statistically significant difference between the two groups, t= 0.930, df=84, p > 0.05 with a mean score of 31.83 for male lecturers and 31.71 for female lecturers. Base on this, hypothesis one was retained. This implies that both the male and female lecturers have the same level of awareness of Learning Management System in Niger state, Nigeria.

Hypothesis Two (HO_2): There is no significant difference in the readiness of male and female lecturers towards the utilization of Learning Management System for instructional delivery.

To test this hypothesis, inferential statistics of sample t-test independent is applied on the male and female Education lecturers mean response score regarding their readiness to utilize Learning Management System as presented in Table 4.8.

Table 4.8: t-test Result on Mean Responses of Male and Female Education lecturers on their Readiness to utilize Learning Management System

Gender	N	Df	$\bar{x}$	SD	t-value	p-value
Male	65		20.06.	1.793		
		84			0.142^{ns}	1.483
Female	21		19.38	1.936		

NS: Not significant at 0.05 level

Table 4.8. shows the t-test analyses of mean response of Education lecturers readiness to utilize Learning Management System. The result indicated that there was no statistically significant difference between the two groups, t= 0.142, df=84, p > 0.05 with a mean score of 20.06 for male lecturers and 19.38 for female lecturers. Base on this, hypothesis two was retained. This implies that the male and female Education lecturers have the same readiness in utilizing Learning Management System.

Hypothesis Three (HO_3): There is no significant difference in the attitude of male and female lecturers towards the utilization of Learning Management System for instructional delivery

Table 4.9: t-test Result on Mean Attitude Responses of Male and Female Education lecturers

Group	N	Df	$\bar{x}$	SD	t-value	p-value
Male	65		40.72	4.523		
		84			0.486^{ns}	0.700
Female	21		39.95	3.905		

NS: Not significant at 0.05 level

Table 4.9 shows the t-test analyses of mean response of Education lecturers' extent of utilization of Learning Management System. The result indicated that there was no statistically significant difference between the two groups, t= 0.486, df=84, p >0.05 with a mean score of 40.72 for male lecturers and 39.95 for female lecturers. Base on this, hypothesis three was retained. This implies that both the male and female

Education lecturers in Niger state, Nigeria have the same level of attitude toward the use of Learning Management System.

4.3 Summary of Findings

Findings that emanated from this study revealed that:

1. Education lecturers are aware of the existence of Learning Management System.
2. Education lecturers are ready to utilize Learning Management System.
3. Education lecturers have positive attitude toward the use of Learning Management System.
4. Gender does not influence Education lecturers' level of awareness of the existence of Learning Management System.
5. Gender does not influence Education lecturers' level of readiness to utilize Learning Management System for instructional delivery.
6. Gender does not influence Education lecturers' attitude toward the use of Learning Management System.

4.4 Discussion of Findings

Finding revealed that lecturers in college of education in Niger state are aware of the existence of Learning Management System and it was found out that there was no significant difference in the awareness of male and female lecturers towards the use of Learning Management System. This could be as a result of the lecturer's attendance of seminars, workshop and conferences on e-learning tools. The finding was supported by Khalid (2016) who conducted a study on teachers' awareness of e-learning tools and found out that teachers are aware of the existence of e-learning tools like Learning Management System.

Furthermore, this finding is also in agreement with Edumadze, Ossei-Anto, Edumadze, Tamakloe, Asamoah, and Boadi (2014), who carried out a study on lecturers' awareness on the use of Learning Management System for instructional delivery and observed that genders do not influence the level of awareness of Learning Management System.

The finding also revealed that lecturers in college of education in Niger state show high level of readiness towards the use Learning Management System for instructional delivery and it was found out that there was no significant difference in the readiness of male and female lecturers towards the use of Learning Management System. This could be as a result of the fact that lecturers and teachers perceived technology as relevant to their needs or their students' needs. The finding was supported by Rusdin (2018), who assessed teachers' Readiness in Implementing 21st Century Learning (LMS) and found out that most lecturers were significantly ready to adopt e-learning platform. The finding disagrees with Saleem, Al-Saqri and Ahmad (2016), who examined lecturers' readiness for the use LMS (Moodle) and found out that, most lecturers are not ready for the use of web-based learning platform like (LMS).

The finding showed that the lecturers show positive attitude towards the use of Learning Management System for instructional delivery and it was found out that there was no significant difference in the attitude of male and female lecturers towards the use of Learning Management System. This finding could be as a result of the fact that education lecturers showed positive attitudes towards the elements such as the use of the internet, e-mail or MS Word, together with a willingness to use these tools for their work and at home, for preparing teaching processes. The finding is in agreement with Bassam (2018), who carried out a research on the attitudes of university faculty members and students towards the use of the Learning Management System (LMS) in teaching and learning and discovered that attitudes of university faculty members and

students towards using the Learning Management System in teaching and learning were positive. The finding was also in agreement with Saleh (2016), who carried out a research on the use and attitude towards Learning Management Systems (LMSs) and found out that there was positive attitude toward the use of Learning Management System.

The finding is also in agreement with Garrote and Pettersson (2007), who carried out a research to examine lecturers' attitudes towards learning management systems (LMS) in the School of Engineering at the University College of Borås and The results show that most of the lecturers, including those who only used minor parts of the LMS, believed that they could benefit from using a LMS in the future and have positive attitude towards the use of LMS.

Furthermore, the findings show that there was no significant difference in the attitude of male and female lecturers towards the use of Learning Management System is in agreement with Hisham (2011), who found out that there is no difference in attitudes towards using the system among the faculty members regarding gender. However, the finding is not in agreement with Bassam (2018), who carried out a research on the attitudes of university faculty members and students towards the use of the Learning Management System (LMS) in teaching and learning and found out that there were statistically significant differences in the attitudes of university faculty members due to gender and in favor of the males.

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

Findings of this study has revealed that lecturers in Colleges of Education in Niger State are aware of the existence of Learning Management System and there is no significant difference between male and female lecturers' awareness level on the existence of Learning Management System. The study revealed further that the readiness of lecturers in colleges of education in Niger State are positive and there is no significant difference between male and female lecturers' readiness to use Learning Management System for instructional delivery. Also there is no gender difference in the attitude of lecturers towards Learning Management System for teaching which implies that male and female lecturers have the same attitude towards the adoption of Learning Management System for instructional delivery. For optimum teaching and global interaction point with other lecturers, Learning Management System should be used by lecturers to supplement their

teaching pedagogy. The use of Learning Management System when it is well tailored would in no doubt improve the teaching and learning process.

5.2 Recommendations

Based on the findings of this study, the following recommendations are pertinent:

1. Government in collaboration with school administrators should put in place the facilities that will encourage the use of various Learning Management System platforms by lecturers in order to improve the quality of their teaching.
2. School administrators should organize seminars, workshops and any other in-service trainings for lecturers to familiarize and sensitize them on various learning management system platforms and their potentials, as it would trigger their creativity and innovation in the use of the system for teaching and learning process.
3. Government should provide constant power supply in College of Educations in order to prevent the barriers to the use of ICT tools like Learning Management System.
4. School administrators with the help of non-Governmental Organization should equip schools with adequate ICT facilities, which will motivate lecturers to use Learning Management System.
5. Curriculum Planners should include the use of Learning Management System in the curriculum as this will motivate the use of Learning Management System in the academia

5.3 Contribution of the Study to Knowledge

The study has added to the pool of knowledge in the following ways:

1. It has succeeded in finding out the importance of using Learning Management System for instructional delivery among lecturers in colleges of education in Niger state which would help in promoting and sharing the importance of ICT especially LMS among lecturers across various tertiary institutions of learning.
2. Learning Management System could be effectively used to bridge the gap of teaching and learning process between lecturers and students in the process of teaching and learning.
3. The study contributed to the existing literatures and provided a platform for further researches on Learning Management System.

5.4 Suggestions for Further Studies

For further researches in this area, the following suggestions are made:

1. This study focused on education lecturer's awareness, readiness and attitude towards the use of Learning Management System. Other studies that will focus on factors affecting readiness to adopt Learning Management System among lecturers of other schools in colleges of education can be conducted in the future.
2. A replicate of this study can be conducted in other departments in the colleges of education and universities and also among teachers in secondary school in Niger state, Nigeria.
3. Similar study on lecturer's awareness, readiness and attitude towards the use of Learning Management System for instructional delivery can also be conducted in higher institutions in other states of the federation.

REFERENCES

Abubakar, B. M. (2010). Availability and use of information and communication technology (ICT) in Six Nigerian University Library schools. Retrieved from http://www.web pages. Uidaho.edu/mbolin/bappah-abubakar.htm.

Adebayo, A. M. (2007). Open and Distance Learning in South/West Geopolitical zone, Nigeria. *Unpublished Bachelor degree project,* University of Ado – Ekiti, Nigeria (2007).

Adomi, E. E. (2006). Mobile phone usage patterns of library and information science students at Delta State University, Abraka, Nigeria. *Electronic Journal of Academic and Special Librarianship 7* (1)., Available: http://southernlibrarianship.icaap.org/v7n01/adomi-e01.htm.

Aduwa-Ogiegbaen, S. E. (2013). Extending and enriching students' learning experience in distance education in Nigeria. *Proceedings of the 34th International Conference, Nigeria Association for Educational and Media Technology, (NAEMT),* 27th – 29th May.

Agbetuyi, P. A., & Oluwatayo, J. A. (2012). Information and communication technology (ICT) in Nigerian education system. *Mediterranean Jou*rnal *of Social Sciences, 3,* 41-45

Agboola, K. A. (2006). Assessing the awareness and perception of academic staff in using e-learning tools for instructional delivery in a post-secondary institution: A case study. *The Inovation Journal: The Public Sector Innocation Journal,* 11 (3), 4, 1-13.

Ajzen, I. (2001). Nature and operation of attitudes: *Annual Review of Psychology. University of Massachusetts Amherst 52*, 27-58.

Akarowhe, K. (2017). Information Communication Technology (Ict) in the Educational System of the Third World Countries as a Pivotal to Meet Global Best Practice in Teaching and Development. Am J Compt Sci Inform Technol 5: 2. doi: 10.21767/2349-3917.100010.

Alaezi, O. A. (2005). National Open University Plan: Enhancing Higher Education.

Al-Alwani, A. (2005). *Barriers to Integrating Information Technology in Saudi Arabia Education*. Doctoral dissertation, the University of Kansas, Kansas.

Ali, I & Muhammad, R. R. (2012). The Influence of teaching Approaches among technical and vocational education teachers towards acquisition of technical skills in Kano State- Nigeria. *Journal of education and practice, 3*(16), 160-165.

Aljarrah, A. (2011). University of Jordan Students' Attitudes Towards the use of the Learning Management System as a learning tool. Dirasat Journal, educational sciences. 38(4). 1293 – 1304.

Alkhalaf, S., Drew, S., Al-Ghamdi, R., & Alfarraj, O. (2012). E-Learning system on higher education institutions in KSA: Attitudes and perceptions of faculty members. Procedia - Social and Behavioral Sciences, 47, 1199-1205.

Al-Mutairi, S. (2015). The Effectiveness of an Electronic Training Program Using Screen Recording Techniques to acquire some of the Skills of the E-learning Management System (Learning Management System) for Learning Resource Centers Secretaries. *Arabic Gulf Journal. 36 (136), 31-56.*

Anderson, T. (2003). Models of interaction in distance education: Recent developments and research questions. In Michael G. Moore and William G. Anderson, (eds.) Handbook of Distance Education, Mahwah: Erlbaum, ISBN 0805839240

Angelova, N., Kiryakova, G. & Yordanova, L. (2015). Cloud-based LMS for e-Learning. *Trakia. Journal of Sciences,* 13 (1), 386-391.

Ashby, E. (1960). Investment in education: The report of the commission on post school certificate and highereducation in Lagos: Federal Ministry of Education.

Association for Educational Communications and Technology (2004). The meaning of educational technology. Retrieved from www.indiana.edu/molepage/Meaning%20of% 20ET_4.0pdt on May 14, 2018.

Balanskat, A., Blamire, R., & Kefala, S. (2006). *The ICT impact report: A review of studies of ICT impact on schools in Europe*: European Communities.

Bassam, A. A. (2018). Attitudes of Faculty Members and Students towards the Use of the Learning Management System in Teaching and Learning. *The Turkish Online Journal of Educational Technology, 17 (3)*, 2-15.

Bates, A. W. (2015). Teaching in a Digital Age: Guidelines for Designing Teaching and Learning, BCcampus. http://opentextbc.ca/teachinginadigitalage.

Becta (2004), *What the research says about using ICT in Geography*. Coventry: Becta

Benson, R., & Palaskas, T. (2006). Introducing a New Learning Management System: An Institutional Case Study. *Australasian Journal of Educational Technology*, *22*(4), 548-567.

Borotis, S. & Poulymenakou, A. (2008). *Critical success factors for e-Learning adoption:* Handbook of research on instructional systems and technology. Greece: IGI Global. 2nd Edition. 131-134.

Brown, D. (2006). From the university to the elementary classroom: Students' experiences in learning to integrate technology in instruction. *Journal of Technology and Teacher Education, 14,* 599-621.

Casal, R. (2007). ICT for Education and Development. Info. 9(4).

Creed, C. (2001). The Use of Distance Education for Teachers. Cambridge; Defining and Sustaining Useful Results. *Education Technology*, 41(3), 19-26.

Creeger, M. (2009). "CTO Roundtable: Cloud Computing," Communication. ACM, 52(8),50–56.

Dhanarajan, G. (2001). "Combating Poverty through Adult Education. Silver Jubilee Celebration of the Institute of Distance and Continuing Education. University of Guyana. 5th March, 2001.

Dobre, I. (2015). Learning management systems for higher education - An overview of available options for higher education organizations. *Procedia-Social and Behavioral Sciences, 180*, 313–320. doi:10.1016/j.sbspro.2015.02.122

Dooley, K. E. (1999). Towards a holistic model for the diffusion of educational technologies: An integrative review of educational innovation studies. *Journal of Educational Technology & Society,* 2(4), 35-45.

Dugger, W. & Nalik, N. (2001). Clarifying misconceptions between technology education and education technology. Retrieved from http://iteaconnect.org/TAA/Resources/TAA Differences. html on July 20, 2018.

Edumadze, J. K. E., Ossei-Anto, T. A., Edumadze, G., Tamakloe, W. K., Asamoah, E. & Boadi, E. (2014). Evaluating the awareness and perception of lecturers in using e-learning tools for teaching in University of Cape Coast. *International Journal of Computing Academic Research (UCAR),* 3 (1), 1-11.

Empirica (2006). Benchmarking access and use of ICT in European schools 2006: Final report from Head Teacher and Classroom Teacher Surveys in 27 European countries. Germany: European Commission.

Fafunwa, B. A. (1974). History of education in Nigeria. London: George Allen and Unwin.

Falode, O. C. (2018). Pre-service teachers' perceived ease of use, perceived usefulness, attitude and intentions towards virtual laboratory package utilization in teaching and learning of physics. *Malaysian Online Journal of Educational Technology,* 6 (3), 61-72.

Falode, O. C., Gambari, A. I., Alabi, T. O. & Falode, M. E (2018). International conference on education, development and innovation: Shaping the Future of Higher Education, 241-247.

Falode, O. C., Mohammed, A., Gambari, A. I. & Ojoye, B. T. (2016). Civil servants' ICT self-efficacy, awareness and readiness for distance e-learning programmes' enrolment in Minna, Niger State, Nigeria. *Journal of Science, Technology, Mathematics and Education,* 12(3), 142-150.

Federal Government of Nigeria (2004) National Policy on Education Lagos Government Press.

Federal Ministry of Education (2002). Blue Print and Implementation Plan for the National Open and Distance Learning Programmes, Abuja: Government Press.

Federal Republic of Nigeria (2004). *National Policy on education*. Lagos: NERDC Press.

Federal Republic of Nigeria (2009). *National Policy on Education*, Lagos; Federal Government Press.

FGN (2004). National policy on education. (4th ed) NERDC Press. Yaba – Lagos.

Fliegel, F. C., & Kivlin, J. F. (1962). *Differences among improved farm practices as related to adoption.* University Park, PA: Pennsylvania Agricultural Experiment Station Research Bulletin 691.

Folarin, M. E. (2016). Pre-service teachers' attitude, motivation and utilization of social media for educational purposes in selected tertiary institutions in Minna metropolis. *Unpublished Master Thesis* submitted to postgraduate school, Federal University of Technology, Minna.

Garrote, R. & Pettersson, T. (2007). Lecturers' attitudes towards learning management systems (LMS) in engineering education: A Swedish case study. *Australasian Journal of Educational Technology*, 23(3), 327-349.

Gateway, D. (2014). Defining ICT in Education. Retrieved February 10, 2019, from: *http://www. rwandagateway.org/ICT4E/spip.php?rubrique6.*

Ghavifekr, S. & Wan Athirah, W. R. (2015). Teaching and learning with technology: Effectiveness of ICT integration in schools. *International Journal of Research in Education and Science, 1*(2)*,* 175-191.

Glen, F. (2005). A Virtual University for Small States of the Commonwealth Vancouver: The Commonwealth for Learning.

Goshit, T. (2006). Nigeria's need for ICT: SP. 259 technology and policy in Africa. Available: http://ocw.mit.edu/NR/rdonlyres/Special-Programs/SP-259Spring-2006/891209EE-E63B-4617-BA9D-7635A63C754B/0/goshit.pdf.

Hamid, S., Waycott, J., Kurnia, S., & Chang, S. (2014). An empirical study of lecturers' appropriation of social technologies for higher education. *Australasian Journal of Educational Technology*, 30(3), 295–311.

Hassan, F. A., Mohammad, U. B., & Abdulsalam, A. (2017). Overview of Cloud-based Learning Management System. *International Journal of Computer Applications,* 162 (11), ISSN 0975 – 8887.

Heide, A., & Henderson, D. (2001). Active learning in the digital age classroom. Portsmouth, NH: Heinemann. Heidelberg, New York. Springer 965-982.

Hisham, B. H. (2011). Attitudes of Saudi Universities Faculty Members Towards Using Learning Management System (JUSUR). *The Turkish Online Journal of Educational Technology*, 10 (2), 43-53.

Isyaku, K. (2000). Teacher education in the 21th century Nigeria: vision and action. Kaduna: NCCE publication.

Johanesse, M. (2012). *Three key skills needed inside organizations.* California: Legacee.

Jones, K. (2004). Using interactive whiteboards in the teaching and learning of mathematics: a research bibliography. MicroMath, 20, 5-6.

Kaewkiriya, T. & Utakrit, N. (2012). "A Model of an eLearning Management System Based on Cloud Computing and Web Service," 8(1), 83–87.

Kaplan, M. A. (1996). *Thinking about technology.* The World & I. March, 1996. 287.

Khaddash, H. A. & Al-Hadhrami, A. (2006). The effectiveness of teaching Accounting principles (1) by using web-based materials offered by the Learning Management System. Jordanian journal in business 2(2), 213-224.

Khalid A. (2016). Evaluating the awareness and perceptions of English teachers in using e-learning tools for teaching in Saudi high schools. *British Journal of English Linguistics*, 4(5),16-34.

Khan, M. S., Khan, I., Din S., Ismail, H. M., Rafid, K., (2015) The Impacts of ICT on the Students' Performance: A Review of Access to Information. Res Human Soc Sci 1: 2224-5766.

Korte, W. B., & Hüsing, T. (2007). Benchmarking access and use of ICT in European schools 2006: Results from Head Teacher and A Classroom Teacher Surveys in 27 European countries. *eLearning Papers, 2*(1), 1-6.

Kristina, J., & Leslie I. (2013). Use, updating and integration of ICT in higher education: Linking purpose, people and pedagogy. *Higher Education*, 54: 417-433.

Kuyoro, S. O., Awodele O., & Okolie S. O. (2017) ICT: An Effective Tool in Human Development*. International Journal of Humanities and Social Science.* 2 (7) pp. 158-164.

Levinson, P. (1996). *On behalf of humanity: the technological edge.* The World & I. March, 1996. 301-313.

Martín-Blas, T., & Serrano-Fernández, A. (2009). The role of new technologies in the learning process: Moodle as a teaching tool in Physics. Computers and Education, 52(1), 35-44.

McLoughlin, C. & Lee, M. (2008). Social software and participatory learning: Pedagogical choices with technology affordance in the Web 2.0 era. *Paper presented at the Ascilite Conference*, Singapore.

Medlin, B. D. (2001). The factors that may influence a faculty member's decision to adopt electronic technologies in instruction (Doctoral dissertation, Virginia Polytechnic Institute and State University, 2001). ProQuest Digital Dissertations. (UMI No. AAT 3095210).

Mirashe, S. P. & Kalyankar, N. V. (2010). "Cloud Computing," Communication. ACM, 51(7), 9.

Morayo, J. (2013). An Appraisal of the Open and Distance Learning Programme in Nigeria. *Journal of Education and Practice,* ISSN 2222-1735, 4 (3).

Mulder, J. (2008). Knowledge dissemination in Sub-Saharan Africa: What role for open educational resources (OER)? *Amsterdam: International school for humanities and social sciences, university of Amsterdam.*

NCCE (1996). Teacher education, an imperative for national development. Abuja.

Nwaocha, V. O. & Iyiama, H. C. (2008). Open and Distance Learning: Successful implementation in Nigeria. Paper presented at the 2nd ACDE Conference and General Assembly, 8 – 11th July 2008, pp. 332-338

Okoye, K. R. E. (2010). Enhancing quality in educational practice and instructional delivery by teachers of technology and vocational education in Nigeria. *African research review, 4* (2), 355-369.

Onuma, N. (2007). *Utilization of information and communication technology in schools:* Problems and suggestions. In J.B. Babalola, G.O. Akpa, A.O. Ayeni, & S.O. Adedeji (Eds.). *Access, equity and quality, in higher education,* 487-496. NAEAP Publishers.

Owoeye, J. S. (2004). "An Overview of Distance Education in the University of Ibadan". In

Papagelis, A. & Zaharias, P. (2015). Gamifying a Learning Management System: The case of TalentLMS," II Int. Work. Gamification Educ.

Parisot, A. H. (1995). Technology and teaching: The adoption and diffusion of technological innovations by a community college faculty (Doctoral dissertation, Montana State University, 1995). ProQuest Digital Dissertations. (UMI No. AAT 9542260).

Perkins, R. A. & Lowenthal, P. R. (2016). Open access journals in educational technology: Results of a survey of experienced users. *Australasian Journal of Educational Technology*, 32(3), 18-37. doi:http://dx.doi.org/10.14742/ajet.2578.

Prabha, K., & Sanjeev, T. (2015). An Evaluation of Open-Source LMS for e-Learning courses. *International Journal of Computer Sciences and Engineering*. Vol 3 (4). ISSN 2347-2693.

Preece, J., & Shneiderman, B. (2009). The Reader-to-Leader Framework: Motivating technology-mediated social participation. AIS Transactions on Human–Computer Interaction, 1(1), 13–32.

Racthman, P., & Firpo, D. (2011). Using social networking technology to enhance learning in higher education: A case study using Facebook. *Paper presented at the 44th Hawaii International Conference on Systems Sciences* Hawaii, USA.

Rifkin,W., Longnecker, N., Leach, J., Davis, L., & Ortia, L. (2009). Motivate students by having them publish in new media: An invitation to Science lecturers to share and test. *Paper presented at the Australian Conference on Science and Mathematics Education*: Motivating Science Undergraduates — Ideas and Interventions, Sydney, Australia.

Rogers, E. M. (1995). *Diffusion of innovations* (4th ed.). New York: The Free Press.

Rubina, B., Shakeel, K., & Aqeel, K. (2011). Use of ICT by Students: *A Survey of Faculty of Education at IUB.*

Rusdin, N. M. (2018). Teachers' Readiness in Implementing 21st Century Learning. *International Journal of Academic Research in Business and Social Sciences*, *8*(4), 1293–1306.

Ryan.P., & Gross, A. M. (2008). Do off-campus students use e books?. *Journal of Library Administration,* 48(3/4), 455-466.

Saddam, C. B., Gellie, F. P. & Shelanee, T. P. R. (2012). Status of students' perceptions and self-efficacy on the use of ICT. *2012 International Conference on Education and Management Innovation IPEDR Vol 30. Press. 145-149.*

Saleem, N. E., Al-Saqri, M. N. & Ahmad, S. E. A. (2016). Acceptance of Moodle as a Teaching/Learning Tool by the Faculty of the Department of Information Studies at Sultan Qaboos University, Oman based on UTAUT. *International Journal of Knowledge Content Development & Technology*, 6(2), 5-27.

Saleh, R. A. (2016). Use and attitude towards Learning Management Systems (LMSs). *Eurasia Journal of Mathematics, Science & Technology Education*, 12(9), 2309-2330.

Schoepp, K. (2005). Barriers to technology integration in a technology-rich environment. *Learning and Teaching in Higher Education: Gulf Perspectives, 2*(1)*,* 1-24.

Sicilia, C. (2005). *The Challenges and Benefits to Teachers' Practices in Constructivist Learning Environments Supported by Technology*. Unpublished master's thesis, McGill University, Montreal.

Spector, J. M. (2013). Emerging educational technologies and research directions. *Educational Technology & Society,* 16(20), 46.

Stuart, W.D. (2000). Influence of sources of communication, user characteristics and innovation characteristics on adoption of a communication technology (Doctoral dissertation, The University of Kansas, 2000). ProQuest Digital Dissertations. (UMI No. AAT 9998115).

Suleiman, L. & Nuhu, J. I. 2009). Teachers and teaching methods: the facts on learning for sustainable development. *Sokoto educational review, 11* (2), 131-139.

Tower, M., Latime, S., & Hewitt, J. (2014). Social networking as a learning tool: *Nursing students' perception of efficacy*. Nurse Education Today, 34, 1012–1017.

UNESCO (1996). Building partnership: UNESCO and education in Nigeria.

UNESCO (2002). ODL: Trends, Policy and Strategy Consideration. Paris, UNESCO.

Usluel, Y. K., Askar, P., & Bas, T. (2008). A structural equation model for ICT usage in higher education. Educational Technology and Society, 11, 262-273.

Virkus, S. (2008). Use of Web 2.0 technologies in LIS education: Experiences at Tallinn University, Estonia. *Electronic Library and Information Systems*, 42(3), 262–274.

Weinstein, S. H. (1986). Military or civilian use of instructional innovations: Is there a difference? San Francisco: *National Society for Performance and Instruction*. (ERIC Document Reproduction Service No. ED 271 580).

WizIQ (2018). Virtual classroom and software. Retrieved online on 3/7/2018 from https://www.wiziq.com/about-us/

Womboh, B. S. H., & Abba, T. (2008). The state of Information and Communication Technology (ICT) in Nigerian university libraries: The experience of Ibrahim Babangida Library, Federal University of Technology, Yola. *Library Philosophy and Practice.* Available: http://unllib.unl.edu/LPP/womboh.htm.

Wright, C. R., Lopes, V., Montgomerie, T. C., Reju, S. A., & Schmoller, S. (2014). Selecting a learning management system: Advice from an Academic Perspective. Educause Review. Retrieved July 11, 2018 from http://er.educause.edu/articles/2014/4/selecting-a-learning-managementsystem-advice-from-an-academic-perspective.

Yinusa, A. F. (2014). Assessment of teaching strategies adopted for effective implementation of science subjects and trade modules curriculum in Nigerian technical colleges. *Journal of educational and social research MCSER publishing, Romeo-Italy, 4*(6), 391-396.

Yusuf, M. O. (2006). Problems and prospects of Open and Distance Education in Nigeria. *Turkish on-Line Journal of Distance Education* 7 (1) *http//tojde.anadolu.edu.tr.*

.

APPENDICES

APPENDIX A

QUESTIONNAIRE ON LECTURERS' AWARENESS, READINESS AND ATTITITUDE TOWARDS LEARNING MANAGEMENT SYSTEM

Dear Respondent,

This questionnaire is designed to get your responses on the above subject matter. Any statistics given will be used strictly for this study and will be used with utmost confidentiality.

LMSs are web-based tools for conducting quality online teaching and training. They are platforms for user management in their interaction with educational content that is created and presented in a suitable format. LMSs are software applications meant for the administration, documentation, tracking, reporting and delivery of educational contents.

SECTION A: Respondent's Data

Name of Institution.....

Gender: ☐ Male ☐ Female

SECTION B:

Lecturers' Awareness on the Usage of LMS

Note: Extremely Aware (EA); Moderately Aware (MA); Somewhat Aware (SA); Slightly Aware (SL); Not Aware (NA)

S/N	Item	EA	MA	SA	SL	NA
1	I am aware of the existence of LMS					
2	I know that LMS can be used to deliver instructional contents to students					
3	I am aware that my lectures can be delivered through LMS					
4	I am aware that my students can watch my lecture video online through LMS platform.					

5	I know that I can assess and monitor my students' learning progress online through LMS platform					
6	I am aware LMS helps to connect both instructors and students in a virtual environment					
7	I am aware that lecturers in some institutions of higher learning do use LMS for instructional delivery					
8	I am aware that LMS can be used to give immediate feedback to students					

SECTION C: Lecturers' Readiness to Adopt LMS for Teaching

Note: VR (Very Ready); R (Ready); U (Undecided); NR (Not Ready);VNR (Very Not Ready)

S/N	Item	VR	R	U	NR	VNR
1	I consider LMS as an innovation and I am ready to adopt it for lecture delivery.					
2	My computer knowledge and skills will help me deliver lectures online using LMS					
3	Irrespective of my location and time of the day, I have computer and internet facilities that afford me opportunities to relate with my students and deliver my lecture online through LMS					
4	I am prepared to attend to all my students' enquiries and respond to all their questions while using LMS in real time					
5	With enabling environment, I am ready to deliver my lecture online using LMS platform					

SECTION C: Lecturers' Attitude towards LMS for Teaching

Note: SA (Strongly Agree); A (Agree); U (Undecided); D (Disagree); SD (Strongly Disagree)

No	Items	SA	A	U	D	SD
1	I feel it is important to be able to find any information whenever I want through LMS					
2	I feel it is important to be able to access various LMS platform any time I want					
3	I think it is important to keep up with the latest					

	information about my discipline through ICT.					
4	I regularly use LMS because I find information on LMS to be useful					
5	LMS make me interact with my students whether outside or inside school.					
6	LMS allow me to interact with my professional friends					
7	Interaction and teaching through LMS is enjoyable					
8	I get useful information through ICT and use it for instructional delivery					
9	Information on LMS are never misleading					
10	I feel interaction on LMS enhances learning					

APPENDIX B

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
SCHOOL OF SCIENCE AND TECHNOLOGY EDUCATION
DEPARTMENT OF EDUCATIONAL TECHNOLOGY

Dear Sir/Madam,

Instrument Validation Form

The bearer is a student of the above named University and Department. She/he is conducting a research and you have been selected as one of those with requisite expertise to validate his/her instrument. Kindly grant him/her all necessary assistance to make the exercise a success.

Your competency and expertise was considered as factors that will serve to improve the quality of his/her research instrument. We therefore crave for your assistance in validating the instrument. The completion of the form serves as evidence that the student actually validated the instrument

Thanks for your anticipated assistance.

Dr ALABI THOMAS OMOIAYO 29 JAN 2019

Head of Department (Signature, Date & Official Stamp)

Student's Surname. Nuhu ..... Other Names. Frama V.

Registration Number MTECH/SSTE/17/6790 Programme MTECH

Title of the Instrument QUESTIONNAIRE ON LECTURERS' AWARENESS, READINESS AND ATTITUDE TOWARDS LEARNING MANAGEMENT SYSTEM.

ATTESTATION SECTION

Summary of the Remark on the Instrument.....

.....

.....

I hereby attest that the above named student brought his instrument for validation

Name of Attester..... YAKI, A-A .....

Designation..... LECTURER 1 .....

Name and Address of Institution..... FUT MINNA .....

Phone Number..... E.- Mail... Jakiakawa@gmail.com.

Please comment on the following

1. Appropriateness of the instrument for the purpose it's design for.....
   VERY APPROPRIATE.....
2. Clarity and simplicity for the level of the language used.....
   SATISFACTORY.....
3. Suability for the level of the targeted audience .....
   VERY SUITABLE.....
4. The extent in which the items cover the topic it meant to cover.....
   SATISFACTORY.....
5. The structuring of the Questionnaire.....
   SATISFACTORY.....
6. Others (grammatical errors, spelling errors and others.....
   Need to Improve Your Use Of English.....
7. General overview of the Instrument.....THE CONTENT OF.....
   THE INSTRUMENT ITEMS VALID.....

Suggestions for improving the quality of the Instrument

1. Need to Improve on the use of English. For Most Items.
2. You may wish to change the scales of SA, A, U, D&SD
3. To VERY READY, (VR) READY (R) UNDECIDED (U) NOT READY (NR) & VNR
4. .....
5. .....

Name of Validator.....YAKI AKANO.....

Area of Specialization.....SCIENCE EDUCATION.....

Name of Institution.....F.U.T. MINNA.....Designation.....L1.....

Signature.....Date.....19/08/2019.....

Thank You

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
SCHOOL OF SCIENCE AND TECHNOLOGY EDUCATION
DEPARTMENT OF EDUCATIONAL TECHNOLOGY

Dear Sir/Madam,

Instrument Validation Form

The bearer is a student of the above named University and Department. She/he is conducting a research and you have been selected as one of those with requisite expertise to validate his/her instrument. Kindly grant him/her all necessary assistance to make the exercise a success.

Your competency and expertise was considered as factors that will serve to improve the quality of his/her research instrument. We therefore crave for your assistance in validating the instrument. The completion of the form serves as evidence that the student actually validated the instrument

Thanks for your anticipated assistance.

Dr ABAH Thomas Onoja 29/12/2019

Head of Department (Signature, Date & Official Stamp)

Student's Surname... Nuhu ... Other Names... Frama

Registration Number MTECH/SSTE/2017/6790 Programme... MTECH

Title of the Instrument QUESTIONNAIRE ON LECTURES'S AWARENESS, READINESS AND ATTITUDE TOWARDS LEARNING MANAGEMENT SYSTEM.

ATTESTATION SECTION

Summary of the Remark on the Instrument... The instrument is well designed based on the Subject matter Content of the instrument write to meatime solicit from the intending audience.

I hereby attest that the above named student brought his instrument for validation

Name of Attester... DR. I. I. Kanta

Designation... S/L

Name and Address of Institution... FUT, Minna

Phone Number... 08035871865 ...E.- Mail...

Please comment on the following

1. Appropriateness of the instrument for the purpose it's design for.....
   The instrument is appropriate and objective
2. Clarity and simplicity for the level of the language used.....
   Very clear, Simple and unambiguous
3. Suability for the level of the targeted audience .....
   Adequately Suitable for the respondents
4. The extent in which the items cover the topic it meant to cover.....
   Maximumly
5. The structuring of the Questionnaire.....
   Good
6. Others (grammatical errors, spelling errors and others.....
   Very minimal
7. General overview of the Instrument.....
   The instrument is Valid

Suggestions for improving the quality of the Instrument

1. Ensure adequate administration of the instrument
2. .....
3. .....
4. .....
5. .....

Name of Validator... Dr. I. I. Kuta

Area of Specialization... Eduteeh

Name of Institution... FUT, Minna ..... Designation... S/L

Signature... Ismaila ..... Date... 19/8/19

Thank You

APPENDIX C

```
GET DATA /TYPE=XLSX
  /FILE='C:\Users\SAMSUNG\Desktop\frama\FRAMA.xlsx'
  /SHEET=name 'Attitude'
  /CELLRANGE=full
  /READNAMES=on
  /ASSUMEDSTRWIDTH=32767.
EXECUTE.
DATASET NAME DataSet2 WINDOW=FRONT.
RELIABILITY
  /VARIABLES=Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA.
```

Reliability

```
[DataSet1]
```

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	20	100.0
	Excluded[a]	0	.0
	Total	20	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha[a]	N of Items
.749	10

```
GET DATA /TYPE=XLSX
  /FILE='C:\Users\SAMSUNG\Desktop\FRAMA.xlsx'
  /SHEET=name 'Awareness'
  /CELLRANGE=full
```

```
  /READNAMES=on
  /ASSUMEDSTRWIDTH=32767.
EXECUTE.
DATASET NAME DataSet1 WINDOW=FRONT.
RELIABILITY
  /VARIABLES=Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA.
```

Reliability

```
DataSet1]
```

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	20	100.0
	Excluded[a]	0	.0
	Total	20	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.715	8

```
GET DATA /TYPE=XLSX
  /FILE='C:\Users\SAMSUNG\Desktop\frama\FRAMA.xlsx'
  /SHEET=name 'Readiness'
  /CELLRANGE=full
  /READNAMES=on
  /ASSUMEDSTRWIDTH=32767.
EXECUTE.
DATASET NAME DataSet3 WINDOW=FRONT.
RELIABILITY
  /VARIABLES=Q1 Q2 Q3 Q4 Q5
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA.
```

Reliability

[DataSet3]

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	20	100.0
	Excluded[a]	0	.0
	Total	20	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.822	5