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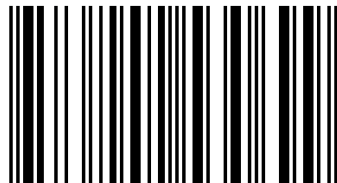
Emmamoge Orewere

The Impact of Learning Management System

In Federal College of Forestry, Jos - A Case Study

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THE IMPACT OF LEARNING MANAGEMENT SYSTEM IN FEDERAL COLLEGE OF FORESTRY, JOS - A CASE STUDY

BY

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EMMAMOGE OREWERE

APRIL, 2020

DEDICATION

This work is dedicated to God. He is the giver of knowledge, the only known Creator of all things. To Him alone, who sees beyond now, be all glory and praise

ACKNOWLEDGEMENT

ABSTRACT

Learning management systems are actively used by instructors, students, and institutions in order to provide better learning environments for teaching, learning, and administration in higher education. The main thrust of this research is to assess the impact of Learning Management Systems (LMSs) on students from Department of Horticulture and Landscape Technology, Federal College of Forestry, Jos. Field survey by questionnaire was the main tool of data collection while Secondary data were collected from relevant literatures. A total of 30 questionnaires were distributed to respondents. Only 27 of the questionnaires were retrieved representing 90%, 2 not clearly filled and 1 was not retrieved. Findings from the study revealed that the effect of Learning Management Systems on Students was higher when compared to those who were conducted using traditional method. Also students are able to explore new concepts in the course and on task in a way that helped learning and communicate important dates/time frames for learning activities. Based on these findings, it is recommended that more training and guidance for students and lecturers using the LMS be adopted.

Keywords: College, Impact, Learning Management System (LMS), Lecturers, Students

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1.1 Background to the Study

Nowadays, computers are being used in all areas of our lives and the use of the Internet in courses is increasing. The interaction between the teacher, the student and the course material is often facilitated or supplemented by the Internet in these courses. Due to the use of technological tools and the Internet, greater continuity in education can be ensured and the connections between both individuals and the course materials can be strengthened in the online environments of the digital revolution (Sulun, 2018).Technology has made it possible to provide frameworks which can help in conventional education system. These frameworks are commonly known as learning management systems (LMS) (Kulshrestha. et al., 2013).

There are basically four types of e-learning systems: the Learning Management System (LMS), Learning Content Management System (LCMS), Learning Design System (LDS), and Learning Support System (LSS) (Adzharuddin, et al., 2013). This write-up focuses on, the Learning Management System (LMS), which is an e-learning system used by various universities all over the globe.

The Learning Management System (LMS) has been established in a number of universities worldwide to help connect students and lecturers without the confines of the traditional classroom. (Adzharuddin, et al., 2013). LMS, a software designed to assist administrative activities and facilitate how the students participate in e-learning materials, was developed. The software application is used in tailoring content, e-learning programs, classroom and online events, tracking and reporting online programs, and documentation (Abdullah, 2018). The history of the use of learning management systems in education dates back a few decades. Learning management systems were first introduced in the late 1990s, and their adoption has been accelerated by the development of multimedia and the expansion of the Internet (Sulun, 2018). With each passing day, these systems become even more developed and are adopted by many universities around the world.

Contextual to this paper, a learning management system (LMS) is a software application or Web-based technology used to plan, implement, and assess a specific learning process. Typically, a learning management system provides an instructor with a way to create and deliver content, monitor student participation, and assess student performance (Chigozie-Okwum, et al.,

2018). It provides students with the ability to use interactive features such as threaded discussions, video conferencing, and discussion forums (Chigozie-Okwum, et al., 2018). Additionally, a LMS can provide support for instructors to use the curriculum to achieve learning goals, plan class activities for course delivery, as well as to monitor, analyze and report student participation. From the standpoint of students, an LMS can help them to plan the process of their learning according to their individual progress, communicate with their friends and classmates, and collaborate together on the assigned tasks (Ellis, 2009). Tertiary institutions have adopted the LMS to facilitate their flexible teaching needs and as a sole channel of distance education modality that eliminates or reduces "on-ground" classroom time (Chigozie-Okwum, et al., 2018).

Some of the best known commercially available LMS systems are *Blackboard*, *WebCT,* and *Desire2Learn*. There are also many open-source and free LMS systems, such as *Moodle, Segue, Interact, Course Work, Atutor, KEWL* and several others (Nadire, et al., 2006; Chigozie-Okwum, et al., 2018).LMS has become a solution which is useful for both students and instructor in online learning environment with the goal of keeping track of students" progress and performance (Adzharuddin, et al., 2013).

Today, learning management systems are used for both synchronous and asynchronous delivery methods in educational settings. According to Abdullah, (2018), Synchronous communication is where participation occurs at the same time, while in asynchronous communication, participation does not occur at the same time; some examples are e-mail and discussion boards. Additionally, LMSs have been used in the following different course types and course delivery types such as, Lecture, lab, lecture and lab, practicum. Course Delivery Types: Synchronous, Asynchronous, Hybrid (Sulun, 2018).

University students are mostly independent in their learning as lecturers usually give out lecture notes, and further information are left for the students to discover on their own, as it is not a one-way learning process which is practiced in the primary and secondary school system. The learning process at the university level is a two-way process, lecturers share their knowledge and students give their opinions or thoughts in return a topic in a class discussion. Therefore, university students need to constantly broaden their knowledge by searching for information (Adzharuddin, et al., 2013).

Learning management system basically uses three types of networks internet, university network or corporate computer network (Kulshrestha. et al., 2013). LMS is emerging as a potential

delivery medium for education and training. This is evident from the increasing number of educational institutions and organizations adopting e- learning (Kulshrestha. et al., 2013). Educators rarely have all the technological skills needed to develop custom web sites for online classes. Therefore, many educational institutions have adopted online course-building applications, or a LMS to facilitate online learning (Chigozie-Okwum, et al., 2018). The authors gave two main functions associated with the LMS which are course administration and management and course pedagogy, teaching and learning.

In Nigeria and other countries there are studies that has received considerable attention in literature on LMS, most of the studies have examined the Learning Management System (*LMS*) among University Students: Does It Work? (Adzharuddin, et al., 2013); Benefits of Learning Management System (LMS) in Indian Education (Kulshrestha, et al., 2013); Social Learning through Learning Management System (LMS) in India (Kumar, et al., 2015); Availability and utilization of electronic learning devices among undergraduate students of the Faculty of Education, University of Jos (Nimyel,2017); Barriers to Participation in Learning Management Systems in Saudi Arabian Universities (Abdullah.2018); Adoption of Learning Management Systems in Nigerian Tertiary Institutions: Issues and Challenges (Chigozie-Okwum, et al., 2018).

However there are little or no known studies to assess the impact of learning management system in the Department of Horticulture and Landscape Technology, Federal College of Forestry, Jos. This study therefore intends to fill the gap that exists. Given that the world has become a global village due to advancements in information and technology, Federal College of Forestry, Jos, has not been left behind in terms of Internet availability. Internet access for the students and lecturers has become an easy thing, therefore motivating the use of LMSs.

1.2 Statement of the Problem

Today, the world as a global village is advancing technological and this advancement can be attributed to the influence of the availability and utilization of electronic learning devices during learning process, most especially in tertiary institutions in Europe, America and other technologically advanced countries (Nimyel, 2017). However in Nigeria, the need to investigate into the impact of learning management system cannot be trivialized. This is because students rarely make use of electronic learning devices due to the traditional classroom setting still in practice. Even the emergence of e-learning device in education delivery in tertiary institutions create some problems from little or no available learning devices to poor utilization, poor funding.

In Nigeria and other countries there are studies that has received considerable attention in literature on LMS, however there are little or no known studies to assess the impact of learning management system in the Department of Horticulture and Landscape Technology, Federal College of Forestry, Jos. This study therefore intends to fill the gap that exists. LMS is not intended to replace the traditional classroom setting, but its main role is to supplement the traditional lecture with course content that can be accessed from campus or the Internet.

1.3 Aim and Objectives

The study is aimed at assessing the impact of learning management system in the Department of Horticulture and Landscape Technology, Federal College of Forestry, Jos. The following specific research objectives will be employed in achieving the aim of the research:

  i.   investigate the impact of LMS in education system over traditional ways of learning on students

 ii.   examine factors promoting internet usage for information gathering and interaction

iii.   identify barriers to the use of LMS on campus

1.4 Research Questions

To further propel the research in the positive light, the research will attempt to provide answers to the following research questions:

  i.   What is the Impact of learning management systems on Student?

 ii.   What is the effect of learning management systems on student interaction on Campus?

iii.   How Effective is learning management systems and its usage on Campus?

1.5 Justification of the Study

LMSs play a critical role in the higher education system because of the extension of the classroom and its activities online, hence connecting students to one another and to the lecturers. The findings of this study will be beneficial to learners (students), instructors or moderator and administrators and other researchers in various fields.

The findings of the study will encourage learners (students) to confidently search and obtain information regarding their courses, and also to ensure the accuracy and reliability of the information. It helps students to develop skills and competencies in the use of e-learning which will be useful in social life and the world of learning.

The LMS as a content distribution system, enables instructors to distribute course materials and interact with students at a distance. Furthermore, LMS will help the lecturers to provide their learning materials and also interactivity features such as thread discussions, shared files and forums.

Also the findings of the study can be used by administrators to upgrade or launch portals where students can access academic materials, past projects, and course materials uploaded by lecturers. The study would seek public and private partnership to provide internet services from the telecommunications industry.

Finally, researchers in other disciplines will see the need for continuous researches related to the e-learning in the nation to enable the advancement of global best practices.

1.6 Scope of the Study

The field of e-learning systems is quite wide due to its many connected branches that are germane to education. Adzharuddin, et al., (2013), identified basically four types of e-learning systems: the Learning Management System (LMS), Learning Content Management System (LCMS), Learning Design System (LDS), and Learning Support System (LSS). This write-up focuses on, the Learning Management System (LMS), which is an e-learning system used by various universities all over the globe. Emphasis was on the impact of learning management system on students from Department of Horticulture and Landscape Technology, Federal College of Forestry, Jos.

1.7 Limitations of the Study

In physical area term, the study's attention is confined to the built up area of Federal College of Forestry, Jos located along Bauchi road and opposite Bauchi Motor Park. Located in Northern Guinea savanna situated at 9°55' latitude and 8°54' longitude. (Olowolafe, 2002).

1.8 Operational Definition of Terms

Some terminologies have exclusive interpretations in the context of this study. Some of these terms are listed below with their contextual meanings.

1.8.1   **E-Learning:** is an approach to facilitate and enhance learning through computer and communication technology (Kulshrestha. et al., 2013).

1.8.2   **Google Sites** - Google sites is a free, customizable Web site templates with settings for accessing and sharing information. Provides seamless integration with Google Docs* and Google Calendar* (Chigozie-Okwum, et al., 2018)

1.8.3 **Internet:** The internet is defined as a vast computer network linking smaller computer networks Worldwide, and it includes commercial, educational, governmental, and other networks, all of which use the same set of communications protocols (Adzharuddin, et al., 2013).

1.8.4 **LMSs:** Learning Management Systems is a web-based platform that enables instructors to plan, evaluate, automate administration, report training events and implement the learning process (Ellis, 2009). It holds data about users, courses and content (Kumar, et al., 2015).

CHAPTER TWO
LITERATURE REVIEW

2.1 Computers Evolution and Spread in Education

Nowadays, computers are being used in all areas of our lives and the use of the Internet in courses is increasing. The interaction between the teacher, the student and the course material is often facilitated or supplemented by the Internet in these courses. Due to the use of technological tools and the Internet, greater continuity in education can be ensured and the connections between both individuals and the course materials can be strengthened in the online environments of the digital revolution (Sulun, 2018).

2.2 Historical Development of Learning Management Systems

The history of the use of learning management systems in education dates back a few decades. Learning management systems were first introduced in the late 1990s, and their adoption has been accelerated by the development of multimedia and the expansion of the Internet (Sulun, 2018).

With each passing day, these systems become even more developed and are adopted by many universities around the world. In the first stages of their expanding use, there was no common name for these systems as there is today. They were referred to as learning platforms, distributed learning systems (DLS), course management systems (CMS), content management systems (CMS), portals, instructional management systems (IMS), and finally learning management systems (LMS), Coll, (2015) as cited in Sulun, (2018). Their main purpose was to facilitate the design of course arrangements, delivery of course content and learning tools, and management of course processes in asynchronous and synchronous learning environments.

Since different course delivery methods have been created by diverse populations in various universities around the world, there arose a need for guidelines and standards for creating and developing LMSs. Therefore, some standards and models were designed for course management systems such as the Instructional Management System Standards (IMS 2003) and Sharable Content Object Reference Model (SCORM 2003) by the Advanced Distributed Learning community (Sulun, 2018).

2.3 Concept of Learning Management Systems

Learning Management Systems are a type of an ongoing infrastructure that many institutions globally are investing in (Abdullah, 2018).Learning Management Systems can therefore be interpreted in several ways and in several concepts depending on the point of view of the individual.

The Learning Management System or popularly known as LMS in the community of higher institutions is an online portal that connects lecturers and students. It provides an avenue for classroom materials or activities to be shared easily. It is also a portal that enables lecturers and students to interact out of the classroom, having discussions through forums that could otherwise take up too much of the time supposed to be spent learning in the classroom (Adzharuddin, et al., 2013).

Kumar, et al., (2015) defined LMS as a software application for the administration, documentation, tracking, reporting and delivery of e-learning education courses or training programs

Additionally, a LMS can provide support for instructors to use the curriculum to achieve learning goals, plan class activities for course delivery, as well as to monitor, analyze and report student participation. From the standpoint of students, an LMS can help them to plan the process of their learning according to their individual progress, communicate with their friends and classmates, and collaborate together on the assigned tasks (Sulun, 2018).

According to Kulshrestha. et al., (2013), Learning Management System (LMS) works as central repositories to address all type of educational needs. The major areas addressed by LMS deployment are Curriculum Planning, Instant Evaluation, Learner Engagement and Content Management (see Figure 1) below
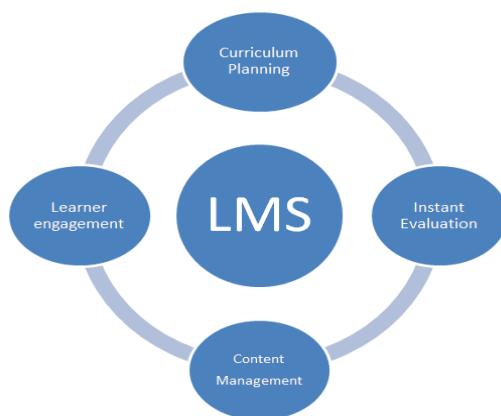
Figure 1: LMSs Features
Source: Adapted from Kulshrestha. et al., 2013.

2.3.1 The LMS Design Pattern

These days Learning Management Systems is being embraced by many institutions to satisfy the demands and requirement. According to Kumar, et al., (2015) the users of LMS can be categorized into following groups:

i. **The learners:** They use the system for the educational process. The learners are the basic or the main users of LMS.

ii. **The instructors:** The instructors are the teachers and the helpers who use the LMS to supervise, assist and evaluate the learners.

iii. **The administrators:** The administrator can claim the backup of all the users of the system to maintain a tick on the proper operating status.

2.3.2 Examples of Learning Management Systems

Authors such as (Ellis, 2009; Chigozie-Okwum, et al., 2018; Abdullah, 2018; & Sulun, 2018), averred that many online platforms have tools and features designed specifically for educators, they include:

i. **Blackboard** -Blackboard is a comprehensive online education platform that includes a mobile application and real-time collaboration features. Assessment tools include an online test generator, interactive rubrics, and built-in reports.

ii.   **Desire2Learn**-This is an integrated suite of products for the creation, delivery, and management of online courses. Includes a mobile application, student assessment data, and tools for capturing and broadcasting presentations live and on-demand.

iii.   **Edmodo** Edmodo is a free online platform that emphasizes collaboration and social media to customize learning. Designed specifically for classroom use, this platform includes tools for homework, assessment, discussion, and mobile learning. Additionally, Edmodo communities connect teachers to a global network of educators.

iv.   **NEO**-NEO offers both free and premium plans with unlimited storage. The K12 platform features instructional content delivery, calendar, discussion, videoconferencing, blog, and wiki tools. Assessment tools include an online grade book, rubric generator, and built-in reports.

v.   **Google Sites** - Google sites is a free, customizable Web site templates with settings for accessing and sharing information. Provides seamless integration with Google Docs* and Google Calendar*.

vi.   **Moodle**-Moodle is a free web application that educators can use to create effective online learning sites. Includes an educator community and support center.

vii.   **Rcampus** -Rcampus is an intuitive platform for managing instructional content, grade books, assessments, and collaboration. Includes an e-Portfolio application and rubric builder with real-time student progress reporting.

viii. **Schoology**-Schoolgy is a free platform with tools to embed media and manage online discussions. A collaboration feature allows educators to share materials and integrate public content. Assessment tools generate tests, provide direct student feedback, and track progress. Additional tools can analyze student activity and engagement with the material.

2.4 Features of Learning Management Systems

The features of learning management system are listed below as cited by Chigozie-Okwum, et al., (2018).

i.   **Integration with Human Resource Department -** LMSs that aren't synchronized with Human Resources systems misses the boat. When systems are integrated, a human resources employee can enter new employees information into the HR system, and the employee is automatically signed up for training tailored to his or her role within the company.

ii. **Administration tools-** The LMS must enable administrators to manage user registrations and profiles, define roles, set curricula, chart certification paths, assign tutors, author courses, manage content, and administer internal budgets, user payments, and charge-backs.

iii. **Content access-**This involves the medium (e.g., classroom, CD-ROM, online, etc.) in which the content is delivered, the method (e.g., instructor-led, self-paced, blended) in which the content is delivered, the languages in which the content is delivered and to whom the content is being delivered (e.g., students, employees, customers, partners, etc.).

iv. **Content development-** Content development encompasses authoring, maintaining, and storing the learning content. This is where the issues of authoring-tool compatibility, version control, and re-usable learning objects are considered.

v. **Content integration-**It's important for an LMS to provide native support to a wide range of third-party courseware. When shopping for an LMS, keep in mind that some LMSs are compatible only with the supplier's own courseware, and others do little more than pay lip-service to learning content standards. An LMS supplier should be able to certify that third-party content will work within their system, and accessing courses should be as easy as using a drop-down menu.

vi. **Skills management-**Skill assessment and management capabilities revolve around learners assessing their competency gaps. Skills assessments can be culled from multiple sources, including peer reviews and 360-feedback tools. Managers must be able to determine whether results are weighted, averaged, or compared to determine a skill gap. Businesses also might use this feature to search their employee base for specialized skills.

vii. **Assessment capabilities-**It's a good idea to have an assessment feature that enables authoring within the product and includes assessments as part of each course. Evaluation, testing, and assessment engines help developers build a program that becomes more valuable over time.

viii. **Adherence to standards-**An LMS should attempt to support standards, such as SCORM. Support for standards means that the LMS can import and manage content and courseware that complies with standards regardless of the authoring system that produced it. Beware: Unless the supplier certifies that the content will work on your LMS, plan on additional expenses.

ix.   **Configurability-**If an organization needs to completely re-engineer its internal processes to install an LMS or employ expensive programming resources to make changes to the LMS, then it's probably not a good fit. Also, it's helpful if IT and designers can access the LMS behind the scenes; they need to set processes and standards based on company policy. To make some systems IT user-friendly, some LMS providers have user groups or customer advisory councils that provide insight into installing or upgrading systems.

x.   **Security**-Security is a priority in any data system containing employee information and proprietary content. Security measures typically include passwords and encryption.

2.5 Benefits of LMS in Education System over Traditional Ways of Learning on Students

Chigozie-Okwum, et al., (2018) listed the benefits of a Learning Management Systems in organizing and presenting digital content. Below is the benefits:

i.   **Flexibility:** Students learn at different rates, and learning management systems provide the flexibility needed to meet their unique learning needs. Students can go back and review content as needed, or spend additional time researching a topic of interest. This self-directed learning gives students more control over their education.

ii.   **Time:** Learning management systems allow instructors to post additional content and resources to enhance the curriculum, providing learning opportunities without the constraint of classroom schedules or limited class time.

iii.   **Communication:** LMS tools foster communication with students and parents outside of the classroom. This may include: Discussion forums, Real-time messaging, Videoconferencing, E-mail, Announcement posts amongst others.

iv.   **Accessibility:** Web-based learning management systems are accessible to all students regardless of their location. This allows colleges and universities to reach a diverse student population. At high school and middle school levels, an LMS allows students to access their assignments and course content from home. Furthermore, the technology promotes globalization with open, flexible learning environments.

v.   **Collaboration:** LMS tools foster student collaboration on group projects. Built-in features support group blogs and wikis as collaborative spaces for learning. In addition, file sharing tools allow groups to post and share information.

vi. **Community:** An LMS platform supports a community of learners working together to build knowledge. Discussion forums, link and file-sharing and real-time messaging encourage student communities to come together and share knowledge.

vii. **Variety:** Learning management systems support multiple learning modes. Students can learn the content through audio, video, photos, articles, and interactive simulations.

2.6 Factors Promoting Internet Usage for Information Gathering and Interaction

The internet is a useful tool for searching information since it is user-friendly and available for research at any time of the day, depending on the student's needs. But there are also other factors that influence a person to use the internet to search for information (Adzharuddin, et al., 2013) as listed below

i. **Age**: Age often indicates generational gaps. Report from the Pew Internet and American Life Project conducted in 2003, the most connected age group among Internet users is the segment of those between 18 and 24 who are in school, with 86.7% online in 2003. Hargittai and Hinnant cited in Adzharuddin, et al., (2013), asserts those who are between the age of 29 and 59 tend to use the Internet more than the younger people to perform job research and to use government sites

ii. **Educational level:** Educational level measures individuals" intellectual development. Households headed by someone with a university degree were far more likely to use the internet, and people in all age groups were more likely to be connected, regardless of the location of use.

iii. **Income:** Income distinguishes people according to their economic power.

iv. **Graphic Images:** The existence of drawings and pictures available on the Web complements the almost constant flux of written information in textbooks. Also, Web resources allow for animations showing processes that otherwise are very difficult to describe in a textbook or in the classroom.

v. **Short Video Clips:** Short Video Clips can provide complementary information, thus enhancing the learning experience.

2.7 Barriers to the Use of LMS on Campus

The benefits of LMSs have already been confirmed. However, some of these benefits are either limited or require significant effort in order to achieve them. The presence of specific barriers can create difficulties that prevent students and teachers from reaping the benefits of the systems (Abdullah, 2018) as listed below

i.   **Poor Internet connectivity:** Poor Internet connectivity is a major barrier to students given that LMSs only work online, the Internet is a necessity. Poor connectivity slows down learning processes and tampers with features such as online conferencing, which only work with strong networks (Abdullah, 2018).

ii.   **Instructors' Attitude:** Instructors' attitude toward students is also a barrier that affects the adoption of LMSs, such as when instructors are working with students who are not conversant with ICT usage (Kyei-Blankson, 2016 cited in Abdullah, 2018). Teachers do not consider LMSs' effective tools in teaching; instead, they utilize traditional strategies, which have been shown to be less efficient than innovative systems. For instance, instead of an instructor encouraging a student to use ICT in order to improve their knowledge, they demean the student or avoid helping them (Kyei-Blankson, 2016 cited in Abdullah, 2018). The author notes that this is a difficulty that most students face. In addition, some teachers also lack technological skills, inconveniencing the students.

iii.   **Computer illiteracy:** Students who have been using the traditional way of learning in schools do face difficulties in adopting online systems (Abdullah, 2018). This is attributed to the fact that students believe in face-to-face teaching; they have misconceptions about using the learning system. According to Abdullah, (2018), many students feel that the traditional classroom style of learning is of higher quality in terms of interactions rather than checking the material in the LMS, thinking that an online facility cannot provide adequate data about the course; this has led to students not appreciating the LMS mode of learning. Kats, (2010), cited in Abdullah, (2018), reported that students complained that the LMS was confusing and slow, and it focused more on administration than on the students. The authors also added that students complained that the use of LMS interfaces was rigid and dull as compared to other

social environments, like Facebook, YouTube, and Myspace, which are engaging and fun.

iv. **Lack of or inadequate training and support facilities:** Inadequate training and support facilities, software issues that disrupt classroom teaching, blocked websites, and infrastructure failure in the universities.

v. **Lack of Government Thrust:** Most of the institutes that are government aided do not have enough budgets to afford e-learning. As there is a cap on the maximum fee that may be charged by these institutes, this extra cost of e-learning cannot be passed on to the students. Such institutes shall be able to adopt e-Learning only if there is enough thrust from the Government towards the same (Kumar, et al., 2015).

Other barriers that the authors reported include incompatibility of IT systems, poor management of technology implementation, poor internet access and networking in the institutions and a lack of high-quality technical support staff (Abdullah, 2018).

2.8 Theoretical Framework

The theoretical framework that will guide this study will be based on the Technology Acceptance Model developed by Fred Davis and Richard Bagozzi (Nimyel, 2017). The Technology Acceptance Model is an information system that models how users come to accept and use a technology. The model suggest that when users are presented with new software package a number of factors influence their decision about how and when they will use it, notably are;

i. Perceived Usefulness: as the degree to which a person believes that using a particular system would enhance his or her job performance.

ii. Perceived Ease of Use as the degree to which a person believes that using a system would be free from effort

The TAM theory further explains that in the real world there are many constraints, such as limited ability, time constraints, environment limits which will limit the freedom to act. (Nimyel, 2017).Because new technologies such as smart phone, laptops, and learning with using technologies are complex and elements of uncertainty exists in the minds of decision, makers with respect to the successful adoption off them (Nimyel, 2017).. People form attitudes and intentions towards trying to learn to use the new technology prior to initiating efforts directed at it.Attitudes towards usage and intentions to use may be ill-informed or lacking in conviction.

The theory was applied because, it was closely related to the use of technologies within and outside the classroom

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CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Preamble

An appropriate research method is critical to research work and provides the basic framework upon which a research can be carried out (Albert, 2015). The research work undertaken determines to a large extent the methods to be employed to get the desired result. The study has already given a background as well as reviewed relevant literatures as it concerns the area of study.

3.2 Research Locale

The study area is Federal College of Forestry, Jos located along Bauchi road and opposite Bauchi Motor Park. The college is bounded by University of Jos staff quarters along Bauchi road by the east and with Department of Fisheries by the west, while Bauchi road that leads to University of Jos main campus passes the college from south-north. The college is in the city of Jos in Jos North Local Government Area of Plateau State (Archives of Library and Documentation Unit FCF, Jos, 2018). (See Plate i and Figure 2)

Plate i: Federal College of Forestry, Jos, Nigeria
Source: commons.wikimedia.org

Jos plateau, is located in the central part of the country between latitude 8° 30' and 10º30' N and longitude 8° 20' and 9° 30'E, with a surface area of about 9,400km². It has an average elevation of about 1,250 metres above sea level and stands at a height of about 600 metres above the surrounding plains (Archives of Library and Documentation Unit FCF, Jos, 2018). (See Figure 3)
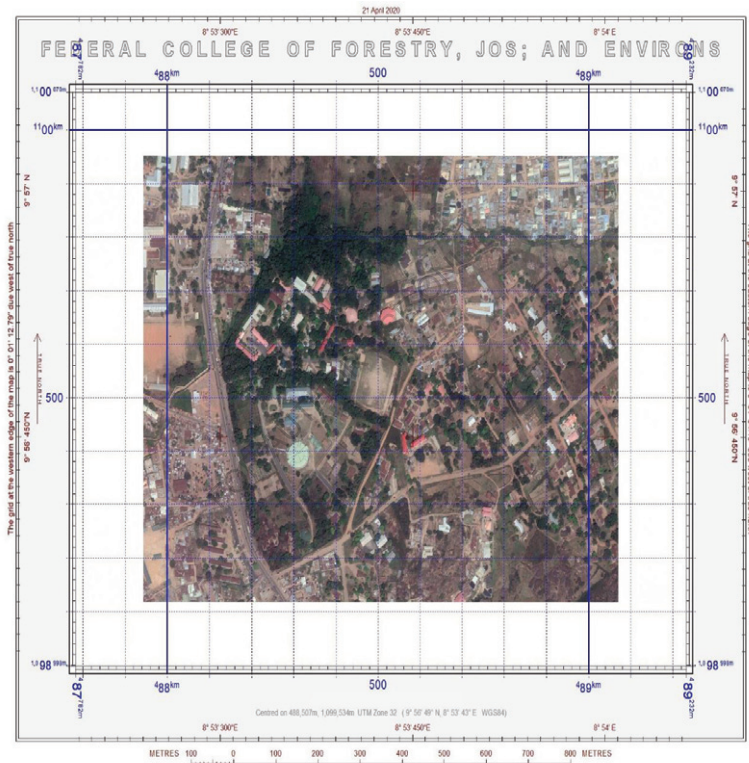
Figure 2: Google Earth Map of Federal College of Forestry, Jos
Source: Archives of Library and Documentation Unit FCF, Jos, 2018
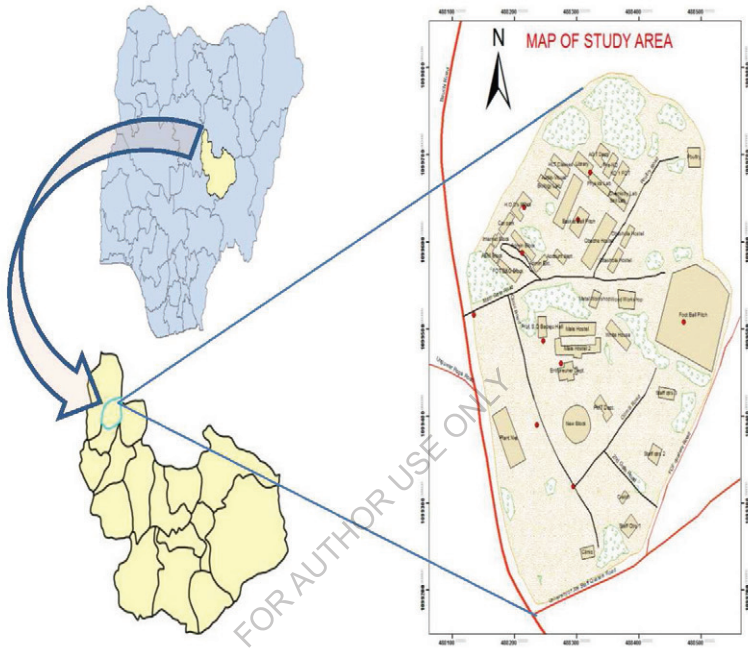
Figure 3: Plateau State in National context and Jos North Local Government Area in State context leading to the study area in Local context.
Source: Archives of Library and Documentation Unit FCF, Jos, 2018

The land use of Federal College of Forestry, Jos can be classified into two broad types which are built up areas (developed) and the forest area (undeveloped). The forested area include all the vegetative areas of the College which include forestry and wood technology plantation/nursery site, teaching and research farms including livestock section, natural forest, pig/poultry farm, bee hive, and fish pond among others. The developed areas include academic area, administrative area, residential area, commercial area, and communal facilities area including religious area, parking and sporting areas among others (Archives of Library and Documentation Unit FCF, Jos, 2018).

3.3 Research Method

Research method describes the schemes, procedures and strategies used by the researcher during the study. It is planned, methodical and scientific in nature and is made in such manner as to be replicated again (Albert, 2015). It often describes a procedure by which the research or inquiry can be carried out in order to examine a research problem.

The study followed a descriptive research methodology in which a field survey of the study area was carried out. The descriptive method uses the data so obtained to provide deep insight into the phenomena of LMSs.

3.4 Population of the Study

Population of a research is defined as the people whom appeal to the interest of the researchers in generalizing the outcomes of the research (Al Kindy, et al., 2016). The population of Higher National Diploma (HND) students in the College for the 2018/2019 academic year out-turn stands at 94 comprising 67 male and 27 female (Annual NBTE Data Capture Update FCF, Jos, 2018).While the total number of students admitted in the department of Horticulture and Landscape Technology (HLT) for the 2018/2019 academic year is 23.With a Total number of 7 staff in the department (Annual NBTE Data Capture Update FCF, Jos 2018). (See Table 1)

Table 1: Summary of Enrolment and Out-Turn

PROGRAMME TITLE	ENROLMENT				LAST ACADEMIC YEAR OUT-TURN:2018/2019			
	FULL TIME		PART TIME		FULL TIME		PART TIME	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
PRE-NATIONAL DIPLOMA (PRE-ND)	0	0	0	0	0	0	0	0
NATIONAL DIPLOMA (ND)	270	280	0	0	90	115	0	0
HIGHER NATIONAL DIPLOMA (HND)	96	63	0	0	**67**	**27**	0	0
POST HND (PHND)	0	0	0	0	0	0	0	0
OTHERS (VOCATIONAL)	41	3	0	0	41	3	0	0
TOTAL	407	346	0	0	198	145	0	0

Source: NBTE Data Capture Update FCF, Jos, 2018.

3.5 Sampling Techniques and Sample Size

A total of 30 questionnaires were distributed out to respondents of the Department of Horticulture and Landscape Technology, Federal College of Forestry, Jos. Only 27 of the questionnaires were retrieved representing 90%, 2 not clearly filled and 1 was not retrieved.

3.6 Method of Data Collection

Data for the study was collected through Primary and Secondary data methods. Primary data was collected using questionnaires while secondary data was collected through review of related literature.

3.7 Instrument or Data Collection

The instruments that were used for this study were the questionnaire designed by the researchers. The questionnaire was divided into sections and questions were asked and expected response was either Yes or No. The other section anticipated response which were measured on a five-point Likert scale format which ranges from Strongly Disagree (SD), Disagree (D), Neutral (N), Agree

(A) and Strongly Agree (SA). The scale is assigned numerical value of 5, 4, 3, 2, and 1 respectively from positive expression to negative opinion.

3.8 Pilot Study

A pilot study was carried out at the department of Horticulture and Landscape Technology (HLT), Federal College of Forestry, Jos.

3.9 Validation of Research Instrument

The instrument was validated by two measurement and evaluation experts in other to ensure its usability, validity and reliability.

3.10 Method of Data Analysis

Data from the survey was analyzed using Statistical Package for Social Sciences (SPSS) 23. Data presentation include, frequency distribution tables and percentage

CHAPTER FOUR

RESULTS AND DISCUSSIONS

This section gives in detail information gotten from data analysis in order to achieve the aim of the research. Findings from this study are as follows:

4.1 Distribution of Respondents

4.1.1 Sex of Respondents

The socio-economic result shows that out of the 27 respondents that participated in this exercise, 51.9% were males while 48.1% females as seen in Table 2. It shows clearly that more male respondents took part than female respondents.

4.1.2 Age of Respondents

Results from Table 2 below shows that in age distribution, 59.3% falls between the ages of 26-40 years, 22.2% falls between ages of 18-25 years while 18.5% falls between ages 41-60 years.

4.1.3 Profession of Respondents

The results in Table 2 below also reveals that majority 48.1%, of the respondents are students, 11.1% landscape architects, 7.4% horticulturist, 3.7% are soil scientist while 29.6% of the respondents falls under other type of professions

Table 2: Distribution of Respondents

Respondent n = 27 Characteristics	Variables	Frequency (F)	Percentage (%)
Sex	Male	14	51.9
	Female	13	48.1
	Total	**27**	**100**
Age(Year)	18-25	6	22.2
	26-40	16	59.3
	41-60	5	18.5
	> 60	0	0
	Total	**27**	**100**
Profession	Horticulturist	2	7.4
	Soil Scientist	1	3.7
	Landscape Architects	2	11.1
	Students (HND I)	13	48.1
	Students (HND II)	9	29.6
	Total	**27**	**100**

Source: Field Survey, 2018.

From Table 2 above, result on personal knowledge shows that 51.9% of the respondent agreed to the fact that they have idea about learning management system while 48.1% do not have such ideas.

4.2 Personal knowledge of the respondents

Out of the respondents that agrees to having ideas on LMS gave their different knowledge ranging from LMS seen as an effective tools of communication between staff and students (53.8%), as a medium where knowledge is acquired and shared among people and where information's are sourced pertaining a study (15.4%) respectively, as a medium that eases effective communication and expression of oneself and also enhances distant learning (Online degree) with 7.7% respectively (see Table 3).

Table 3: Personal knowledge of the respondents

Respondent n = 27 Characteristics	Variables	Frequency (F)	Percentage (%)
Having idea about learning management system	Yes	14	51.9
	No	13	48.1
	Total	**27**	**100**
Knowledge about LMS resources	Effective tools of communication between staff and students.	7	53.8
	Medium where knowledge is acquired and shared among people.	2	15.4
	Medium where information's are sourced pertaining a study.	2	15.4
	Medium that eases effective communication and expression of oneself.	1	7.7
	Enhances distant learning (Online degree).	1	7.7
	Total	**13**	

Source: Field Survey, 2018.

4.3 Student Mentorship

The result in Table 4, reveals that 59.3% of the respondents have not taught online courses using LMS, while 18.51% said they have taught online courses using LMS once and 22.22% said they have taught online courses using LMS twice. Out of the respondents that have taught online courses, 14.8% said they have used the E-learn, 11.1% used module and 3.7% have used whiteboard.

Table 4: Student Mentorship

Respondent n = 27 Characteristics	Variables	Frequency (F)	Percentage (%)
Online courses taught using LMS	1	5	18.51
	2	6	22.22
	3-10	0	0
	None	16	59.3
	Total	**27**	**100**
LMS(s) used to teach online	Blackboard	1	3.7
	E-learn	4	14.8
	Module	3	11.1
	None	19	70.4
	Total	**27**	**100**

Source: Field Survey, 2018.

4.4 The Impact of Learning Management Systems on Student

The results of the impact of learning management systems on student are represented in Table 5 below. From the response sourced, it revealed that average of 4.26 agrees that the major impact of LMS is that it encourage students to explore new concepts in the course, about (4.00) showed the impact of LMS in keeping the students on task in a way that helped the students to learn, (3.81) responses shows that it enables student to clearly understand and communicate important outstanding dates/time frames for learning activities. Other impacts of LMS on students as reported by the respondents' ranges from LMS enable students focus discussion on relevant issues in a way that helped students to learn (3.78), LMS enable student to provide clear instructions on how to participate in course learning activities and LMS aided to keep course students engaged and participating in productive dialogue (3.74), LMS enable students to guide the class towards understanding course topics in a way that helped clarify their thought pattern and also aided to provide feedback that helped students understand their strengths and weaknesses relative to the course's goals and objectives (3.70), LMS enabled me to clearly understand and communicate important course topics and enable student to identify areas of agreement and disagreement on course topics that helped students to learn (3.67) and LMS enable student to clearly understand and communicate important course goals with the average of 3.48

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Table 5: Impact of Learning Management Systems on Student

Factors (n = 27)	SA (5)	A (4)	N (3)	SD (2)	D (1)	Total	Mean
LMS enabled me to clearly understand and communicate important course topics	3	16	5	2	1	**99**	**3.67**
LMS enabled me to clearly understand and communicate important course goals	2	16	4	3	2	**94**	**3.48**
LMS enabled me to provide clear instructions on how to participate in course learning activities.	5	15	4	1	2	**101**	**3.74**
LMS enabled me to clearly understand and communicate important outstanding dates/time frames for learning activities.	6	15	3	1	2	**103**	**3.81**
LMS enabled me to identify areas of agreement and disagreement on course topics that helped students to learn.	6	12	5	2	2	**99**	**3.67**
LMS enabled students to guide the class towards understanding course topics in a way that helped clarify their thought pattern.	6	14	3	1	3	**100**	**3.70**
LMS aided to keep course students engaged and participating in productive dialogue.	6	13	5	1	2	**101**	**3.74**
LMS enabled to keep the students on task in a way that helped the students to learn	9	12	4	1	1	**108**	**4.00**
LMS enabled me to encourage students to explore new concepts in this course.	11	13	2	1	0	**115**	**4.26**
LMS enabled students focus discussion on relevant issues in a way that helped students to learn.	6	14	4	1	2	**102**	**3.78**
LMS aided to provide feedback that helped students understand their strengths and weaknesses relative to the course's goals and objectives.	6	14	2	3	2	**100**	**3.70**

Note: SA= Strongly Agree, A=Agree, N=Neutral, D=Disagree, SD=Strongly Disagree (Mean score > 3.0 = high determinant factor)
Source: Field survey, 2018.

4.5 Effect of Learning Management Systems on Student Interaction on Campus

The results of the effect of learning management systems on student interaction on campus are represented in Table 6 below. From the response sourced, it revealed that average of 4.07 perceived that the major effect of LMS is that it aid students feel comfortable communicating through online medium, about 3.96 agrees to the fact that the effect of LMS is that it aid online discussions that helped students to have a sense of association, other effects are online or web-based

communication is an excellent medium for social interaction (3.70), LMS aid students to student's relationships thereby creating comfortable interacting with each other (3.67) and also LMS's aid lecturer to student's relationships with an average of 3.19.

Table 6: Effect of Learning Management Systems on Social Interaction on Campus

Factors (n = 27)	SA (5)	A (4)	N (3)	SD (2)	D (1)	Total	Mean
LMS's aided lecturer to student's relationships.	4	10	4	5	4	**86**	**3.19**
Online or web-based communication is an excellent medium for social interaction.	6	12	4	5	0	**100**	**3.70**
LMS aided students to feel comfortable communicating through online medium.	10	11	4	2	0	**110**	**4.07**
LMS aided students to student's relationships thereby creating comfortable interacting with each other.	6	11	7	1	2	**99**	**3.67**
LMS aided online discussions that helped students to have a sense of association	5	17	4	1	0	**107**	**3.96**

Note: SA= Strongly Agree, A=Agree, N=Neutral, D=Disagree, SD=Strongly Disagree (Mean score > 3.0 = high determinant factor)
Source: Field survey, 2018

4.6 Effectiveness of Learning Management Systems and its usage on Campus

Table 7, 8 and Figure 4 below, reveals that overall satisfaction is witnessed on LMS courses with a mean score of 3.89, a mean score of 3.70 attests that LMS enabled students to describe ways to test and apply the knowledge created in the course and while the mean score of 3.52 aid problem solving and increased students' interest in course issues.

Table 7: Learning Management Systems and usage on Campus

Factors (n = 27)	SA (5)	A (4)	N (3)	SD (2)	D (1)	Total	Mean
LMS aided problems to be posed that increased students' interest in course issues.	3	12	9	2	1	**95**	**3.52**
LMS enabled students to describe ways to test and apply the knowledge created in this course.	3	17	4	2	1	**100**	**3.70**
Overall, I am satisfied with this LMS course	4	18	3	2	0	**105**	**3.89**
LMS as a way of communicating in teaching is difficult a tool to adopt in effective teaching.	4	6	7	4	6	**79**	**2.93**

Note: SA= Strongly Agree, A=Agree, N=Neutral, D=Disagree, SD=Strongly Disagree (Mean score > 3.0 = high determinant factor)
Source: Field survey, 2018

Table 8: Learning Management Systems and usage on Campus

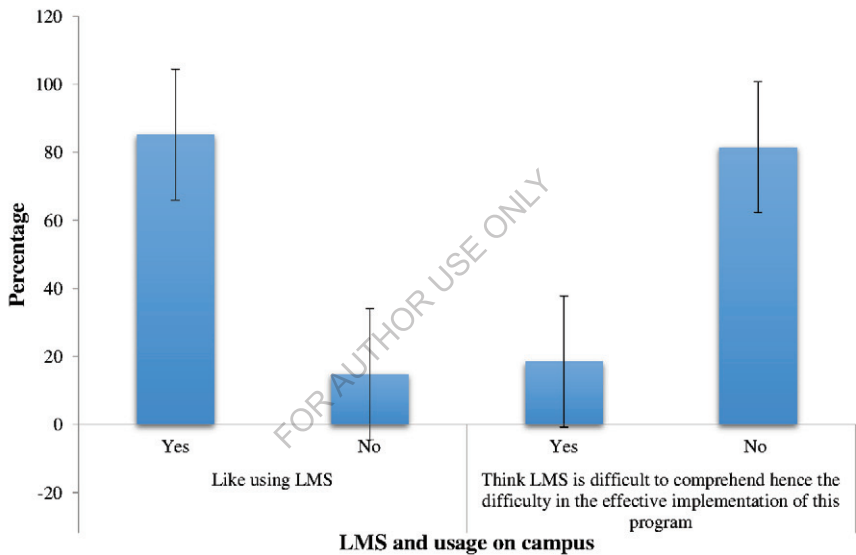| Respondent n = 27 Characteristics	Variables	Frequency (F)	Percentage (%)
Like using LMS	Yes	23	85.2
	No	4	14.8
	Total	**27**	**100**
Think LMS is difficult to comprehend hence the difficulty in the effective implementation of this program	Yes	5	18.5
	No	22	81.5
	Total	**27**	**100**

Source: Field survey, 2018

Figure 4: Effectiveness of Learning Management Systems and its usage on Campus
Source: Field survey, 2018.

CHAPTER FIVE
SUMMARY AND CONCLUSION

5.1 Summary of Findings

The result of the study are summarized below:

i. The impact of LMS in Nigerian tertiary institutions is very encouraging and has enabled the students to explore new concepts in the course, enables student to clearly understand and communicate important outstanding dates/time frames for learning activities, enable students focus discussion on relevant issues in a way that helped students to learn. This is evident from the results presented in table 5 above. Further research also reveals that institutions such as the University of Jos have deployed fully the use of LMS.

ii. High availability of computers/laptops and the presence of infrastructure in the tertiary institutions imply that more institutions are catching up with the technological trends witnessed in Western countries.

iii. The study also identified challenges to include, unavailability of support infrastructures like computer systems and associated peripherals, poor power supply which is a major pitfall. Lack of technical skills in use of LMS and bureaucratic bottlenecks are other challenges identified by the study.

5.2 Conclusion

Learning management systems are actively used by instructors, students, and institutions in order to provide better learning environments for teaching, learning, and administration in higher education. With the advancement of technology and information dissemination the LMS is an essential tool for university students and lecturers. Students are kept abreast with their coursework, while lecturers have an easier time reaching out to their students out of class hours and can instantly update them over the LMS about issues regarding their coursework. Challenges may abound with the use of LMS, as learning and using a whole new system altogether.

5.3 Recommendations

The study recommends the following:

i. Capacity building for both students and lecturers/instructors on how to use IT based technologies in education especially LMS.

ii. Improvement of the power supply situations in Nigeria, as the LMS cannot be used effectively in teaching, learning, student evaluation and administrative roles without uninterruptible power supply

iii. Provision and expansion of existing lecture halls and labs to accommodate students thereby reducing congestion.

iv. Adequate funding to support Information Technology infrastructures to support the use of LMS in tertiary institutions.

FOR AUTHOR USE ONLY

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Federal College of Forestry, Jos.

QUESTIONNAIRE ON LEARNING MANAGEMENT SYSTEM

Dear Respondent,

This questionnaire is designed to obtain information to carry out an academic research on impact of learning management system in the Department of Horticulture and Landscape Technology, Federal College of Forestry, Jos. You are enjoined to kindly assist in filling the questionnaire to enables me achieve this ultimate goal. Be assured that all information provided will be held in confidence.

Orewere Emmamoge
July, 2018

A. BASIC INFORMATION

(1)   Sex: (a) Male (b) Female

(2)   Age Range: (a) 18-25 (b) 26-40 (c) 41-60 (d) Above 60

(3)   Profession: (a) Architect (b) Engineer (c) Planner (d) Students (e) Others

B. PERSONAL KNOWLEDGE

(1) Do you have an Idea about Learning Management System (LMS)? (a) Yes (b) No

(2) If yes; can you briefly explain your knowledge about Learning Management System
Resources?_____
_____
_____

C. MENTORSHIP
1.   How many completely online courses have you taught using LMS?
a) 1   b) 2   3) 3-10   4) None
2.   What Learning Management System(s) have you used to teach online?
a) Blackboard   2) ELearn   3) Moddle   4) None

INSTRUCTIONS

Grade each of the value below based on these assigned ratings according to your perception; (1)

Strongly Disagree (2); Disagree (3); Neutral (4) Agree and 5) Strongly Agree or (a) Yes (b) No

D. THE IMPACT OF LEARNING MANAGEMENT SYSTEMS ON STUDENT
1. The LMS enabled me to clearly understand and communicate important course topics.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2. The LMS enabled me to clearly understand and communicate important course goals.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

3. The LMS enabled me to provide clear instructions on how to participate in course learning activities.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

4. The LMS enabled me to clearly understand and communicate important outstanding dates/time frames for learning activities.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

5. The LMS enabled me to identify areas of agreement and disagreement on course topics that helped students to learn.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

6. The LMS enabled students to guide the class towards understanding course topics in a way that helped clarify their thought pattern.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

7. The LMS aided to keep course students engaged and participating in productive dialogue.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

8. The LMS enabled to keep the students on task in a way that helped the students to learn.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

9. The LMS enabled me to encourage students to explore new concepts in this course.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

10. The LMS enabled students focus discussion on relevant issues in a way that helped students to learn.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

11. The LMS aided to provide feedback that helped students understand their strengths and weaknesses relative to the course's goals and objectives.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

E. THE EFFECT OF LEARNING MANAGEMENT SYSTEMS ON STUDENT INTERACTION ON CAMPUS

1. The LMS's aided lecturer to student's relationships.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2. Online or web-based communication is an excellent medium for social interaction.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

3. The LMS aided students to feel comfortable communicating through online medium.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

4.The LMS aided students to student's relationships thereby creating comfortable interacting with each other.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

5.The LMS aided online discussions that helped students to have a sense of association

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

F. EFFECTIVENESS OF LEARNING MANAGEMENT SYSTEMS AND ITS USAGE ON CAMPUS

1. The LMS aided problems to be posed that increased students' interest in course issues.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2. The LMS enabled students to describe ways to test and apply the knowledge created in this course.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

3. Overall, I am satisfied with this LMS course

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

4. LMS as a way of communicating in teaching is difficult a tool to adopt in effective teaching.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

5. Do you like using LMS?

1) Yes   2) No

6. Do you think LMS is difficult to comprehend hence the difficulty in the effective implementation of this program?

1) Yes   2) No

Thank you for your time and participating in this study.