

Chapter One

Introduction

1.1 Background to the Study

E-learning system is a concept derived from the use of Information and Communication Technologies (ICTs) to revise and transform traditional teaching and learning models, and practices have evolved in the past decades. E-learning system connotes online environments that allows students and instructors to communicate synchronously using audio, video, text chat, interactive whiteboard, application sharing, instant polling, and others. These features enable faculty and students to interact as if they were face to face in a classroom. Participants can talk to each other, view each other through a webcam, use emoticons, and work together in breakout rooms. E-learning system enhances interactivity and the sense of community. E-learning system can be used in online and blended instructional delivery. It is the use of information and communication technologies in diverse processes of education to support and enhance learning in institutions of higher education, and includes the usage of information and communication technology as a complement to traditional classrooms, online learning or mix of the two modes¹.

In addition, it is part of new dynamics that characterises the educational system comprising an extensive array of digitalisation approaches, components and delivery methods². E-learning systems is the internet-driven, computerized learning, virtual classrooms in which educational contents are delivered through the Internet, local intranet/extranet, audio or video tape, satellite TV and CD-ROM. E-learning systems could also be classified as web-supplemented where courses focus on classroom-based teaching but include elements such that course outline and lecture note can be provided

online with a link to the online resources³. E-learning is a web-dependent environment where students may be required to use the Internet to access courses or important elements of the programme such as online project, thesis, dissertation, among others, but without significant reduction in classroom time as well as the mixed mode where courses or the virtual learning systems start to replace classroom time⁴. Educational use of ICT has, therefore, resulted in new forms of pedagogy, among others. Library and Information Science programme makes use of the latest technology and teaching methods because it is becoming a highly competitive programme. The programme aim is to enable library and information science undergraduates to meet the requirements of employers and for self-employment after training and education as undergraduates. The onus then lies on the LIS undergraduates not to use the emerging technologies e-learning systems inclusive for entertainment only but more academic activities.

Moreover, library and information science, as a discipline embraces the revolution brought about by ICT because of its usefulness in the education and training of undergraduates. LIS discipline is pivotal to all other disciplines that are knowledge and information based. The undergraduates are learning to be information professionals and are being trained to provide information and guidance to every other discipline. As future information professionals, therefore, library and information science undergraduates must be above average academically and should be able to fit into any profession by possessing dexterity to use the emerging technologies and information resources. library and information science undergraduates are expected to be equipped with techniques, practical skills and appropriate theoretical knowledge needed to build and improve work performance while in library schools⁴. Therefore, like other undergraduates, through the

use of e-learning systems, library and information science undergraduates engage in standard structured lectures, assignments, group discussions, seminars, writing term papers, continuous assessments, and examinations. They are taught to collect, organise, preserve and disseminate information resources using e-learning systems⁵. E-learning systems provides library and information science undergraduates with useful features such as studying at their convenience, anywhere and anytime.

Meanwhile, Technology Acceptance Model has been regards as useful and popular model for studying user's acceptance of technology. It has been applied in different areas and different way, TAM consists of crucial elements that motivate library and information science undergraduates³. Technology Acceptance Model (TAM) postulate that acceptance of e-learning systems depend on two main constructs in term of perceived ease of use and perceived usefulness⁶. Perceived ease of use which is the level to which library and information science undergraduates' belief that using a particular system would be free of effort⁷. Perceive ease of usefulness is a direct factor of perceive usefulness⁴. Perceive usefulness is the level to which library and information science undergraduates believe that a particular system would enhance their academic performance⁷.

However, it must be established that there could be certain key factors which are liable to be responsible for library and information science undergraduates' preference and willingness not to or to use e-learning systems in their academic-related activities. These factors could be exhibited by library and information science undergraduates and greatly influence their decisions in making use of e-learning systems to engage in their academic activities. These may include factors such as computer self-efficacy, computer

playfulness. Computer self-efficacy of library and information science undergraduates could influence their e-learning systems use since the use of e-learning involves computer usage. Computer self-efficacy has its root in the self-efficacy concept, which deals with perception of one's ability to exercise control over actions that affect one's life. Therefore, computer self-efficacy is a person's judgement about his or her capability to use computers in different situations⁸. It is the personal judgment that an individual makes about his/her ability to accomplish a task with the use of computer. That is, it is the judgments an individual makes about his or her ability to perform computer related tasks⁹. Computer self-efficacy as an underlying factor could influence library and information science undergraduates' levels of utilisation, reactions to and even the expectations of e-learning system. Computer-self-efficacy can be described as the subjective self-assessment of individuals relating to their capability in the use of computers and participation in computer related tasks¹⁰. This translates that, a library and information science undergraduates who have high computer self-efficacy, working with computers and making use of available e-learning systems will be willing to accept and use the platforms for academic activities frequently. In addition, when a library and information science undergraduate with high computer self-efficacy encounter difficulties in the course of using e-learning systems, such library and information science undergraduates is likely to accept the challenges encountered and adjust to them. Furthermore, computer-self efficacy could be seen as a measure of how confident computer users are with their ability to understand, use, and apply computer knowledge and skills¹¹. In other words, library and information science undergraduates who has high computer self-efficacy will feel competent in using e-learning systems for reading,

studying, learning, research, and others¹². On the contrary, a low computer self-efficacy leads to the belief that library and information science undergraduates will encounter difficulty in using e-learning systems¹². library and information science undergraduates with higher computer self-efficacy are likely to be more enthusiastic to use e-learning systems in their lecture rooms than those with lower levels of computer self-efficacy⁸.

Computer self-efficacy could be seen as one of the factors which determine whether or not library and information science undergraduates would use e-learning systems in their academic-related activities¹³. Students in library and information science who lack self-confidence in the use of computer and related devices are more likely to give up in the middle of a computer-based project, and those who lack computer self-efficacy may believe they lack the skills and characteristics necessary to accomplish a computer-related task.¹⁴ Computer self-efficacy constructs for this work are adopted from social cognitive theory which are, mastery experience, vicarious experience, verbal persuasion and emotional state⁸.

Mastery experience can be relied upon in an attempt to boost one's confidence in one's own abilities while performing a task, when evaluating their own potential to succeed, undergraduates typically look to their prior experiences. The best way to boost one's confidence in their ability to use a computer is to reflect on times when they faced challenges and ultimately triumphed over them¹⁵. The most reliable data for building confidence in one's ability to use a computer comes from actual experience at mastering the skill. This is due to the fact that, unlike any other antecedent of computer self-efficacy, mastery experience provides direct performance information for the formation of stable and accurate efficacy beliefs. However, this does not guarantee that successful

performance will lead to an increase in confidence. Instead, how undergrads use and process the data they have already generated is a crucial factor in developing a sense of competence.

Experiences where a student gains confidence in his or her ability to carry out a task by reflecting on the consequences of previous attempts at that task are known as "mastery experiences"⁸. Experiencing both success and setbacks can have contrasting effects on one's sense of self-efficacy. First-year college students get hands-on training by actually doing something. Undergraduates utilise the results feedback to hone their abilities and knowledge through practise¹⁴. The degree to which an undergraduate student's self-efficacy is affected by their mastery experience depends on the extent to which their experiences have been positive or negative. In the context of using e-learning systems in their undergraduate education, studies have shown that students' prior experiences of mastery can serve as a source of support and confidence.

Another element of self-efficacy is vicarious experience. Vicarious experience is learning from the successes and failures of others⁸. There's a chance this will boost undergraduate students' belief in their own abilities to make meaningful change in the world. Undergraduates learn from the successes and failures of others through a process called vicarious experience¹⁹. For some first-year college students, this could mean a renewed sense of confidence in their ability to make their own way in the world. Observing successful people in action is what we call vicarious experience²⁰. In the context of this study, watching others succeeding or failing in the use of e-learning systems can have an effect on the computer self-efficacy of undergraduate students. Undergraduate students can learn to have either a high or low sense of self-efficacy by observing the behaviour of

their peers²⁰. Undergraduates, for instance, can evaluate their own skills by comparing them to those of a classmate or peer in a similar situation ¹⁹. Undergraduates' confidence in their own abilities can grow when they see colleagues who are like them also succeed. One's own sense of competence, however, can be diminished if he or she witnesses the similar failure of a peer. Undergraduates, however, can look up to their peers who have achieved success and know that they, too, are capable of achieving the same results.

Verbal persuasion is a type of self-reflection in which the individual provides verbal feedback on his or her performance skills and grades themselves out of a possible²⁰. The concept of computer self-efficacy is related to feelings, work, and decision-making²¹. One method of gauging a student's confidence in their own abilities is to consider the impact of positive comments made by adults such as parents, peers, and teachers. Undergraduates can use the comments to improve their own work²⁰. Another method of boosting LIS undergraduate students' computer self-efficacy is through verbal persuasion from someone they trust and view as competent (as it relates to the academic performed). Verbal persuasion refers to situations in which a person is led by suggestion to believe that they can accomplish a specific task successfully. The goal of improving library and information science undergraduates' computer self-efficacy through persuasive speech is not to make them more proficient at using computers, but to increase their confidence in their abilities despite their current level of expertise.

An undergraduate's emotional state is the fourth component of self-efficacy. This component refers to the sensations that a student's body experiences while completing a task such as an exam or a presentation. Understanding the origins of these feelings can boost confidence; for example, if they experienced physical symptoms like a racing heart

or sweaty palms because of their emotions. Self-efficacy among college freshmen is known to be significantly affected by students' emotional states. Undergraduates have a much better chance of doing well if they are not in a state of aversive arousal. Undergraduate students' emotional states were described in terms of how they dealt with the mental and physical strains of completing a task. Undergraduates, when taking into account their social environments, may learn and retain certain behaviours, as demonstrated by these constructs.

Undergraduates in the field of library and information science may use e-learning systems based on factors other than their own level of comfort with technology. Intrinsic motivation, is defined as "the experience of pleasure or fulfilment that an individual derives from the performance of an act" ¹¹. It's a system-agnostic metric of individual variation. It is posited that people who play around on computers are more likely to use computer-related systems, despite their complexity, because they will view the activity as play. As a result, users with such a mindset will have a more favourable impression of the system and be more enthusiastic about putting in time with it. Adopting a playful attitude toward one's computer is a great example of the intrinsic motivation³³. Feelings of enjoyment and contentment while utilising an e-learning system are examples of intrinsic motivation²³. The joy of discovery that comes with using a new system can be seen in people who simply enjoy playing around with computers. It's the feeling of joy and contentment one gets from using an online course. When talking about computers, people often talk about the "degree of cognitive spontaneity in microcomputer interactions" ¹¹. As a personality trait, computer playfulness has been linked to a range of favourable dispositions among college freshmen regarding their acceptance and use of technology³⁵.

Computer playfulness is associated with how undergraduate students interact with computers²⁴. That is, undergraduate students will interact spontaneously and innovatively with computers and derive a great deal of satisfaction from such interactions. Such interactions are thought to lead to important outcomes such as increased learning, high satisfaction, and so on. Also computer playfulness is an individual's tendency to interact spontaneously, inventively, and imaginatively with computers¹⁴. Undergraduates who enjoy an activity will probably want to repeat it. That is undergraduates with high computer playfulness tend to be more inventive, and imaginative in their interaction with the systems which would have an impact on learning. Likewise, undergraduate students with low computer playfulness may not interact with systems¹⁴. Library and information science undergraduates when firstly interact with e-learning systems may feel intimidate and stressed due to their low level in computer playfulness¹⁵. As soon as they attain some level of familiarity with the systems, they are more apt to explore the e-learning systems and interact spontaneously with it²¹.

Therefore, Computer playfulness in this work will be measures with these constructs spontaneity, curiosity and creative^{10 14}. Spontaneity refers to as level to which Library and information science undergraduates capable to use computer without being stretched. Undergraduate students with high level of using system will be feeling good or having fun with it anytime he/she is performing any task. Curiosity refers to as library and information science undergraduate's readiness to use or work with computer. If e-learning system is stress free students will be eager to use. Creativity is the ability to create new thing or ideal with system. Undergraduates must be equipped with enough or necessary skills and confidence to make use of e-learning.

However, it still remains unclear whether computer self-efficacy and computer playfulness could be some of the factors influencing use of e-learning systems by library and information science undergraduates. It is based on this premise that this study was carried out to investigate computer self-efficacy, computer playfulness and motivation to use e-learning systems by library and information science undergraduates of selected private universities, Oyo State.

1.2 Statement of the Problem

E-learning systems was not widely embraced in Nigeria until 2020 when there was an outbreak of coronal virus disease popularly called covid-19. The emergence of covid-19 affected all sectors including educational sector. It affected all levels of education from kindergartens to tertiary institutions. This made all levels of education to shift from traditional method of teaching and learning to virtual. This sudden change to virtual teaching and learning was not effective especially in public institutions where infrastructural facilities needed for the exercise were not in place. However, private universities rose up to the system by putting facilities needed to virtually teach their students in place. Educational setting was not prepared for the pandemic likewise it caught undergraduates unaware, findings shows that majority of undergraduates does not have technological devices and majority that have technology devices cannot operate them. The pandemic affected the educational settings to the extent that the system has no option than to embrace the e-learning systems. It is to this end that this study is sets out to investigate the extent to which computer self-efficacy and computer playfulness could motivate library and information science undergraduates of selected private universities Oyo state to use e-learning systems.

1.3 Aim and Objectives of the Study

The aim of this study is to examine the influence of computer self-efficacy and computer playfulness on motivation to use e-learning systems by Library and Information Science undergraduates of selected private universities, Oyo state. The objectives of the study are to:

- i. examine the motivation to use of e-learning systems by library and information science undergraduates of selected private universities, Oyo state.
- ii. identify the level of computer self-efficacy of library and information science undergraduates of selected private universities, Oyo state.
- iii. identify the level of computer playfulness of library and information science undergraduates of selected private universities, Oyo state.
- iv. examine the relative influence of computer self-efficacy and motivation to use e-learning systems by library and information science undergraduates of selected private universities, Oyo state.
- v. determine the relative influence of computer playfulness and motivation to use e-learning systems by library and information science undergraduates of selected private universities, Oyo state.
- vi. ascertain the combined influence of computer self-efficacy and computer playfulness on motivation to use e-learning systems by library and information science undergraduates of selected private universities, Oyo state.

1.4 Research Questions

The research work was able to found answer to these research questions

1. What are the motivation to use e-learning systems by library and information science undergraduates of selected private universities, Oyo state?
2. What is the level of computer self-efficacy by library and information science undergraduates of selected private universities, Oyo state?
3. What is the level of computer playfulness by library and information science undergraduates of selected private universities, Oyo state?

1.5 Hypotheses

This study was guided by these null hypotheses and it was tested at 0.05 level of significance:

Ho1: There is no relative influence of computer self-efficacy on motivation to use e-learning systems by library and information science undergraduates of selected private universities, Oyo state.

Ho2: There is no relative influence of computer playfulness on motivation to use e-learning systems by library and information science undergraduates of selected private universities, Oyo state.

Ho3: Computer self-efficacy and computer playfulness does not have combined influence on motivation to use e-learning systems by library and information science undergraduates of selected private universities, Oyo state.

1.6 Significance of the Study

The outcome of this study has immense benefits for the following stakeholders; categories of students (undergraduate/postgraduates), university management, university administrator's/policy makers and the society at large. The results of this study has utmost significance to the students as it provides them with information that motivate

them to make use of e-learning systems for the enhancement of their information needs specifically for academic and research purposes. It also, sensitise them on their degree of computer self-efficacy and computer playfulness on motivation to use e-learning systems which in turn enhance their academic-related endeavours. In addition, the result of the findings also benefitted university administrator's/policy makers, as it provides baseline data to the administrators on the motivation to use e-learning systems by lecturers and students. It serves as an indicator to how lecturers and students use e-learning systems, for certain reasons and the extent to which the platform is useful to enhance effective teaching and learning. It helps them in decision-making in respect of implementation of e-learning system.

Results from this study provide university management with useful information needed to facilitate an enabling environment that support e-learning systems use for efficient and effective academic obligations required of the universities. Moreover, findings also contribute to knowledge in the area of e-learning system in all aspects of academic activities in higher institutions, as well as competences and skills development of both the lecturers and the students. And finally, the findings of this study also have the utmost significance to the universities management because the findings enhance and encourage the continued use of e-learning systems for academic activities, this project the image of the university as quality education acquired by the students through effective use of e-learning system while in the university will have a positive impact on the societal view of the universities as the birthplace of innovation.

1.7 Scope of the Study

The study examined computer self-efficacy, computer playfulness and motivation to use e-learning systems by library and information science undergraduates of selected private universities, Oyo state. Motivation to use e-learning systems by library and information science undergraduates of selected private universities, Oyo State as dependent variable was measured by perceived usefulness and perceived ease of use adopted from Technology Acceptance Model and Stimulus conceptual framework²⁷. Also the study focused on two independent variables (computer self-efficacy and computer playfulness) as factors that has direct influence on motivation to use e-learning systems by library and information science undergraduates of selected private universities, Oyo State. Computer self-efficacy was measured by mastery experience, vicarious experience, verbal persuasion, and emotional state adopted from socio cognitive theory²⁶. The measures for computer playfulness are spontaneity, curiosity and creativity, adapted from literature²⁸. The geographical scope of the study was two private universities in Oyo state. These are Ajayi Crowther University, Oyo, Oyo State, Nigeria, and Lead City University Ibadan, Oyo State, Nigeria. The researcher chose only two private universities in Oyo state because they are the only two private universities offering library and information science as a course for undergraduates as at this moment. The respondents of interest to this study were library and information science undergraduates in two private universities, Oyo State.

1.8 Limitation of the Study

The major limitation faced while carried out this research work is the reluctance of respondents to respond in time to questionnaire. However, enough respondents were convinced to participate in the study.

1.9 Operational Definition of Terms

The following terms were defined as used within the body of this study:

E-learning: Access to online learning environment that allows library and information science undergraduates to engage in academic-related activities anywhere and anytime

E-learning System: This is conceived as online environment that allows library and information science undergraduates of selected private universities, Oyo State to engage in academic-related activities using online means.

Motivation to Use E-learning System: This refers to need, desire or want library and information science undergraduates of selected private universities, Oyo State derive from online environment.

Perceived Usefulness: Level to which library and information science undergraduates believes that a particular system would enhance their academic activities.

Perceived Ease of Use: Level to which library and information science undergraduates believes that a particular system would free of effort to enhance their academic activities

Computer Self-Efficacy: This refers to as the set of knowledge, skills, attitudes that are required of library and information science undergraduates of selected private universities, Oyo State when using e-learning system to perform academic-related tasks.

Mastery Experience: this is how library and information science undergraduates assess information based on their accomplishment.

Vicarious Experience: this is experience library and information science undergraduates gained from observing their peer.

Verbal Persuasion: this is activities where library and information science undergraduates were led through suggestion that they can do specific task successfully.

Emotional State: this is library and information science undergraduate's reactions in relation to managing emotional and physical stressor arising when performing tasks.

Computer Playfulness: This is conceived as intrinsic motivation which describes library and information science undergraduate's perception of pleasure and satisfaction from performing a behavior using e-learning system.

Spontaneity: refers to as library and information science undergraduate's ability to use computer without being thought.

Curiosity: refers to as library and information science undergraduate's readiness to use or work with computer

Creativity: refers to as library and information science undergraduate 's ability to create new thing or ideal

Library and Information Science Undergraduates: This refer to individuals who are studying to obtain their first degree in library and information science in selected private universities in Oyo state.

Endnotes

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Chapter Two

Literature Review

This chapter reviewed the current literature on Computer Self-efficacy, Computer Playfulness and Motivation to Use E-learning Systems by Library and Information Science Undergraduates of selected private universities, Oyo state

This chapter reviewed the literature of the following subheadings which are used.

2.1 Conceptual Review

2.1.1 Concept of Motivation to use E-learning System

2.1.2 Concept of Computer Self-Efficacy

2.1.3 Concept of Computer Playfulness

2.2 Theoretical Review

2.2.1 Technology Acceptance Model 3(TAM)

2.2.2 Stimulus Theoretical Framework

2.2.3 Social Cognitive Theory (SCT)

2.2.4 Computer Playfulness Theory

2.3 Review of Empirical Studies

2.3.1 Computer Self-Efficacy and Motivation to Use E-learning Systems

2.3.2 Computer Playfulness and Motivation to Use E-learning Systems

2.4 Conceptual Framework

2.5 Summary of Literature Reviewed

Endnotes

2.1 Conceptual Review

2.1.1 Concept of Motivation to Use E-learning Systems

Different researchers have been defined e-learning from different angles and perspectives based on their backgrounds. The concept of e-learning come from the need for non-traditional learning that could access using internet. Undergraduate students can learn and practice on their own or be taught by others, they gain insights concepts that were initially unfamiliar to them. E-learning is performed face-to-face to ensure that the process of learning can stimulate learners' interests, report their progress to their tutors to provide them feedback and guide undergraduate to meet their expected target¹.

E-learning can be described as process of learning that involves the use of electronic technologies to access curriculum outside of traditional classroom². E-learning can be undertaken on desktops or laptop computer, tablets, smart phones and other forms of technology such as audio and video discs, interactive televisions, satellite broadcasting of lectures³. E-learning assists learning materials to be distributed to the undergraduate students. E-learning is a process that undergraduate undergone to familiar with internet to improve their learning skills⁴. E-learning has been regarded as the most insurgent tools for higher institutions for its widely and globally acceptance. Most higher institutions have turned to e-learning platforms to keep academic activities running⁵. E-learning is purposely to increase learning effectively. Various platform such as zoom meeting, goggle meet, and goggle class room and so on are being used to disseminate learning to undergraduate students⁶. Also e-learning is delivery of teaching materials through

electronic media such as audio/video tape, intranet internet, extranet, CD-ROM⁷. E-learning is a web based learning that utilise web communication, collaboration, knowledge transfers and training to students⁸. E-learning has been accepted by many higher institutions learning because it makes both teacher and undergraduate students to interact effectively without space and time barrier⁹.

Moreover, e-learning is use of multimedia tools and the internet to increase the level of learning and access to resources and services. It is the learning that can be access online through network technologies¹⁰. E-learning is the learning that take place through computer of other electronic gadget that is intended to promote learning¹¹. E-learning is an innovative way to provide an interactive medium, centered around the student, well designed already, available to anyone in any place and any time using computer and other electronic tools but designed with instructional principles¹². E-learning could also be described as web and computer based activities that support teaching and learning within and outside the campus¹³. It is computer and Internet-based activities that support teaching and learning both on-campus and at a distance. It is the online learning using a modem, Wi-Fi or cable connection to access course material from mobile phone, a computer, and other devices¹⁴. E-learning requires the use of MP3/MP4 players, computer-based teaching materials, personal digital assistants, WhatsApp, websites, blogs, discussion boards, collaborative software, e-mails, wikis, text, charts, educational animation, simulation, games, learning management software, interactive learning, telegram, computer assisted teaching and internet based learning¹⁵. This shows that e-learning has ability to provide avenue for reflective and integrating learning outcomes. In e-learning platform, learning can be delivered using electronic gadgets such as video,

Local Area Network, email, intranet, internet, extranet, satellite board, WhatsApp telegram, zoom, Edmodo, google, classroom, compact disc read memory. In e-learning platform all lesson can be learnt and thought in just a twinkle of an eye. Learning through e-learning platform arouse undergraduate students interest to learning because it usually comes with texts, pictures, sounds, video, collaborating sharing and so on¹⁶. It can be carried out anywhere, anytime in as much as undergraduate students has mobile phone or computer and is connected to the internet. E-learning provides access to quality education and training, it benefits both students and lectures in terms of cost effective and efficiency, allow students to take responsibilities of their own learning which could be of benefit to them¹⁷.

As a result of the incorporation of ICT into the classroom, a new kind of learning environment has emerged: e-learning. Definition: "edtech" refers to the incorporation of digital tools like the web, apps, and computers into the classroom to improve the educational experience for students. Both students and teachers benefit from it because it improves the quality of instruction, increases students' and teachers' access to course materials, lowers the overall cost of education, and widens access to education through the use of technologies like distance learning. Researchers have found that e-learning not only improves students' knowledge and retention, but also encourages class participation and makes sharing and receiving information much simpler. E-learning, or Internet-based training, web-based training, on-line learning, network learning, distance learning, and many other names have emerged as the field has evolved along with the tools at its disposal. Internet-based "e-learning" (or "m-learning") refers to the dissemination of educational materials in digital format (such as text documents or images) with the

intention of improving the quality of instruction or fostering the development of students' own expertise and knowledge. To overcome barriers of time, place, and schedule, and to facilitate learner-centered, individualised learning¹⁸, computers and network technology media were applied to learning contexts, such as synchronous and asynchronous network learning. As information and knowledge continue to spread at a rapid pace, more and more industries are finding uses for digital learning. In addition, e-learning refers to the method by which students utilise electronic media to increase their educational experience. Internet, corporate networks, computers, satellite broadcasting, audio/video tapes, interactive television, and compact discs are all examples of digital media. Several forms of digital instruction and collaboration, such as those implemented via network or computer, are part of the application's scope. As a digital resource, it can be used to acquire digital course materials for use in both online and offline settings, via either wired or wireless networks¹⁸.

Furthermore, many researchers have defined e-learning systems from different perspectives. An e-learning system is a set of methods and procedures that have been created to solve specific problems or perform certain activities within specific boundaries¹⁹. E-learning system is a software application through which education materials are sent. There are different e-learning systems provided by many providers, these systems differ in terms of specifications, components, and features. Some may provide only a few features, such as online courses, while some provide multiple features such as online courses, grade tables, students' management and so on²⁰. E-learning systems are used to deal with or control different learning activities. For example, an e-learning system provides tools with which to manage online courses, e.g., adding courses

and registering students, and monitoring them throughout the duration of the course. Users and teachers alike benefit from the adaptable learning structure made possible by the E-learning system. These potential drawbacks have a major impact on the efficiency with which students learn. Some studies²² have shown that students' learning outcomes improve when they have access to computers in the classroom. The development of e-learning technologies is altering the traditional methods of higher education. Changes in undergraduate education have been dramatic worldwide, especially since the widespread adoption of various technological innovations²³. Because of the need to increase productivity and provide students with more opportunities for variety and growth, there has been a shift in recent years from a focus on traditional systems to one that emphasises those that employ technological aids. This means that students can use a variety of e-technologies to educate themselves, learn from people in other locations, and receive instruction/guidance without ever having to set foot in a classroom²⁴.

Undergraduates can use e-learning systems to distribute and discuss course materials in a variety of digital forms, including videos, slideshows, documents, and PDFs. With the ability to submit assignments, take exams, and verify exam results online, these technologies have expanded students' access to education beyond traditional classroom settings. E-learning systems boost student achievement and pique their interest in the classroom. Undergraduates can study when it's convenient for them, making it possible for even the busiest person to advance in their profession and acquire new skills and knowledge²⁶. Most e-learning systems are made to support a learner-centered environment, making them useful tools for fostering an optimal learning setting²⁷. Undergraduates can work independently or in groups, thanks to the adaptability and

convenience of e-learning systems. The online nature of e-learning systems has presented new avenues for delivering instruction²⁸. Undergraduates can communicate with their instructor through a variety of e-learning platforms such as Google Meet, Zoom Meeting, Email, Edmodo, Blogs, WhatsApp, and Telegram²⁹. Undergraduates' exposure to e-learning as an educational system is enriched by the availability of e-learning infrastructures and various modes of communication³⁰. Learning systems that employ information technology and are electronic in nature and necessitate access to the internet are collectively referred to as "e-learning systems," and their implementation can either directly or indirectly take place in the online environment³¹. In addition, an e-learning system is a learning system that allows undergraduate students to gain knowledge without physically being in classroom, enabling them to learn from additional sources on the internet in addition to the materials they have been given by their teachers³².

Numerous pedagogical and non-pedagogical advantages accrue when educational institutions adopt e-learning systems. These include, but are not limited to, increased efficiency, decreased overhead, and improved student motivation. Teaching faculty, students, and instructors all use e-learning systems, which are high-tech web-based apps, to improve their teaching and learning practices³⁴. Increased student learning, efficient management, and lower costs are just some of the benefits that developing countries can expect from the widespread adoption of e-learning system platforms made possible by the integration of ICT into the educational process³⁵. Although e-learning systems are becoming increasingly important, providing effective ones remains a challenge for many countries in development. E-mail, mobile phones/GSM, the Internet, databases, electronic

documents/e-books, and interactive whiteboards are the most popular forms of e-learning technology among undergraduates³⁸.

Undergraduates now have more options for how and where they can get their education thanks to the proliferation of online education platforms. With the help of the classroom's interactive video facility, undergrads can participate in in-class activities that help them gain a more in-depth understanding of the material. Undergraduates are now better able to interact with their professors thanks to e-learning systems³⁹. In addition, both part-time and full-time undergraduates took advantage of the flexibility offered by online degree programmes by actively participating in their courses of choice from any location. In addition, it is considered a system for controlling how users engage with e-learning material. The availability of e-learning systems like Blackboard and Google Classroom has made them an integral part of the university system's method of delivering instruction by facilitating the integration of instructional materials, assessment modules, and collaboration tools⁴¹. Quick access to course materials and information, communication, collaboration, and many different ways to learn based on undergraduate students' needs are just some of the benefits gained with e-learning systems in education. Applications of emerging technologies in higher education encourage further investigation⁴². When used for a variety of academic purposes, e-learning systems have three primary functions for undergraduate students: presenting and systematising training content, creating assignments to test and solidify knowledge, and evaluating progress. Undergraduates use E-learning systems for course publication, preparation, delivery, and enrollment⁴³. Students enrolled in postsecondary institutions can benefit from e-learning systems, and their use in the classroom. The practises of the institution can be improved with learner

input, making this method all the more useful. E-benefits learning's extend far beyond these alone, as it also facilitates centralization of knowledge, rapid iteration of content, simplification of the educational process, reduced financial outlay, and other advantages⁴⁴.

Furthermore, e-learning systems offer numerous advantages to undergraduate students, including their being user-friendly, efficient in time management, facilitating in the administration of courses, instructors, and facilities, and producing reports⁴⁴. In addition, it sends timely notifications to users, such as reminders for upcoming deliveries, questions, tests, and more⁴⁵. Undergraduates benefit from e-learning systems because they facilitate collaboration and the sharing of resources like Google Drive, Box, and Docs⁴⁶. As a means of facilitating academic dialogue between teachers and students, online learning platforms facilitate academic networking via social media. Undergraduates can be taught regardless of where they are located or what time of day it is thanks to the accessibility afforded by an e-learning system. Accessible on any device, anytime, and from any location, this platform facilitates two-way communication between instructors and their undergraduate students. Undergraduates can use an e-learning system to receive their instructor's lectures, demonstrations, and questions, and then submit their own responses and receive feedback in the same digital format⁴⁹.

There are two primary ways to deliver online education: synchronously and asynchronously. With synchronous delivery, students can interact in real time. People can be "in the same physical or digital space at the same time," according to the definition. The tools used for real-time online education have evolved over time. Blackboard, Adobe Connect, Adobe System, and so on are some of the most widely used web conferencing tools currently available. Same-time synchronisation is made possible by synchronous

tools, allowing for instantaneous conversation and work. As a result, they can interact with undergraduates simultaneously from different locations⁵⁰, which is a distinct advantage. The other mode of interaction in virtual classrooms is asynchronous delivery. Asynchronous communication allows students to participate whenever and wherever is most convenient for them. Email, online forums, weblogs, wikis, and other forms of asynchronous delivery are all examples. Asynchronous communication tools allow students to communicate and collaborate in a non-real-time setting over a longer period of time. They can get in touch whenever it's most convenient for them. The ability to record and store the entirety of a course or conversation⁵⁰ is a major perk of asynchronous delivery.

Further, e-learning systems have many potential applications in many areas of society. The dissemination of knowledge to students is one such application. Interactions between educators and learners are fostered in these digital classrooms. Undergraduates can listen in on lectures, watch demonstrations, and respond to questions and prompts online, all while receiving feedback in the same format used by their instructors⁵¹. As a rule, the properties and features of e-learning systems are quite different from one another. Schools have the freedom to make decisions that best serve their students and the resources available to them⁵². Undergraduate students' interest in using e-learning systems is influenced more by the systems' quality than by any potential technical or other difficulties that might arise. There is strong evidence that the quality of an e-learning system has a direct and positive effect on student adoption and engagement⁵³.

Motivation, on the other hand, serves as the "engine" of learning; it affects students' decisions about what to learn, how to learn, and when to learn⁵⁴. Definition: "a theoretical

construct to explain the initiation, direction, intensity, persistence, and quality of behaviour, especially behaviour that is goal-directed" ⁵⁵. That which motivates people to take action in a particular way is the pursuit of their goals. Any kind of movement, whether bodily or mental, is crucial to maintaining inspiration. An essential part of this definition is the idea that inspiration is a procedure rather than a product.

The motivation of undergraduate students to use systems can only be inferred from their actions, such as their task selection, level of persistence, level of effort, and level of achievement, as well as from the students' own self-reports. Modern perspectives emphasise the situated, interactive relationship between the learner and the learning environment that is facilitated or constrained by various social and contextual factors, and link motivation to cognitive and affective processes such as thoughts, beliefs, goals, and emotions ⁵⁶. A student's performance, perseverance, and creativity can all benefit from a dose of motivation, as these traits increase the likelihood that they will take on difficult tasks with full attention and enthusiasm. Undergraduates' intrinsic drive to learn in digital environments is a key factor in their academic success⁵⁷.

2.1.2 Concept of Computer Self-Efficacy

Countless scholars have undertaken computer self-efficacy of undergraduate students' studies from several perspectives, contexts, and domains. Self-efficacy refers to as undergraduate student's confidence about his or her capabilities to execute a specific task within a given context⁵⁸. Self-efficacy is "The degree to which an individual believes that he or she has the ability to perform a specific task/job using the computer". Self-efficacy is linked to computer systems in this study (i.e., the confidence shown by the users in their own capacity to employ the e-learning system). It is the ability to complete a task⁵⁹.

Confidence in one's own abilities to accomplish a goal is known as self-efficacy, and it is common among college students. How undergraduates rate themselves can affect the choices they make when faced with difficult situations. One's self-efficacy refers to their confidence in their own abilities⁶¹. Students at the undergraduate level are led by their sense of self-efficacy; if they don't think they can achieve their goals, they won't try very hard to make them happen. One's belief in one's own competence or capacity to carry out a task successfully is known as self-efficacy. What we mean by "self-efficacy" is the confidence that we have in our own abilities to accomplish a goal⁶³. High levels of self-efficacy are associated with greater risk-taking and performance in both academic and nonacademic settings, including among undergraduates. A lower level of self-efficacy is associated with a person's belief in his or her own ability to successfully complete a given task or activity⁶⁴. To put it another way, people's effort levels are regulated in relation to the outcomes they anticipate from their actions, and self-efficacy plays a crucial role in this cognitive regulation of motivation⁶⁵. The degree to which a person believes in their own ability to perform a task has a constructive effect on how simple they think it is to use.⁶⁵

In addition, undergraduate students sense of self-efficacy can have a profound influence on their approaches tasks and accepts challenges. Self-efficacy influences the choice of undergraduate student's activities and motivate them to use e-learning system and allowing them to manage difficult tasks. Self-efficacy gives undergraduate students power to face difficult challenge in all forms, influence their thoughts, action, emotions, motivation and shapes their perception of life experience⁶⁶. Undergraduate students with high self-efficacy have better self-regulation and when facing obstacle, they will not rest

until they got solution, performed wonderfully in their academic activities (performance and achievement), have more confidence in themselves, and are every time happiest⁶⁷. Self-efficacy was acknowledged as a key determinant for effective utilisation of information in the digital environment. Self-efficacy as significantly related to perceived ease of use of web-based technologies both in developed and developing countries contexts⁶⁸. Self-efficacy “refers to beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments”⁶⁹. That is, it is a crucial aspect of being human and unless people believe they can produce a desired effect by their actions, they have little motivation to act. Undergraduates’ lives are guided by their belief in their own self-efficacy and if they believe that they are powerless to produce results, they would not attempt to make things happen. Likewise, undergraduate student’s sense of self-efficacy can have a profound influence on how he or she will approach tasks and accepts challenges⁶⁹. Self-efficacy influences student’s choices of activities and motivational level. It supports efficient analytic thinking necessary for rooting out predictive knowledge from a confusing situation. Self-efficacy also regulates our motivations by honing aspirations and allowing us to manage difficult tasks⁷⁰.

Computer self-efficacy is a key determinant for acquiring and using computer knowledge and skills, and it has been the subject of a number of studies involving undergraduates⁷¹. The term "computer self-efficacy," derived from the concept of "self-efficacy," describes a person's confidence in their ability to complete technological tasks successfully and their desire to do so.

One's personal belief in one's ability to successfully use computer and other related technology to increase learning outcomes⁷³ is the definition of computer self-efficacy.

Undergraduates need computer self-efficacy in order to make the most of an online learning environment, including gaining access to course materials, making effective use of virtual instructional tools, collaborating with instructors and classmates, and solving problems. Undergraduates' confidence in their own abilities to use technology and communicate effectively was found to be correlated with their enthusiasm for programming.

A person's level of computer self-efficacy is crucial for understanding their feelings and actions. For this reason, it is argued that one's chances of succeeding at a given task improve when they have high expectations of their own efficacy. The literature review of e-learning revealed that computer self-efficacy was the most frequently cited external determinant of TAM. The perceived usefulness and perceived ease of use of the e-learning system were both found to be significantly affected by the individual's level of computer self-efficacy, according to several empirical studies⁷⁴. One's confidence in one's own ability to accomplish goals in the digital realm is known as "computer self-efficacy. While undergraduates with high levels of computer self-efficacy can benefit from e-learning, those with low levels of computer confidence or self-efficacy are more likely to avoid it. However, undergraduates with high computer self-efficacy may be encouraged to keep using the computer despite the fact that their skills are not yet optimal, on the assumption that they are capable of making effective use of it⁷⁵. An undergraduate student's computer self-efficacy is defined as their confidence in their ability to complete a variety of computing-related tasks within the context of general computing⁷⁶.

To be computer self-efficacious is to have confidence in one's ability to use a computer and other digital media tools to complete a given task successfully. Having the

confidence that you can successfully apply your knowledge of computers to a variety of situations is another definition of computer self-efficacy for college students. Undergraduates freshmen's confidence in their own ability with computers affects how much they use these tools for learning. Students' confidence in their own abilities with computers is a strong indicator of their willingness to engage in e-learning and use other computer-based instructional methods. Undergraduate students' confidence in their ability to use computers is a major factor in whether or not they adopt e-learning strategies. In terms of undergraduate students' acceptance and use of technology, computer self-efficacy was the most influential factor⁷⁸.

Computer self-efficacy is, therefore, the self-perception that one is capable and has the required skills to perform computer related tasks. It is believed that students with high self-efficacy with computers usage, will be willing to accept and use an e-learning system and when students with high computer self-efficacy encounters difficulties in the course of using computer based information system, such individual is likely to accept the challenge and adjust to the system⁷⁹. In addition, through computer self-efficacy undergraduate students assessed confidence in their abilities to use computer or unfamiliar software package to perform tasks. Successful interaction with computers can enhance undergraduate students self-efficacy⁸⁰. Computer self-efficacy is a significant predictor of computer skills for undergraduate students. Computer self-efficacy motivate undergraduate students to use e-learning systems that is computer self-efficacy has a positive effect on the use of e-learning. With this belief also comes the motivation to utilise e-learning platforms⁸¹. Students with high computer self-efficacy are more likely explore than others to explore new technologies, software or databases. In the use of e-

learning systems by undergraduate students, it can therefore, be assumed that undergraduate students with high computer self-efficacy would be more likely to take advantage of e-learning technologies when compared to undergraduate students with low computer self-efficacy, as the later may lack the confidence or shy away from using computer-based resources⁸².

Also, computer self-efficacy connotes what undergraduate students perceives in line with the ability to use computers and accompanying software to perform certain tasks. It was revealed that computer self-efficacy plays a significant role in getting the regularity and success of computer use⁸². It was observed that the undergraduate students who are computer competent show much interest in using e-learning system and at the same time exhibit higher self-efficacy. Consequently, it can be said that computer self-efficacy, be it positive experience or otherwise, may possibly affect one's e-learning system use. Computer self-efficacy is, therefore, the self-perception that one is capable and has the required skills to perform computer related tasks⁸³. It is believed that an individual with high self-efficacy with computers usage, will be willing to accept and use an e-learning system. In addition, when an individual with high computer self-efficacy encounters difficulties in the course of using computer based information system, such individual is likely to accept the challenge and adjust to the system⁸⁴. This study used social cognitive theory of self-efficacy which affirmed that self-efficacy beliefs originate from four sources, which includes, mastery experience, vicarious experience, verbal persuasion and emotional arousal bandura⁸⁵.

Mastery experience provides the strongest information for the development of computer self-efficacy beliefs. This is because mastery experience is the only antecedent of

computer self-efficacy that provides direct performance information for the formation of stable and accurate efficacy beliefs. This does not mean, however, that changes in self-efficacy will occur as a direct result of performance accomplishment. Rather, self-efficacy formation will depend on how undergraduate student use/process the information that they previously generated⁸⁵. Mastery experience, are the experiences in which undergraduate students develop confidence about their ability to perform a task by interpreting the results of their actual action. Belief in self-efficacy may be boosted by success and lowered when suffered failure. Undergraduate students have direct experience in which they actually carry out a set of actions. Undergraduate students interpret the outcome feedback in order to form their skills and knowledge through practices⁸⁶. Mastery experience can have great impact on an undergraduate students' self-efficacy because success will boost efficacy beliefs while failure will detract from it ⁸⁹. Studies have shown that mastery experience can be source of help and self-efficacy when undergraduate students are using e-learning system.

Mastery experiences are the most effective measure of self-efficacy because it provides evidence of whether undergraduate students can master whatever it takes them to succeed in using e-learning systems. Their success in using e-learning will increase their personal efficacy. That is students will motivation to use e-learning system will increase when they have positive experiences with their past e-learning system use. Failures undermine it, most especially when failure occurs before a sense of efficacy is firmly observed⁸⁷.

Vicarious experience is an undergraduate student's observation concerning their own or others past successes and failure. This may give undergraduate student confidence in

their ability to pursue their own goals with a greater degree of self-confidence. Vicarious experience is the experience gained by observing others perform activities successfully. Undergraduate students can develop high or low self-efficacy vicariously by observing the actions of their peers⁸⁶. For instance, undergraduate students can observe his or her peer or course mate in a similar position and then compare his or her own competence with the other individual's competence. If undergraduate students see other peer similar to him or her succeed, it can increase their self-efficacy. However, seen his or her peer similar fail can lower his or her self-efficacy. That is, undergraduate students can observe successful peers and be sure that it is also possible for them to accomplish such similar tasks⁸⁶

Verbal Persuasion refers to a reflection consisting of verbal feedback regarding performance abilities. It relates to affective states, effort and task choices in relation to computer self-efficacy⁸⁵. Verbal persuasion is one of the self-efficacy measures that refers to as feedback from significant people in the undergraduate student's life, which may include, their parents, peers, and teachers. The feedback can influence undergraduate student's individual performance. Verbal persuasion by someone the LIS undergraduate students trusts and views as competent (as it relates to the academic performed) serves as another means of strengthening their computer self-efficacy. Verbal persuasion has to do with activities where individual was led through suggestion that they can do specific task successfully. The purpose of computer self-efficacy enhancement by verbal persuasion does no⁸⁷. It necessarily involves increasing the level of skill and ability, but rather focusing on the cognitive appraisal of an individual's self-efficacy in terms of enhancing the beliefs as to what LIS undergraduate students can do with what they already have.

Also, through the use of suggestion and encouragement, undergraduate students can be made to believe that they can accomplish a task or engage in specific behavior. Verbal persuasion can have an effect on self-efficacy. In this context, self-efficacy can be influenced by encouragement and discouragement with respect to an undergraduate student's ability to perform. For example, positive encouragement from a lecturer can result in the students putting forth more effort, resulting in a greater chance at succeeding. Conversely, negative comments from a lecturer can also lead to self-doubt, resulting in lower chances for success⁸⁷. Verbal persuasion motivates undergraduate students to use e-learning because when students are actively engaged in online learning discussion forums by reading discussion posts and providing quality peer replies, a sense of self-efficacy will be increase⁸⁷.

Emotional state is the fourth element of self-efficacy; it refers to undergraduate student's body sensation experience while performing task which may include taking exams, or giving presentation how this emotional arose may increase their level of self-efficacy, such body sensation could be heart palpitation, sweaty palms and so on⁸⁷. Emotional state of undergraduate students can have direct impact on their level of self-efficacy. It is very likely that undergraduate students will succeed if they are not in the state of aversive arousal⁸⁸.

2.1.3 Concept of Computer Playfulness

Different researchers have undertaken the concept computer playfulness of undergraduate students' studies from several perspectives, contexts, and domains. Playfulness can be interpreted in terms of abilities such as emotional expression and the use of intrinsic motivation as well as in terms of characteristics and behaviors such as naturalness, a

sense of freedom, happiness, being childlike, playing, or being funny⁸⁹. Webster defined playfulness as the free qualities of leisure or games: an element of an intrinsic attitude; containing the characteristics of freedom; and affecting the player's leadership, control, satisfaction, and happiness in the game⁹⁰. Playfulness can be described as an enduring personal characteristic that represents an important variable in the prediction of behavior⁹⁶. Playfulness is referred to as internal disposition of an undergraduate students for bringing a playful quality into e-learning system⁹¹. Also playfulness is referring to as an internal disposition of undergraduate students for bringing a playful quality to an artefact and interpret⁹². Playfulness is also regarded as being a system specific trait that can change because the experience in using a specific technology increases over time. While an individual may be considered a generally playful person, his or her specific level of playfulness toward a technology may different. When undergraduate students first interact with a computer system, he or she may feel intimidated and stressed; as a result, their degree of playfulness is low. As they attain some level of familiarity with the system, they are more apt to explore the system and interact spontaneously with it⁹³. Computer playfulness refers to as undergraduates' ability to interact spontaneously with a computer⁹⁴. Computer playfulness is a trait that is an individual characteristic that can change because of the experience in using a specific technology increase over time. Undergraduate students level of playfulness towards a system may differ. Undergraduate students who can interact spontaneously and innovatively with e-learning system will derive a great satisfaction of interacting with it, such interaction could lead to increased learning, high satisfaction and so on. Also, computer playfulness as a trait refers to as level of cognitive spontaneity in microcomputer interactions. There is fun and satisfying

in play and can help one escape from real life into fantasy. Undergraduate students who view computers as toy will interact effectively with e-learning system⁹⁵. Computer playfulness is referring to personal features describing a type of intellectual playfulness and representing an undergraduate students' tendency to interact spontaneously, creatively, imaginatively and inventively with computers. Computer playfulness mostly referred to as individual trait. It may predict undergraduate students perceived ease of use of e-learning system⁹⁶. Undergraduates who are more playful with computer in general are most not likely to encounter challenges of using e-learning systems, since they quite simply enjoy the process and do not perceive it as requiring effort compared to those undergraduate students who are less playful⁹⁷. Computer playfulness is the degree of cognitive spontaneity in interacting with computer. It is an intrinsic motivation, undergraduate students with high level of computer playfulness use less effort when performing a task compared with undergraduate students with low level of computer playfulness⁹⁸.

Computer playfulness could motivate people to use computer systems by determining how much creativity and effort they can expend, how long they can inventive in the face of difficulties, as well as their resilience to failures in their efforts to reach their goals. For instance, students who have possess traits of originality believe in their capabilities. In relation to this study's perspective, library and information science undergraduate who are imaginative and have confidence in themselves use computer systems more than those with low esteem⁹⁹. When people (library and information science undergraduates) view computer systems and other digital technologies as playful and easy to use, they are more confident and competent in using the technology. It was hinted that the level of

computer playfulness of undergraduates about computer systems and other digital information resources is of extreme significance on the grounds that to a huge degree, “it decides the level of the information resources usage in digital libraries”. To this end, computer systems and other related digital information resources perceived by library and information science undergraduates to be playful and easier to use, may likely be used by them¹⁰⁰. More so, computer will be seen being playful to use by library and information science undergraduates, if interaction with the system is clearly understood, that is, flexible for them to interact and easy for them to learn¹⁰⁰.

Computer playfulness as a factor, could easily determine whether they are to use digital resources or not. Interestingly, the more flexible a library and information e can interact with digital/computer system, the more they find it inventive and easy to use. In other words, library and information science undergraduates’ levels of computer playfulness to a very large extent influence their use of computer systems as well as digital information resources¹⁰¹. More so library and information science undergraduate’s levels of computer playfulness in the aspects of creativity, originality, imaginative, inventive, as well as spontaneity is very germane to their adoption and use of virtual learning systems¹⁰². It was disclosed that computer playfulness in the aspect of original and creative searching of e-databases fosters the usage of the computer systems and their resources for academic activities of undergraduate students specifically in the areas of teaching, learning, and research¹⁰³. Computer playfulness factors such as creativity, originality, imaginative, inventive, spontaneity, remote accessibility, large information capacity, immunity from the effects of time and space limitations, convenience and strong share ability, currency of contents, and costs of access determine the acceptance and use of computer systems¹⁰⁴.

In other words, LIS undergraduate students that exhibit high level of computer playfulness when it comes to computer usage are more likely to explore new technologies, software, and databases than those with limited elements of computer playfulness.

2.2 Theoretical Review

There are various models and theories that have been developed by professionals in various fields of study which have brought richness into research. The theoretical framework that was selected to guide this research work are discussed here. The theories/models include: Technology Acceptance Model 3 (TAM3) and Stimulus Theoretical Framework, these two theories will be using to explain dependent variable “Motivation to use e-learning systems by library and information science undergraduate students”. Social cognitive theory will be using to explain the computer self-efficacy as one of the independent variables while Webster microcomputer theory will be using to explain computer playfulness as the second independent variables.

2.2.1 Technology Acceptance Model 3

Technology Acceptance Model was introduced by Davis to explain computer usage behaviour. It was built and developed based on the theory of reasoned action (TRA), and emerged along at the same time of the Theory of Planned Behavior (TPB). TAM was used to anticipate factual practices of particular activities based on a theory that they are in fact performances, so they can be analyzed and predicted with the aid from TRA model¹⁰⁵. It has been applied in diverse areas and in different ways, for instance, education, health care. Online shopping e-commerce, social media and mobile banking.

The increased demand for e-learning resources and technological learning tools in higher education also implies a growing need to understand the prerequisites and variables that

affect student acceptance, intention to use, and adoption of these tools. The Technology Acceptance Model (TAM) is the best-known and most widely employed model to understand acceptance and adoption of information technology, information systems, and innovations, and it has been the subject of numerous studies since its inception¹⁰⁶. Many researchers have used it to predict the acceptance and use of information technologies¹⁰⁷. TAM was developed, using the theory of reasoned action as the basis, with two constructs: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). Both constructs influence one's belief on the use of information technology. Also, the theory has three other constructs: Attitude towards Use (ATU), Intention to Use (IU) and Actual Usage (AU). The goal of TAM is to "provide an explanation of general determinants of computer acceptance"¹⁰⁸. It has become one of the most prominent theoretical models in this area. Application of TAM has been extensively explored in the higher education context to determine how students perceive usefulness and perceive ease of use affect their acceptance of e-learning initiatives.

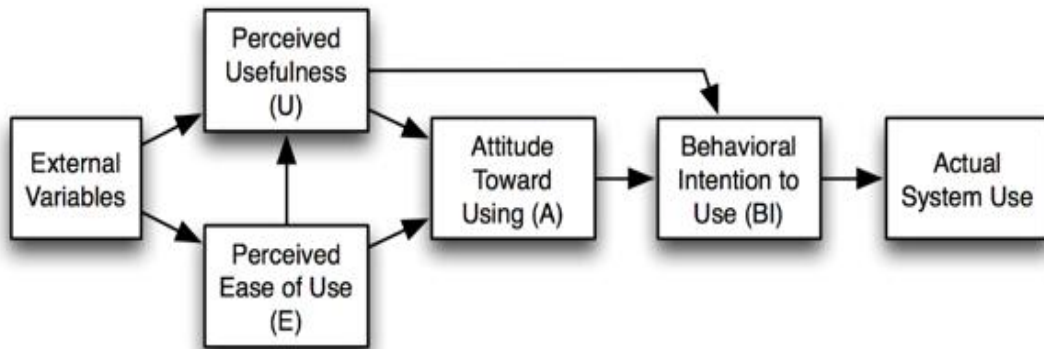
TAM was mostly used to study e-learning system acceptance, perceived usefulness and perceived ease of use and subjective norm are observed to predict intention²³. TAM posits that perceived usefulness and perceived ease of use motivate undergraduate students to interact with e-learning systems. Also, perceived usefulness may have a direct impact on perceived ease of use. Among the components of TAM, both perceived usefulness and perceived ease of use are the principal determinants that directly or indirectly explain the behavioral intention to accept new technologies¹⁰⁹. Moreover, e-learning with the invention of information communication technology, learning and training to undergraduate students anywhere, anytime is guaranteed¹¹⁰. Since its emergence, e-

learning has been evolving with the advance of technology. Researchers have conducted many studies to predict user attitude, behavioural intention, and actual usage of e-learning systems, in many parts of the world, and across different cultures. While researchers have adopted different prediction models, a significant number of major studies considered TAM as their core research model¹¹¹. In a study conducted on forty-two published papers to investigate the causal relationships proposed by TAM, specifically in e-learning contexts.

Therefore, original TAM explains user motivation by means of three factors: Ease of use, usefulness, and attitude toward use¹¹². Several studies have attempted to extend and modify the TAM by proposing additional variables that may contribute to acceptance of technological innovation. It is a well-regarded and widely validated theory of technology acceptance and use¹¹³. In addition, research conducted, a meta-analysis of 145 articles on the TAM and most of the reviewed studies found that there was a direct relationship between perceived ease of use and usage behavior and that usefulness exerted a significant influence on behavioral intention¹¹⁴. TAM has primarily been used to study acceptance of technology with regard to innovative methods and tools in education, for example to verify the process whereby university students adopt and use e-learning resources to investigate students' acceptance of blended e-learning systems¹¹⁵.

TAM has also been employed to analyze students' behavior regarding the use of new technologies in education, such as YouTube, mobile technologies and blogs or the adoption of cloud computing in education¹¹⁶. Other studies have used the TAM to assess acceptance of learning management systems (LMS) by students. For more than thirty years, TAM's validity, extension, and application have been widely researched in

different contexts⁷⁵. After a period of trials, researchers have come up with new factors and made adjustments to the link between already existing variables of TAM. They continually found new elements of important impacts on the model's core variables. This has helped TAM to enhance its role in expecting possible human's acceptance of reflection of technology from TAM, using more theoretical conceptual elements related to practices like social impacts (subjective norms, voluntariness, image), and cognitive instruments (job relevance, output quality, result demonstrability, and perceived ease of use)⁷⁵.



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Figure 2.1 Technology Acceptance Model by Davis 1989

Original TAM was expanded to create TAM2 to explain the key determinants of perceived usefulness. The extended model, known as the TAM2, includes social influence processing factors (subjective norms, image, and voluntariness) and cognitive instrumental processing factors. Technology Acceptance Model (TAM 3)¹¹⁷. TAM is to provide an explanation of the determinants of computer acceptance that is general, capable of explaining user behaviour across a broad range of end-user computing technologies and user population which at the same time being both parsimonious and theoretically justified. The Technology Acceptance Model (TAM) was developed to

explain and understand factors affecting the acceptance and use of computer technology or ICT infrastructure in general in organizations/institutions¹¹⁸.

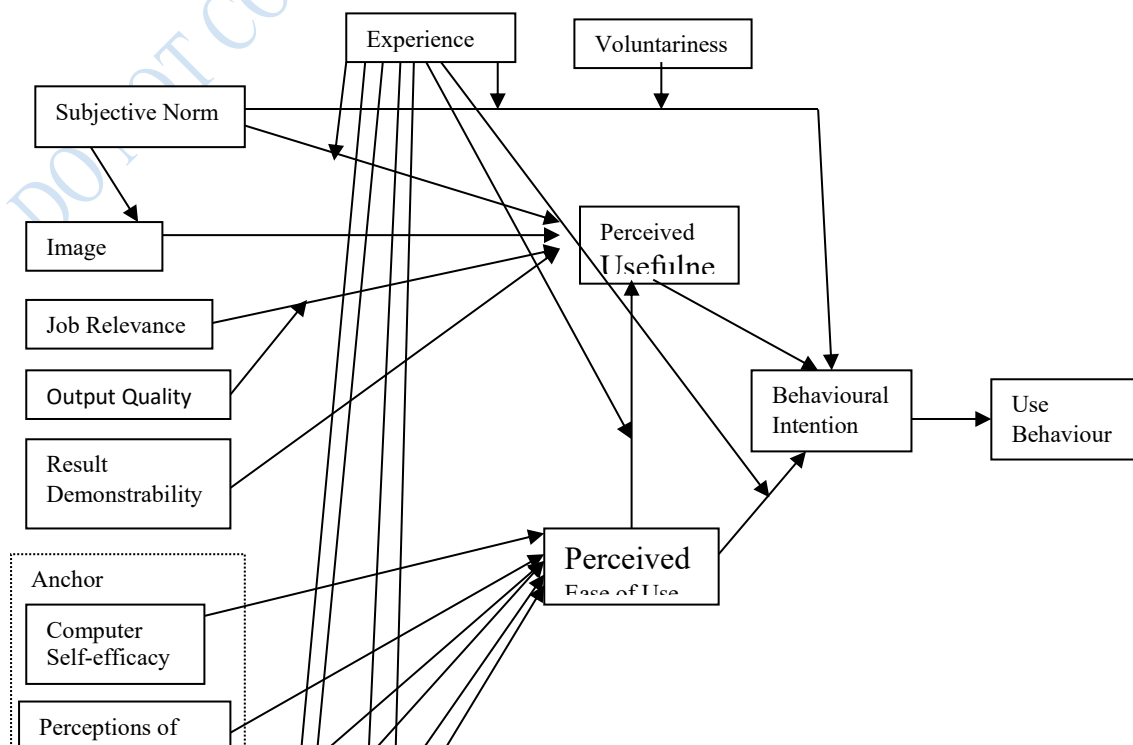
However, motivation to use e-learning systems is jointly determined by two variables: perceived usefulness and perceived ease of use. Thus, the TAM presupposes that perceived usefulness and perceived ease of use influence attitude toward behavioural intention to use information and communication technology¹¹⁹. Fundamentally, TAM presumes that perceived usefulness and perceived ease of use are of main relevance regarding computer acceptance behaviours”. The perceived usefulness and perceived ease of use are said to influence behavioural intention which is affected by attitude towards the behavior. Perceive usefulness and perceived ease of use are major factor that determines whether a potential user (library and information science undergraduates) would actually use ICT (or access and use of e-learning system) or not. Hence, with perceived usefulness and perceived ease of use as the determinants of attitude. This is consistent with the postulation that “attitude toward using is in turn a function of two beliefs: perceived usefulness and perceived ease of use”¹¹³. Thus, perceived usefulness and perceived ease of use have helped in application of the TAM to explain and predict acceptance of the use of information and communication technology by different people (undergraduate students) in universities¹¹⁴.

This research work will only use the two main constructs of technology acceptance model (Perceived usefulness and perceived ease of use) as metrics for this study because these two factors motivate undergraduate students to use e-learning systems.

Perceive ease of use is defined as the level to which library and information science undergraduate students’ belief that using e-learning system would be free of effort.

Perceived ease of use has to do with users' motivation and is the result of the students' assessment of an essential aspect of using e-learning systems¹¹⁵. Perceived ease of use is originated from technology acceptance model. Different studies have used perceived ease of use to measure undergraduate students e-learning systems. Perceived ease of use positively motivated the intention to use a technology¹¹⁶.

Perceived ease of use influences perceived usefulness, increase in perceived ease of use leads to academic performance of undergraduate students. Perceived ease of use is a concept that draw attention of undergraduate students to use e-learning systems. For example, when all conditions are the same, a system that is easy to use catches user attention to use¹¹⁶. Perceived ease of use of e-learning system will reduces the tension of using system by library and information science undergraduates. Also, perceived ease of use is defined as the activity of someone believing that technology is easy to understand and use. Literature revealed that perceived ease of use is when undergraduate students find it easier to relate with systems, they don't need to spent huge effort in operating systems, operate systems with ease and system is easy to operate according to their academic purpose¹¹⁷.



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Figure 2.2 Technology Acceptance Model 3 (TAM3)

Technology acceptance model is mostly and widely use because of its simplicity and ease of use. It explained the reasons for adoption of technology, technology cannot be left out when talking about the e-learning systems. TAM is one of the most effective tools to study user acceptance and use of information and communication technology among other competitive theories/models¹¹⁹. It has also revealed extensive that application of the TAM to study users' acceptance of microcomputers, World Wide Web, Software, and decision support system in different organisations/institutions across diverse cultures. TAM to test students' behaviour in a multimedia learning environment, specifically, the use of internet-based technologies by the students. The TAM was found to be a solid theoretical model that "provides better understanding of user behaviour on the system and a multimedia acceptance model". Although, TAM has been reported as the most widely

used and robust theoretical model in the study of acceptance and use of information and communication technology¹²⁰.

2.2.2 Stimulus Theoretical Framework by Lai P. C. 2017

The stimulus theoretical framework is also used to buttress the dependent variable of this study “motivation to use e-learning systems by LIS undergraduate students”. Stimulus theoretical framework was proposed by Lai P. C as the extension of Technology acceptance model (TAM) by Davis by including security factors and use the mediator with the direct and indirect relationship of the factors and undergraduate students’ intention to use e-learning systems¹²³. Stimulus theoretical framework revealed that security and design are the stimulus that represent e-learning systems and its features capabilities. The perceive ease of use and perceived usefulness are organism that represent the motivation to used e-learning system and leads to undergraduate students’ response to use e-learning systems.

Stimulus is referred to as systems features and capabilities. It is referred to as key factor that affecting the level of undergraduate students to accepting system¹²⁴. Security and design are stimulus that represent e-learning system features and capabilities. Undergraduate students before adopting any system will have considered how the system is being design, who is being designed for and the purpose. The stimulus from this study is likened to e-learning systems characteristics (influence, design and its learning factors) as they affect learning activities of undergraduate students¹²⁴.

Organism is referred to as internal processes and intervening structures between stimulus external factors to the undergraduate students and the final actions, reactions or responses emitted. Perceived ease of use and perceived usefulness are the organism that represents

the motivation to use the e-learning systems y undergraduate system. How undergraduate students feels while using the e-learning system will lead to how they will respond to the system. Organism mediate the relationship between stimulus and individuals, its represent undergraduates emotional and cognitive state.

Respond is undergraduates' intention to use the e-learning systems. Responses is referred to as students' positive affection toward the use e-learning systems. Responses represent the students' affective aspect of the organism. It represents students final action and decisions to either use e-learning systems or avoid using it¹²⁵.

This conceptual framework is relevant to this study because it is regarded as the modified technology acceptance model¹²⁵. Stimulus theoretical framework is used for this work because it is the theoretical framework that explained perceive ease of use and perceived usefulness as organism that represent the undergraduate students' motivation to use e-learning systems. Stimulus theoretical framework explained that stimuli have always been the key factor affecting the level of e-learning of undergraduate students. Literature have shown that good e-learning stimuli environment will motivate and assist students to obtain the required knowledge and skills¹²⁴. Stimulus are those factors that affect internal state of individuals and can be express as an influence that stimulate the individual¹²⁴. Organism is an internal process, that is in-between stimuli and final reactions of using systems. It is an intervening processes and structure that consists of physiological feeling, and thinking activities. Organism focuses on pleasure, arousal and it serve as intermediary between stimulus and response. Undergraduate students will respond either positive or negative after the reception of stimuli¹²³. Therefore, stimulus theoretical framework has three constructs with external variables which includes stimulus (design

and security), organism (perceived usefulness and perceived ease of use), response (consumer intention to use system)

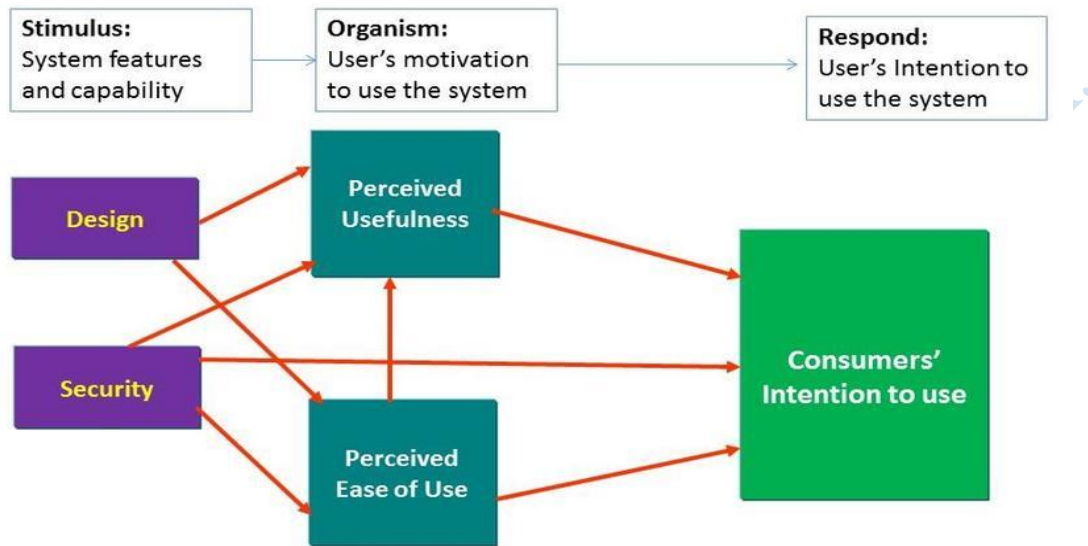


Figure 2.3: Stimulus Conceptual Framework Lai P. C. 2017

2.2.3 Social Cognitive Theory by Bandura 1977

Social cognitive theory was proposed by Albert Bandura as learning theory which can be described as a belief about one's own capability to organise and complete a course of action required to accomplish a task¹²⁷. Albert provides his landmark contribution to psychology, social foundations of thought and action. Social Cognitive Theory, which served to extend his earlier theory of social learning and more squarely include those influences of human behavior that originate from within the individual. Social cognitive theory seeks to explain the lifespan of human development, motivation and comporment by the interaction, or "triadic reciprocal determinism," of behavior, cognitive/personal factors, and environment influences. Each of these elements has the ability to both

influence, and be influenced by any of the other elements, and each element may vary in the strength of their contribution to motivate behavior, or sometimes act independently and at other times in unison. Social cognitive theory explained undergraduate students' self-efficacy, it was revealed that if students do not have self-efficacy in a system they will not attempt to use e-learning systems⁸⁶.

Social cognitive theory emphasises the critical role of self-beliefs in human cognition, motivation, and behavior. Social cognitive theory gives prominence to a self-system that allows individuals to exercise a measure of control over their thoughts, feelings and actions. Social cognitive theory further explained as individuals' beliefs about their own capabilities that is their self-efficacy beliefs makes them to contribute to the type of person they become and their achievements¹²⁷. Social cognitive theory provides a framework for understanding how individuals actively shape and are shaped by their environment. Social cognitive theory is one of the most frequently used theories applied in computer self-efficacy⁸⁷. People acquire knowledge through observation and imitation of fellow human beings' behaviors in different environments and settings. It further explained that individuals can inform and motivate themselves by observing themselves; they can relate to how one assesses one's present performance in relation to the expected goal; react to either positive or negative performance and have personal belief in capacity to execute behavior necessary to produce a specific task. Social cognitive theory revealed that self-efficacy beliefs are developed quickest through mastery experiences, that is, successful representations of behavior that instill confidence in the ability to successfully enact similar behavior in the future¹²⁸. Mastery experience and social persuasion (feedback which can influence perceived ability and environment) also contribute to

undergraduate students' self-efficacy, but more relevant concern is how self-efficacy is inferred through the presence of physical and emotional states. Feelings related to stress, depression or anxiety can factor into how capable or comfortable one feels in particular situations or enacting certain behaviors⁸⁵.

However, social cognitive theory is a theoretical framework use for analyzing human motivation, thought and action. It is use to predict individual behavior and identifying methods in which behavior can be modified and changed. The theory explained that the perception of self-efficacy is influenced by four factors which are mastery experience, vicarious experience, social persuasion and emotional state⁸⁵.

Mastery experience refers to as leveraging of past successes in one's ability when executing a task to increase positive self-perception. Mastery experience provides the strongest information for the development of computer self-efficacy beliefs. This is because mastery experience is the only antecedent of computer self-efficacy that provides direct performance information for the formation of stable and accurate efficacy beliefs. This does not mean, however, that changes in self-efficacy will occur as a direct result of performance accomplishment. Rather, self-efficacy formation will depend on how undergraduate student use/process the information that they previously generated⁸⁷. Mastery experience, are the experiences in which undergraduate students develop confidence about their ability to perform a task by interpreting the results of their actual action. Belief in self-efficacy may be boosted by success and lowered when suffered failure. Undergraduate students have direct experience in which they actually carry out a set of actions. Undergraduate students interpret the outcome feedback in other to form their skills and knowledge through practices⁸⁷. Mastery experience can have great impact

on an undergraduate students' self-efficacy because success will boost efficacy beliefs while failure will detract from it.

Studies have shown that mastery experience can be source of help and self-efficacy when undergraduate students are using e-learning system. Mastery experiences are the most effective measure of self-efficacy because it provides evidence of whether undergraduate students can master whatever it takes them to succeed in using e-learning systems, that is success in using e-learning system will increase their personal efficacy. Failures undermine it, most especially when failure occurs before a sense of efficacy is firmly observed¹²⁹. Undergraduate student based their self-perceived abilities to achieve a goal on their past experience. A high degree of computer self-efficacy can be obtained by analyzing past experiences in which one has succeeded at a computer task and overcome the task. Mastery experience this is individual assessment information that is based on personal accomplishment. Mastery experience) provides the strongest information for the development of computer self-efficacy beliefs. This is because it is the only antecedent of computer self-efficacy that provides direct performance information for the formation of stable and accurate efficacy beliefs. This does not mean, however, that changes in self-efficacy will occur as a direct result of performance accomplishment. Rather, self-efficacy formation will depend on how undergraduate student process the information that the previous performance generated⁸⁷.

Vicarious experience this is described as an individual's observation concerning their own or others past successes and failure. This may give undergraduate student confidence in their ability to pursue their own goals with a greater degree of self-confidence. Vicarious experience is the experience gained by observing others perform activities

successfully. Undergraduate students can develop high or low self-efficacy vicariously by observing the actions of their peer. For instance, undergraduate students can observe his or her peer or course mate in a similar position and then compare his or her own competence with the other individual's competence⁶⁶. If undergraduate students see other peer similar to him or her succeed, this can increase their self-efficacy. However, seen his or her peer similar fail can lower his or her self-efficacy.

Verbal persuasion refers to a reflection consisting of verbal feedback regarding performance abilities. It relates to affective states, effort and task choices in relation to computer self-efficacy⁸⁸. Verbal persuasion by someone the LIS undergraduate students trusts and views as competent (as it relates to the academic performed) serves as another means of strengthening computer self-efficacy. Verbal persuasion has to do with activities where individual was led through suggestion that they can do specific task successfully⁸⁷. The purpose of computer self-efficacy enhancement by verbal persuasion does not necessarily involve increasing the level of skill and ability, but rather focusing on the cognitive appraisal of an individual's self-efficacy in terms of enhancing the beliefs as to what LIS undergraduate students can do with what they already have. However, for this mode of increasing self-efficacy to work, LIS undergraduate students should already have some reason to believe that they have (or can develop) the ability to accomplish the task. Expressing a faith in one's ability is particularly relevant in times when LIS undergraduate students have performance difficulties and may question their personal efficaciousness⁶⁶.

Also, through the use of suggestion and encouragement, undergraduate students can be made to believe that they can accomplish a task or engage in specific behavior. Verbal

persuasion can have an effect on self-efficacy. In this context, self-efficacy can be influenced by encouragement and discouragement with respect to an undergraduate student's ability to perform. For example, positive encouragement from a lecturer can result in the students putting forth more effort, resulting in a greater chance at succeeding. Conversely, negative comments from a lecturer can also lead to self-doubt, resulting in lower chances for success. However, Verbal persuasion motivates undergraduate students to use e-learning systems because when students are actively engaged in online learning discussion forums by reading discussion posts and providing quality peer replies, a sense of self-efficacy will be increase⁶⁶.

Emotional state is the fourth element of self-efficacy; it refers to undergraduate student's body sensation experience while performing task which may include taking exams, or giving presentation how this emotional arose may increase their level of self-efficacy⁶⁶. Individual emotional state can contribute or influence judgment concerning specific task. Emotional states described undergraduate student's reactions in relation to managing emotional and physical stressor arising when performing a task. This construct shows that undergraduate students may acquire and maintain certain behavior while considering the social environment in which they develop their behavior. This source of efficacy information is important because people tend to perceive physiological and/or psychological and emotional activations as signs of vulnerability and dysfunction⁸⁷.

Social cognitive theory is grounded on the idea that learning is influenced by cognitive, behavioral, and environmental factors¹²⁵. However, Bandura speculated that nearly all learning phenomena can occur by observing other people's behavior and the consequences of that behaviour. Social cognitive theory argues that individuals do not

simply respond to environmental stimuli, instead they actively seek and interpret information¹²⁸. Individuals “function as contributors to their own motivation, behavior, and development within a network of reciprocally interacting influences”¹⁰⁵. Self-efficacy is a key element of social cognitive theory because it affects students’ motivation and learning. In the context of online learning, self-efficacy is especially important. Online learning is self-directed. It requires increased discipline on the part of the student. Self-efficacy is concerned with a person’s confidence in their abilities to complete certain tasks and reach specific goals. It is a predictor of student success and academic performance¹²⁸.

2.2.4 Computer Playfulness Theory Webster and Martocchio 1992

Computer playfulness theory was proposed by J Webster and J Martocchio as human computer interaction. The theory of computer playfulness which represent the degree of cognitive spontaneity in microcomputer interactions⁸⁹. Playfulness represents a particularly appropriate construct in the study of symbolic systems like human-computer interactions. The theory explained that naive users of computers, can concluded that the capacity to treat work as play characterizes successful learners and problem solvers. Microcomputers, specifically, seem to encourage the state of playfulness, provide quick responses, easy to use and can tailored to the user's requirement⁸⁶. Computer playfulness, is an individual specific characteristic, represents a type of intellectual or cognitive playfulness. It describes an individual's tendency to interact spontaneously, inventively, and imaginatively with computers. Interactions with computers are symbolic in nature, playfulness is an apt construct in the study of human computer interaction. Computer playfulness theory describes a type of intellectual playfulness; it represents a promising

area for research. Computer playfulness has potentially important practical implications for undergraduate students in using e-learning systems⁹⁰. Therefore, undergraduate students higher in computer playfulness will view computer interactions more positively than less playful LIS undergraduates and consequently will be more motivated to engage in computer interactions in the future⁸⁶. Other research indicates that longer-term outcomes, such as learning, result from playfulness⁹⁵. Undergraduate students higher in computer playfulness will exercise and develop skills through exploratory behaviors. Thus, these undergraduates will be better able to react to use of e-learning systems and requiring these skills in the future. Potentially negative effects of playfulness, such as longer time to task completion and over-involvement¹¹¹.

Computer playfulness theory has five basic construct which are, cognitive spontaneity, social spontaneity, physical spontaneity, manifest joy, and sense of humor⁹². Cognitive spontaneity represents the most relevant playfulness factor in the context of human-computer interactions. It is a type of intellectual playfulness, undergraduate students' computer playfulness tends to be more spontaneous, inventive, and imaginative in their computer interactions¹¹². For example, when undergraduate is interacting with a new system, he or she will be more playful, more likely to examine the options available on the user menu and experiment with them. Over time, more playful individuals, through their self-motivated interaction, are more likely to have mastered the systems and to exhibit more positive attitudes toward it¹¹³.

2.3 Review of Empirical Studies

2.3.1 Computer Self-Efficacy and Motivation to Use E-learning System

Many empirical studies have investigated the predictive relationships between computer self-efficacy and motivation to use e-learning system by LIS undergraduate students. A research titled "Self-efficacy in online learning environments: A literature review." The purpose of this paper was to examine the relationship between self-efficacy and online learning environments. Self-efficacy refers to "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments". The paper reviews studies on self-efficacy in online learning environments from 1997 to 2015. Three main categories were discussed: computer self-efficacy, Internet and information-seeking self-efficacy and LMS (Learning Management Systems) self-efficacy. Possible areas of research on self-efficacy in online learning environments were suggested. Computer self-efficacy had significant impact on student satisfaction with online environments and intention to take future online courses in some studies¹²⁷.

A research work on the impact of e-learning quality and students' self-efficacy toward the satisfaction in the using of e-learning a study carried out in Malaysia. It was observed that pandemic has changed the learning process, from face to face and blended and fully e-learning facilitated by electronic media that can be reached by lecturers and students. They are required to use e-learning so they can do learning process from home or anywhere due to the physical and social distancing imposed by the government. This study examined the quality of e-learning, student's self-efficacy, and satisfaction in using e-learning. It involved 345 students from Management Study Program in Universitas Muhammadiyah Sumatera Utara and the data collection was carried out by distributing questionnaires. The regression analysis was conducted to examine the effect of self-efficacy and e-learning quality toward e-learning users' satisfaction. The results showed

that there was an effect of self-efficacy and e-learning quality toward e-learning users' satisfaction where the theoretical and institutional implications for e-learning in higher education discussed. Result found that satisfaction with e-learning was influenced by comfort, learning structure (clarity), instructor, positive interaction, and communication. The instructor plays a very important role since he/she provides time to interact positively and communicate with students. The sophisticated technology facilitates this interaction and communication process. Interaction with other students provides additional support, forms a learning community and it can help broaden their understanding of the material being taught. Interaction with other students contributes to the feeling in learning community and provides additional support for students to broaden their understanding of the material. The ability to use computers and other electronic devices that support e-learning is absolutely a must have things for students. Self-efficacy of students is how they respond to e-learning, whether it will be a success factor or an obstacle in learning activities, since there are many obstacles both originating from within and outside of students themselves¹²⁸.

A research study conducted in India titled students' attitude and intentions towards online learning in higher education: examining the role of individual and system characteristics, this study is aimed at examining the factors predicting the university students' attitudes and intentions to use online learning system with the intervention of individual and system-related characteristics as external factors. 506 responses from undergraduate and post-graduate students enrolled in public and private universities in the state of Sikkim (India). The study adopted the Technology Acceptance Model (TAM) as a theoretical foundation, and extended it with external individual and system-specific characteristics.

The study employed Partial Least Square Structural Equation Modelling (PLS-SEM) to assess the relationship between the external exogenous individual (computer self-efficacy, perceived enjoyment, and computer playfulness) and systems (content quality, information quality, and system quality) characteristics with the endogenous constructs. The theoretical model the study propose effectively explains the behavioural intention ($R^2 = 0.623$) of university students using online learning systems. The results suggest that perceived enjoyment and system quality have a significant impact on the perceived usefulness and perceived ease of use of online learning system. On the other hand, computer self-efficacy, computer playfulness among individual characteristics; and content quality and information quality characteristics of online learning system do not significantly affect the perceived use and perceived ease of use of online learning system. Further, the content quality does not affect the attitude and intentions of using an online learning system¹²⁹.

Findings from a research work titled, Self-efficacy and use of e-learning: a theoretical review technology acceptance model (TAM) the purpose of this study is to obtain empirical evidence related to actual usage of the use of e-learning with self-efficacy as a mediation variable at Airlangga University. Data from this research are 135 questionnaires distributed to students of Airlangga University. Data analysis techniques use PLS Warp program. The results of this study indicate that perceived usefulness has no significant positive relationship to actual usage. Meanwhile perceived usefulness has a significant positive effect on self-efficacy and actual usage mediated by self-efficacy. Perceived ease of use has a significant positive effect on actual usage and self-efficacy

and when actual usage is mediated by self-efficacy. Self-efficacy has a significant positive effect on actual usage¹³⁰.

A research work from the university of the east web portal titled computer self-efficacy and its relationship with web portal usage. The study was set out to determine the computer self-efficacy of the faculty members of the University of the East and its relationship with their web portal usage. Using a validated questionnaire, the profile of the respondents, their computer self-efficacy, and web portal usage were gathered. Data showed that the respondents were relatively young but had been using the web portal for four semesters ($f = 60, 51\%$), and the large part were intermediate web portal users ($f = 69, 59\%$). They were highly skilled in using the computer ($M = 4.29$) and skilled in using the Internet ($M = 4.28$). E-learning services ($M = 3.29$) and online library resources ($M = 3.12$) were only used occasionally. Pearson correlation revealed that age was positively correlated with online library resources ($r = 0.267, p < 0.05$) and a negative relationship existed between perceived skill level in using the portal and online library resources usage ($r = -0.206, p < 0.05$). A 2x2 chi square revealed that the highest educational attainment had a significant relationship with online library resources (chi square = 5.489, $df = 1, p < 0.05$). Basic computer ($r = 0.196, p < 0.05$) and Internet skills ($r = 0.303, p < 0.05$) were significantly and positively related with e-learning services usage but not with online library resources usage. Other individual factors such as attitudes towards the web portal and anxiety towards using the web portal can be investigated¹³¹.

As countless regional, national, and international accrediting bodies continue to employ student engagement measures as mechanisms for quality assurance, universities become more intent on achieving this important gauge of student success. Specifically, the growth

in enrollment in distance learning programs adds a unique level of complexity leading researchers to search for ways to increase engagement in the online course environment. Organizations continue to value teamwork and many instructors have incorporated group work into their online courses to teach students this important skill. The present study examines the impact of student engagement on group satisfaction. Furthermore, this research places student engagement at the center of a structural equation model to determine both predictors and outcomes of this important element of student learning. Specifically, this analysis examines whether students' perceptions of computer self-efficacy impact student engagement and group satisfaction in online business courses. Findings from the work indicate that computer self-efficacy leads to student engagement and, further, that student engagement influences group satisfaction. Importantly, the relationship between student engagement and group satisfaction is mediated by group expectations³.

A researcher in a study titled Computer Self-Efficacy, Digital Learners, and Completion Rates in the California Community College System. It was noted that the importance of online learning in higher education has increased considerably over the last two decades. As a result, online learning has become an important area of research. The purpose of the study was to examine if higher levels of computer self-efficacy (CSE) contributed to online course completion among online California community college students. This study revealed that there is no relationship between high levels of CSE and successful completion of the course. A judgement sample was used to select five online sections from a northern California community college in which 122 students participated. These students completed a Computer User Self-efficacy questionnaire which consisted of 12

questions on a six-point Likert scale as well as three questions regarding their perceived use of computers. Spearman's Correlation Coefficient was conducted to see if a relationship existed between high levels of computer self-efficacy and course grades. The results showed that there was no statistically significant relationship between high levels of computer self-efficacy and course grades. The implication of this study suggests that computer self-efficacy may not be an important factor for today's digital learner⁶⁶.

A research work conducted in Pakistan titled "Technostress and medical students' intention to use online learning during the COVID-19 pandemic in Pakistan: The moderating effect of computer self-efficacy." It was observed that students are willing to use online learning during the pandemic, as well as their perception of and satisfaction with online learning. The study also analysed the relationship between technology-related stress and computer self-efficacy among students. This cross-sectional study selected 369 newly enrolled medical students as samples using convenience sampling. Undergraduate students exhibited a significant negative association with technology-stress and the intention to use online learning. Further, computer self-efficacy decreased the effects of technology-stress and enhanced the intention to use online learning among students¹³².

A study conducted on the development of WhatsApp group discussion to solve the limitation of lecturer-students' interaction at class in Indonesia. The research based on the idea of overcoming problems about the limited interaction between teachers and students in the classroom, and responding to technological developments that enter education. The study produced a WhatsApp Group Discussion product that can be used in lectures. The results of the study showed that in combination, the product developed have met the criteria sufficiently valid. This indicates that in terms of learning and technology, the

product (WhatsApp Group Discussion) is feasible and can be used in lectures. This product can be used to overcome the problem of limited interaction between the lecturers and the students of UNU Blitar in the lecture class¹³³.

In a research work of students' learning process, self-efficacy plays an important part. It was observed that in Malaysia, there are number of researches on students' self-efficacy, however, none of the studies focuses on undergraduate student computer self-efficacy from the rural areas. This work presents a quantitative research on undergraduate students' perceived computer self-efficacy. A total of 128 first semester undergraduate students participated in the survey, employing 27-items questionnaire measuring computer self-efficacy. The items were pilot-tested before being administered to the respondents. Outcome of the research show that computer self-efficacy level is high for basic and advanced skills. The result of the research shows that rural community has accepted the information communication technology as part of their lifestyle. Findings from the study found that only 4% (n=5) of the students had a low level of computer self-efficacy. The majority of the students, approximately 61% (n=78), have high level of computer self-efficacy while the rest of the students had an average level of 35% (n= 45). From the same study, it can be said that the majority of students have high level of basic computer self-efficacy, which is 68% (n = 87) while 30% (n=38) show average level and only 2% (n=3) are low level. For advanced computer self-efficacy level, 55% (n=77) are high level, 40% (n=51) are average level and 5% (n = 6) are low level¹¹².

A researcher in Malaysia in his work titled "Use of e-learning by university students in Malaysian higher educational institutions, the paper examines university students' intention to utilise e-learning. In this paper, we apply and use the theory of a technology

acceptance model. We employ the structural equation modeling approach with a SmartPLS software to investigate students' adoption process. Findings indicate that the content of e-learning and self-efficacy has a positive impact and substantially associated with perceived usefulness and student satisfaction, which impact university students' intention to utilize e-learning. Although e-learning has gained acceptance in universities around the world, the study of the intention to use e-learning is still largely unexplored in Malaysia. The developed model is employed to explain the university student's intention to utilize e-learning. The study concludes that university students in Malaysia have positive perceptions toward e-learning and intend to practice it for educational purposes. Regarding the first hypothesis, the relation between self-efficacy and students' e-learning satisfaction is positive and significant ($\beta=0.380$, $t = 7.107$, $p < 0.001$). Thus, the results positively support the first hypothesis. The second hypothesis is also supported as analysis shows a positive relationship between self-efficacy and perceived usefulness ($\beta=0.330$, $t = 5.292$, $p < 0.001$). The third hypothesis is also positively supported, as there is a significant relationship between e-learning and student satisfaction ($\beta=0.221$, $t = 3.556$, $p < 0.001$). Similarly, the fourth hypothesis on the relationship between e-learning and perceived usefulness, this relation is positive and significant ($\beta=0.202$, $t = 3.653$, $p < 0.001$). Thus, the fourth hypothesis is also supported by the results of the current study. Along these lines, the results indicate that there is a significant relationship between student satisfaction and intention to use e-learning ($\beta=0.262$, $t = 4.337$, $p < 0.001$), which supports the fifth hypothesis. As for the final hypothesis, the relationship between perceived usefulness and the intention to use e-learning is significant ($\beta=0.260$, $t = 4.471$, $p < 0.001$)¹³⁴.

Findings from a research "The determinants and impact of system usage and satisfaction on e-learning success and faculty-student interaction in Indonesian private universities." The respondents consisted of 185 students from two Indonesian private higher education institutions deploying BL. The measurement model showed that all variables possessed an adequate model compatibility according to the following values: $\chi^2/df = 1.559$; CFI = 0.954; IFI = 0.955; TLI = 0.94, and RMSEA = 0.055. Meanwhile, the structural model revealed that seven out of nine hypotheses were proven to be significant. In particular, information quality and internet self-efficacy significantly influenced system usage and user satisfaction, whereas user satisfaction was influenced by system usage. In contrast, system usage did not affect e-learning success and faculty interaction, rendering the latter elements (i.e. E-learning success and faculty interaction) to be influenced by user satisfaction. The type of information system implemented as the object of this research was the e-learning system utilised in two private universities in Indonesia. The e-learning platform employed by these universities was Moodle, which could be accessed by their students under a closed system and required the use of an account and password set by the university. The Information quality and Internet self-efficacy are highly significant predictors for system usage and user satisfaction. Generally, students prefer accessing relevant information that is of quality, easy to understand, and answers their needs in the learning process. Therefore, the level of usage and satisfaction for e-learning are also influenced by the level of mastery and skills in using the Internet, which is measured by Internet Self-Efficacy. Typically, the students using e-learning in both universities had experience in using the Internet and the majority was accustomed to accessing it via smartphones. Thus, their experience in accessing the Internet and mobile internet is a

success factor in implementing e-learning. The intensity of using the e-learning does not guarantee its successful application from the students' perspective. In fact, a successful implementation is more geared towards the level of satisfaction, whereby the level of student satisfaction also affects the faculty interaction. This shows that e-learning facilitates student discussion or the students can obtain information from their lecturers online¹³⁵.

Also findings from a research titled Influence of Computer self-efficacy on the use of electronic information resources among students in Nigeria, reveals that the students had high self-confidence in making selections from a screen menu ($x = 3.12$), we're confident at adding and deleting information from a data file ($x = 3.10$), and having the confidence to enter and save data into a file ($x = 3.09$). Familiarity with computer software packages ($x = 2.79$) was the least item indicated by the respondents as their computer self-efficacy. Using the weighted mean of 2.94 as the benchmark, it was revealed that students' level of self-confidence in making selections from a screen menu, confidence at adding and deleting information from a data file and having the confidence to enter and save data into a file, confident at using a computer mouse, using computer efficiently, confident at copying an individual file, able to organize and manage files with computer and confidence at writing a letter or essay using a computer were adequate in study. This was because these were the items that ranked above the weighted mean of 2.94. The findings from the discussion on how proficient the students were in the use of the computer to access electronic information resources to enhance their study showed that all the students agreed that they were proficient in the use of the computer¹³⁶.

A research investigated students' perceptions and opinions regarding the use of WhatsApp social media group for learning computing education in the Nigerian context. The study explores how social media usage by students influences their perceived learning outcomes. The study found a positive relationship between social media usage for computing education and perceived learning outcomes. In addition, the study found a linear relationship between communication in group and perceived learning outcomes. The analysis indicated that both learning environments have different effects on the success of students and that supporting the traditional environment by using WhatsApp is more effective. The qualitative analysis showed that students developed positive opinions towards the use of WhatsApp in their courses. Respondents reported that learning could also take place unconsciously and the messages with images were more effective for their learning. Some schools have recognized the use of WhatsApp as a medium wherein students are allowed to engage in group discussion (assignments and group tasks) with each other and their teachers. Then use of video communications has the potential to increase productivity and efficiency by reducing unproductive travel time, allowing more students to complete courses in a shorter period of time, reaching more students in a variety of areas, and lowering costs²⁶.

In a research titled Computer self-efficacy and facilitating conditions as correlates of behavioural intention to use electronic information resources by master of business administration students in federal universities in Nigeria. It was found that 81.4% of the respondents agreed that they have the knowledge to use electronic information resources, while 82.2% were of the opinion that they do not feel nervous at all when using electronic information. The result further reveals that, 80.7% of the respondents

ascertained that they find it very convenient to use electronic information resources. Whereas 80.5% supported the ideal that they are able to confidently use electronic information resources and 81.5% of the respondents posited that they feel confident organising and managing files. Also, 80.7% of them agreed that they feel confident moving the cursor on the monitor. 82.1% of the agreed that they use electronic information resources at my convenience, in addition, 81.4% opined that they I feel confident using a printer to make hard copy of document, and 82.1% of them agreed that they feel confident using the computer to analysis data, the result further indicates that 80% of them agreed that they feel confident using internet and e-mail, and 78.4% noted that they have the ability to use electronic information resources. Also, 79.4% agreed that they have control over using electronic information resources, whereas 80.7% of the respondents agreed that If they wanted to, they could use electronic information resources, and 79.9% of them agreed that they feel confident using the users' guide when help in needed, while 79.6% of the respondents ascertained that they feel confident entering and saving data into a file, also, 78.5% of them agreed that they feel confident understanding terms/words relating to computer hardware and software. In addition, 79% of the respondents averred that they have a geed knowledge of Power point presentation, and 81% agree that it is mostly up to them whether or not they use electronic information resources, the result further shows that 78.4% noted that they feel confident working on a personal computer, and 78.1% of the respondents agree that they have a good knowledge of desktop publishing, also 79.6% agreed that their academic work demands that they use electronic information resources. Lastly, 77.2% were of the opinion that they have good knowledge of database management²⁵.

A study explores the relationship between computer self-efficacy and use of electronic information resources by undergraduate students of federal university of Kashere, Nigeria with $(r(480) = 0.26, P < .05)$. The study adopted a descriptive survey research design with total population of 2752 (400 level) undergraduate students of federal university of Kashere. The sample size for the study was 550 drawn from the population. The study found that the extent to which each sampled student's use of electronic information resources is often directly proportional to the level of his/her computer self-efficacy. The study also, rolls out the measures by which the computer self-efficacy of students can be boosted, in order to bring about optimum utilization of the electronic information resources on offer at the library. The result shows that, undergraduate students who display a high level of computer self-efficacy tend to use electronic resources more than those who demonstrate low level of computer self-efficacy. In other words, the higher the level of computer self-efficacy, the better the use of e-resources among students. Therefore, the null hypothesis which stated that there is no significant relationship between computer self-efficacy and e-resources use among undergraduates' students in federal university of Kashere is rejected¹¹³.

Furthermore, a research titled; Influence of computer self-efficacy on the use of electronic information resources among polytechnics students in Ogun state, Nigeria reveals that the students had high self-confidence in making selections from a screen menu ($x = 3.12$), we're confident at adding and deleting information from a data file ($x = 3.10$), and having the confidence to enter and save data into a file ($x = 3.09$). Familiarity with computer software packages ($x = 2.79$) was the least item indicated by the respondents as their computer self-efficacy. Using the weighted mean of 2.94 as the

benchmark, it was revealed that students' level of self-confidence in making selections from a screen menu, confidence at adding and deleting information from a data file and having the confidence to enter and save data into a file, confident at using a computer mouse, using computer efficiently, confident at copying an individual file, able to organize and manage files with computer and confidence at writing a letter or essay using a computer were adequate in selected polytechnics in Ogun State. This was because these were the items that ranked above the weighted mean of 2.94. The findings from the focus group discussion on how proficient the students were in the use of the computer to access electronic information resources to enhance their study showed that all the groups agreed that they were proficient in the use of the computer¹¹⁸.

A research study from California titled Computer self-efficacy, digital learners, and completion rates in the California community college system. It was observed from the study that one-third of the students surveyed viewed themselves as expert, advanced, or very proficient. The average CUSE score for this group was 56.44 which is also consistent with low levels of CSE. Of the 122 students surveyed, only three did not pass their online course. This resulted in a 98% pass rate. Despite this high pass rate, 76% of students surveyed reported low levels of CSE. The average CUSE score for this group was 44.19. Conversely, only 24% of students surveyed reported high levels of CSE. The average CUSE score for this group was 66.69. Spearman's correlation coefficient was used to measure the relationship between students CUSE scores and their final course grade⁶⁶.

Findings from the study titled utilization of e-learning: a tool for social and collaborative teaching and learning in the era of pandemic reveal that a majority 83.2% of the

respondents agreed and strongly agree that lecturers are always available is one of the benefits in receiving lecture through online platform. also, a majority 92.2% of the respondents agree and strongly agree that that receiving lectures through online learning platform allows for collaborative learning. Almost all 93.4% of the respondents agree and strongly agree that learning anytime anywhere is one major benefit of receiving lectures through online platforms. Also, a majority 88.5% of the respondents agree and strongly agree that sharing learning materials is one benefits of receiving lectures through online platforms. The majority 92.2% the respondents agree and strongly agree that receiving lectures through online platform gives them freedom in asking lecturers questions. A majority 85.2% of the respondents also agree and strongly agree that receiving lectures through online platforms allows for conducive learning at home¹³⁷.

Findings from a research” A meta-analysis of factors affecting perceived usefulness and perceived ease of use in the adoption of e-learning systems." The full potential of e-learning, a trend that is of growing importance lately, will not be reaped unless the users fully utilize the system, triggering extensive research to be conducted in order to provide valuable insight on a myriad of variables influencing user acceptance in e-learning systems. The main purpose of the study is to determine the factors that affect the intention of users to use e-learning and to get results which can guide system developers and researchers. In accordance with this purpose, 203 studies investigating the e-learning acceptance of the users through the Technology Acceptance Model (TAM) were found in the literature. The main objective of this study is to identify the factors that influence users' acceptance of e-learning systems and hence, guide researchers and systems developers in designing the necessary corrective measures. In line with this target,

research that investigate user acceptance in e-learning systems via utilising TAM was specified and assessed. Relationships between TAM's belief structures, PU and PEOU with the external variables proposed in these research were analyzed. Hypotheses that were frequently accepted in the literature were identified and incorporated into the model proposed. In the meta-analysis conducted, 177 journal papers, 22 conference papers and 4 PhD thesis that examine user acceptance in e-learning systems via TAM are analyzed where 129 different external variables are proposed as antecedents of belief structures. 220 hypotheses that question the relationship of these external variables with PU and PEOU are tested 714 times¹³⁸.

A study tilted a survey of undergraduates' extent of e-learning technologies usability for learning in a federal university, south-south geo-political zone, Nigeria showed that 19.75% (48) of the respondents used e-learning technologies for learning to a great extent; 48.15% (117) of them used e-learning technologies to an average extent for learning, while 32.10% (78) of others used e-learning technologies to a poor extent. This implies that majority of the respondents used e-learning technologies to an average extent for learning. However, it could be seen that all the respondents in the study used e-learning technologies for learning, but at different levels of extent¹³⁹.

A study focused on technological readiness and computer self-efficacy as predictors of E-learning adoption by Library and Information Science (LIS) students in Nigeria. While literatures have suggested that e-learning adoption is context based, there is a need to examine the predictors of e-learning adoption within the Nigerian context, given the increasing need for e-learning adoption as a result of the pandemic. As a result, the study used the descriptive correlational research design to study a group of LIS students in

Nigeria. Consequently, LIS students in the Nigeria Library and Information Science Students (NLISS) Facebook group were used for the study. The population of the study was 1,807 at the time the study was conducted and the sample size for the study was 320 randomly selected respondents. Determining Sample Size for Research Activities.” Educational and Psychological Measurement 30: 607–10 table for determining sample size. Data was collected from the respondents using a closed-ended questionnaire consisting of adapted scales for all the variables. The 223 responses retrieved within a period of three weeks were analysed using descriptive and inferential statistics. The findings from the investigation showed technological readiness, computer self-efficacy and E-learning adoption of the LIS students is very high. Though technological readiness and computer self-efficacy had relative contribution to E-learning adoption, computer self-efficacy had higher contribution. The study also revealed that significant relationships exist between technological readiness. Results show that a significant positive relationship ($r = 0.429^{**}$; $df = 222$; $P < 0.05$) exists between computer self-efficacy and E-learning adoption by LIS students in Nigeria. This implies that the higher the level of the LIS students’ computer self-efficacy, the more their level of adoption of e-learning will improve¹⁴⁰.

In a study of Factors affecting e-training adoption: An examination of perceived cost, computer self-efficacy and the technology acceptance model. "The research highlight the role that perceived cost, computer self-efficacy and the technology acceptance model (TAM) constructs have in e-training adoption in Nigerian. With the use of the SmartPLS 2.0 M3 software, a framework that included perceived cost, computer self-efficacy and TAM constructs (perceived usefulness (PU) and perceived ease of use (PEOU)) was

tested on 450 heads of departments. Scales on perceived cost, computer self-efficacy, PU and PEOU developed by previous studies were modified accordingly and used. This paper found perceived cost to have a significant effect on e-training adoption. Computer self-efficacy was statistically insignificant through PEOU. In addition, PEOU had an indirect effect through PU. Therefore, only PU of the TAM constructs indicated strong predictive strength in e-training adoption. This paper showed that with e-training adoption, facilities such as computers can be put in place, which can improve the outlook of the civil service. In addition, the cost that is usually associated with traditional training can be reduced, increasing the opportunity to invest in other aspects of the civil service which can help in adding to the overall performance. This paper's result indicates that individual computer self-efficacy cannot influence e-training adoption in the Nigerian context¹⁴¹.

In a study of E-learning systems use among undergraduate students, it was revealed that e-learning systems allow undergraduate students to observe much flexible learning ways to go for classes with much reduced need for travel. Undergraduate students are allowed to get deeper insights of the information through activities that are carried-out in the classroom through interactive video facility. This allow undergraduate students to respond promptly toward the activities¹⁴².

Findings from a research examined how e-learning systems is effective for students enrolled in higher education institutions, along with their usage in the learning process. A number of advantages were outlined in this study. First include flexibility, as the use resulted in increased collaboration between faculty and students. It is further effective in enhancing the institutional practices which requires learner's involvement. E-learning is

also effective in promoting centralized learning, easy upgrades, simplified learning process, low cost, centralized learning, and others¹²⁰.

Findings from Utilization of e-learning: a tool, for social and collaborative teaching and learning in the era of pandemic revealed that a majority (83.2%) of the respondents agree and strongly agree that lecturers are always available is one of the benefits in receiving lectures through online platform. Also, a majority (92.2%) of the respondents agree and strongly agree that online learning platform gives them opportunity to store lectures and files for re-use at convenience. The majority (92.6%) of the respondents agree and strongly agree that receiving lectures through online platform allows for collaborative learning. Almost all (93.4%) of the respondents agree and strongly agree that learning anytime anywhere is one major benefit of receiving lectures through online platforms. Also, a majority (88.5%) of the respondents agree and strongly agree that sharing learning materials is one benefits of receiving lectures through online platforms. The majority (92.2%) the respondents agree and strongly agree that receiving lectures through online platform gives them freedom in asking lecturers questions. A majority (85.2%) of the respondents also agree and strongly agree that receiving lectures through online platforms allows for conducive learning athome¹⁴³.

Findings from the literature effect of perceived usefulness and perceived ease of use motivation to use e-learning systems. The result from the findings shows that there is significant effect on perceived usefulness on motivation to use e-learning, two hypotheses was tested and accepted that is perceived ease of use has a considerable influence on e-learning motivation. It can be seen from the T-test results on X2 with a significant value of 0.003 <0.05, so that H2 is accepted. The influence of Perceived Usefulness and

Perceived Ease of Use on e-learning motivation has a percentage of 51.3%. Meanwhile, other variables that influence and are examined yet in this study amounted to 48.7%. It shows that if the respondent feels that e-learning is valuable and easy to use, the respondent will use it. Also the study also examined the external variable such as computer self-efficacy and so on. It was revealed that undergraduate students who have high level of computer self-efficacy will be able to interact with the e-learning systems¹⁴⁴.

Findings from a research "Individual innovativeness, self-efficacy and e-learning readiness of students of Yenagoa study centre, National Open University of Nigeria". The purpose of this study is to explore the role individual innovativeness along with e-learning self-efficacy play in predicting the e-learning readiness of first- and second-year students of an open and distance education institutions in an African context. The research instrument which comprises 74 survey items was completed by 217 of the students. Statistical tools used for analysing data included both Pearson Product Moment Correlation coefficients and t-tests. Findings from the work shows that a strong positive and significant relationship was observed between individual innovativeness and e-learning readiness of first- and second-year students of the Yenagoa Study Centre of the National Open University of Nigeria (NOUN); a statistically significant relationship was also found between e-learning self-efficacy scores and the e-learning readiness of the first- and second-year students of the Yenagoa Study Centre of NOUN; there was a statistically significant joint relationship between the three variables under investigation; findings equally revealed that male respondents had higher e-learning readiness than their female counterparts. The authors also maintain that empirical data generated from surveys that usually rely participants' abilities to read and select responses without

further interpretation by the researchers suffer from cognitive biases the observed probability value (p-value) (sig) is 0.000 which is less than the chosen alpha value of 0.05, $r(215) = 0.000, p < 0.05^{145}$.

A study "The role of computer self-efficacy in high school students' e-learning anxiety: a mixed-methods. It was observed that e-learning anxiety plays a key role in students' succession online courses. One of the factors that may affect students' e-learning anxiety is computer self-efficacy (CSE). However, the role of CSE in high school students' e-learning anxiety has remained unexplored in the Iranian context. Therefore, the present mixed-methods study purports to explore the role of CSE in Iranian high school students' e-learning anxiety. To this end, for the quantitative part, 410 female high school students were selected, as well as for the qualitative part, 30 female high school students were selected using a random sampling method. The required data were collected using a computer self-efficacy questionnaire, an anxiety in online classes questionnaire, and semi-structured interviews. The collected data were analyzed through a Pearson correlation analysis, a multiple-regression analysis, and a content analysis. Results revealed a strong negative correlation between the students' CSE and e-learning anxiety. Further, the findings documented that the factors of CSE (i.e., beginning skills, mainframe skills, and advanced skills) determined the high school students' e-learning anxiety. Moreover, the complementary qualitative findings yielded four overarching themes: 'promoted digital literacy', 'increased problem-solving', 'increased learning satisfaction', and 'enhanced self-regulated learning'. Finally, a range of implications is suggested for different stakeholders¹⁴⁶.

More so, in the finding titled extent and nature of university students' use of digital technologies for learning and socializing. The findings show that students use a limited range of mainly established technologies. Motivation to use e-learning systems by undergraduate students promote learning by offering support with sharing documents as well such as via Google Drive Box, Google Docs⁶⁷. It was analysed that use of e-learning systems as a communication tool between lecturers and students, and found that they primarily communicate through social networks for academic reasons. The study revealed that the participants found Facebook and WhatsApp to be the most effective social media tools due to the popularity and versatility of Facebook, and the easy-to-use communicative abilities of WhatsApp. For undergraduate students taking distance learning courses or for lectures with large class sizes, lecturers can make themselves more accessible to students via social media. They can hold 'virtual office hours' through Skype or get them to use Facebook, Twitter or WhatsApp to raise questions they didn't get the chance to in class¹⁴⁷.

A study of Predicting student satisfaction and perceived learning within online learning environments. it was observed that despite the increased use of new learning technologies, there is still much to be learned about the role of learner characteristics in online learning. The purpose of this study was to examine how subjects' characteristics normally associated with effective training (i.e., initial motivation to learn and self-efficacy) related to learning in a self-directed online course. From an analysis of 190 respondents, computer and Internet usage prior to the start of class were positively related to individuals' computer self-efficacy and computer self-efficacy was positively related to learning. However, contrary to expectations, computer self-efficacy was not related to

initial motivation to learn and motivation to learn was not related to learning in the class. Post hoc analysis of qualitative data enabled a rich explanation of the findings, including an evaluation of the unexpected relationships among the variables of interest and the nature of self-directed courses in The results of this study indicate that computer self-efficacy is positively related to learning in an online course beyond the effects of previous knowledge¹⁴⁸.

Moreover, a study on effective experiences: a social cognitive analysis of young students' technology self-efficacy and stem attitudes. It was shown that the advent of computer skills and computer self-efficacy has cause the increase in usage of technology in everyday life. The study hypothesis that student mastery learning experience was conceptualized as computer usage while vicarious learning experiences was conceptualized as perception of their teachers' usage of their teachers. Students has some mastery experience($x=1.60$) but low scores on vicarious experience($x=0.89$). It was summarized that the mastery experience of computer usage helps undergraduate students to use the e-learning systems¹⁴⁹.

2.3.2 Computer playfulness and Motivation to Use E-learning System

A research titled the predictability of perceived enjoyment and its impact on the intention to use mobile learning systems, the study established correlations between computer playfulness and e-learning systems. Their positions in the study includes; I believe e-learning will make me become creative and skillful (.666), I believe that using e-learning will be interesting to me (.832), I believe that using e-learning system will not be intimidating (.785), I believe that e-learning will stimulate my curiosity (.772), I will use the M-learning system for different academic purpose (.757), I believe that using M-

learning will lead to my exploration of new information technologies (.640), I believe that using e-learning system will be flexible to interact with (.638), and I believe the use of e-learning will fit well with the way I like to study (.546). I believe e-learning services will be easy for me (.891) and I believe the use of e-learning service will be clear and understandable (.836). However, the correlation results in the study showed a significant positive relationship between computer playfulness and the intention to use e-Learning ($r = .769^{**}$, $P < 0.01$). This implies that a high level of computer playfulness is associated with high levels of intention to use e-Learning. On the contrary, a low level of computer playfulness is associated with a low level of decision to use e-learning systems. In other words, an improvement in high level of computer playfulness is positively associated with an improvement in decision to use e-learning system. On the other hand, a decline in computer playfulness is associated with a decline in decision to use e-learning system¹⁵⁰.

In a study titled do playfulness and university support facilitate the adoption of online education in a crisis? The study was based on the technology acceptance model. It was concluded from the study that computer playfulness is not significant to university students' participation in e-learning systems but has a significant impact on participation intention in online education, indicating that computer playfulness is one of the critical factors affecting participation in e-learning mode of study. The authors went further to emphasize that although computer playfulness does not directly affect the students, it directly affects students' willingness to participate, and playfulness in online learning can also stimulate students' learning enthusiasm. The research results however, show that the computer playfulness in online education conforms to the intrinsic motivation of

university students, so their participation intention is also positively affected by the computer playfulness¹⁵¹

Similarly, in a study titled Factors affecting students' acceptance of e-learning system in higher education. The study used technology acceptance model for e-learning systems adoption. The study explained several external variables for the present world students, brought up a digital learners and have level of computer playfulness and other variables. The study dwell much on perceived ease of use of systems and perceived usefulness of the e-learning systems. The summary of the study shows that computer self-efficacy, computer playfulness and other external variables, was correlated with e-learning systems. Findings shows that computer playfulness has a positive significant effect on students' attitude towards the use of e-learning systems. It was showed that computer playfulness (p-value=0.014) had a significant effect on e-learning system acceptance. The study indicated that computer self-efficacy and computer playfulness have a significant impact on students' perceived ease of use of e-learning¹⁵².

A research conducted in Saudi titled, Students' actual use of e-learning in higher education during the covid-19 pandemic." The purpose of this study was to look at factors that might influence whether or not academics will use e-learning during pandemic. The work look into the effect of perceived interaction, educational materials, playfulness, perceived enjoyment, self-efficacy, perceived usefulness, and perceived ease of use on students' attitudes toward and intentions to use e-learning in Saudi Arabia higher education during the pandemic, as well as the indirect impact of student satisfaction with their actual use of e-learning. The research model was evaluated using structural equation modeling (SEM) and route analysis, which were based on e-learning

user data collected through a survey. Student happiness and desire to use e-learning both had a beneficial impact on actual use, according to the statistics. During the epidemic, perceived interaction and self-efficacy were shown to be the most important factors influencing perceived usefulness and ease of use, which affected students' intentions and satisfaction with e-learning. The study's participants were e-learning users from a government university in Saudi Arabia. Previous studies on e-learning in developing nations have seldom taken a holistic approach. Cronbach's coefficient of reliability was 0.984 for all constructs (perceived interaction, self-efficacy, teaching materials, playfulness, perceived usefulness, perceived ease of use, perceived joy, attitude toward use, intention to use actions, satisfaction of students, actual use of e-learning during the pandemic in higher education). The composite (CR) dependability results indicate that the Technology Acceptance Model (TAM) could be reinforced by considering external forces including such technological conditions university education, technical conditions of students, teaching style of teachers, technological skills of teachers, and student-teacher interaction via the platform. If the TAM model can explain the motivation to use e-learning platforms as a complement to a conventional educational process, an upgraded model might explain the urge to use it just for online learning during pandemics. According to this poll, after switching to online learning, students have utilized more platforms and online instructional resources. Students' knowledge of technology resources improved as a result of their use of urgent e-learning tools, with a minimum value of 0.70¹⁵³.

A research work titled "Factors affecting students' acceptance of e-learning system in higher education.". it was discovered that e-learning has become the most important supporting tool offering independent learning style among students. The main idea of this

paper is to dismantle and analyse factors that influence the acceptance of e-learning among students in higher education. An online questionnaire link was distributed to a sample comprising 123 respondents. Significant relationships and strength of relationship were observed between the e-learning acceptance, quality, e-learning self-efficacy, enjoyment, accessibility, and computer playfulness. The findings showed that all factors were positively correlated to the e-learning system except the enjoyment of e-learning that did not affect the acceptance of e-learning. With p value less than 0.05, it shows all the variables were significantly correlated with the e-learning system acceptance. The coefficient of Pearson correlation of quality and e-learning system acceptance was 0.855. Similar finding was observed for e-learning self-efficacy, enjoyment, accessibility and computer playfulness, which also showed a high positive correlation with coefficient of Pearson correlation of 0.766, 0.732, 0.740 and 0.736, respectively. This means that all the variables are the very strong factors affecting students' acceptance of e-learning system¹⁵⁴.

Furthermore, a research study of students' acceptance of e-learning system in higher educational environments in the UAE. It was observed recently that, with the proliferation of internet technology, e-learning has become one of the important educational technologies in higher educational institutions. Nevertheless, the success of e-learning systems highly depends on the students' acceptance of such systems. The purpose of this study is threefold. First, to analyze the most widely used external factors of the Technology Acceptance Model (TAM) concerning the e-learning adoption and acceptance studies. In that, a quantitative research approach comprising of 120 significant published studies from the last twelve years was conducted in order to carry out a systematic review. As a result, the most extensively used external factors of TAM were

identified, namely: computer self-efficacy, subjective/social norm, perceived enjoyment, system quality, information quality, content quality, accessibility, and computer playfulness. Second, to develop a new model by extending the TAM with the most widely used factors. Third, to validate the new model using the partial least squares-structural equation modelling (PLS-SEM) approach, which fits well with the purpose of our study. Data were collected using a questionnaire survey from five different universities that have already implemented the e-learning system in the United Arab of Emirates (UAE). The total number of participants in the study is 435 students. Results indicated that system quality, computer self-efficacy, and computer playfulness have a significant impact on students' perceived ease of use of e-learning systems. In addition, information quality, perceived enjoyment, and accessibility have a positive influence on students' perceived ease of use and perceived usefulness of e-learning systems. Furthermore, perceived usefulness and perceived ease of use have led to an increase in the students' intention to use e-learning systems¹⁵⁵.

In a study of Investigating the influence of the most commonly used external variables of TAM on students' perceived ease of use (PEOU) and perceived usefulness (PU) of e-portfolios. The study shows significant results by determining the most frequently factors (self-efficacy, subjective norm, enjoyment, computer anxiety, and experience), it was found that (computer self-efficacy, enjoyment, subjective norm, social influence, quality of the system and information quality) were considered the most extensively used external factors in the existing study. The one-tailed t-test ($df = 435$) showed that the 0.05 significance level, or $p < 0.05$, requires a t-value > 1.657 , and the 0.01 significance level, or $p < 0.01$, requires a t-value > 2.354 . The 0.001 significance level, or $p < 0.001$, requires

the corresponding t-value >3.152 . It was found in the study that computer playfulness and all other external factors led to an increase in the students' perceived ease of use of e-learning systems. This result stresses on the significance of students' competency and high degree of confidence in using E-learning systems. There was also a positive influence of computer playfulness on perceived ease of use⁷⁵.

It was observed from a research study titled exploring students' acceptance of e-learning through the development of a comprehensive technology acceptance model that extension of Technology Acceptance Model (TAM) for studying the e-learning acceptance is not a new research topic, and it has been tackled by many scholars. However, the development of a comprehensive TAM that could be able to examine the e-learning acceptance under any circumstances is regarded to be an essential research direction. To identify the most widely used external factors of the TAM concerning the e-learning acceptance, a literature review comprising of 120 significant published studies from the last twelve years was conducted. The review analysis indicated that computer self-efficacy, subjective/social norm, perceived enjoyment, system quality, information quality, content quality, accessibility, and computer playfulness were the most common external factors of TAM. TAM has been extended by the aforementioned factors to examine the students' acceptance of e-learning in five different universities in the United Arab of Emirates (UAE). A total of 435 students participated in the study. The results indicated that system quality, computer self-efficacy, and computer playfulness have a significant impact on perceived ease of use of e-learning system. Furthermore, information quality, perceived enjoyment, and accessibility were found to have a positive influence on perceived ease of use and perceived usefulness of e-learning system. In terms of individual characteristics,

the results showed that computer self-efficacy, enjoyment, and computer playfulness have significant positive impacts on perceived ease of use of e-learning systems. These results suggest that when the students have sufficient computer skills and expose a positive tendency to interact spontaneously with the e-learning system, their usefulness of the system would definitely increase¹⁵⁷.

A research work on students' attitude and intentions towards online learning in higher education: examining the role of individual and system characteristics." This study is aimed at examining the factors predicting the university students' attitudes and intentions to use online learning system with the intervention of individual and system-related characteristics as external factors. The research work use 506 responses from undergraduate and post-graduate students enrolled in public and private universities in the state of Sikkim (India). The study adopted the Technology Acceptance Model (TAM) as a theoretical foundation, and we extended it with external individual and system-specific characteristics. It employed partial least square structural equation modelling (PLS-SEM) to assess the relationship between the external exogenous individual (computer self-efficacy, perceived enjoyment, and computer playfulness) and systems (content quality, information quality, and system quality) characteristics with the endogenous constructs. The theoretical model proposed effectively explains the intention ($R^2 = 0.623$) of university students using online learning systems. It was observed from the result that computer playfulness among other characteristics of online learning system do not significantly affect the perceived use and perceived ease of use of online learning system. All the constructs of the TAM model showed positive path coefficients¹⁵⁸.

2.4 Conceptual Framework

Independent Variables

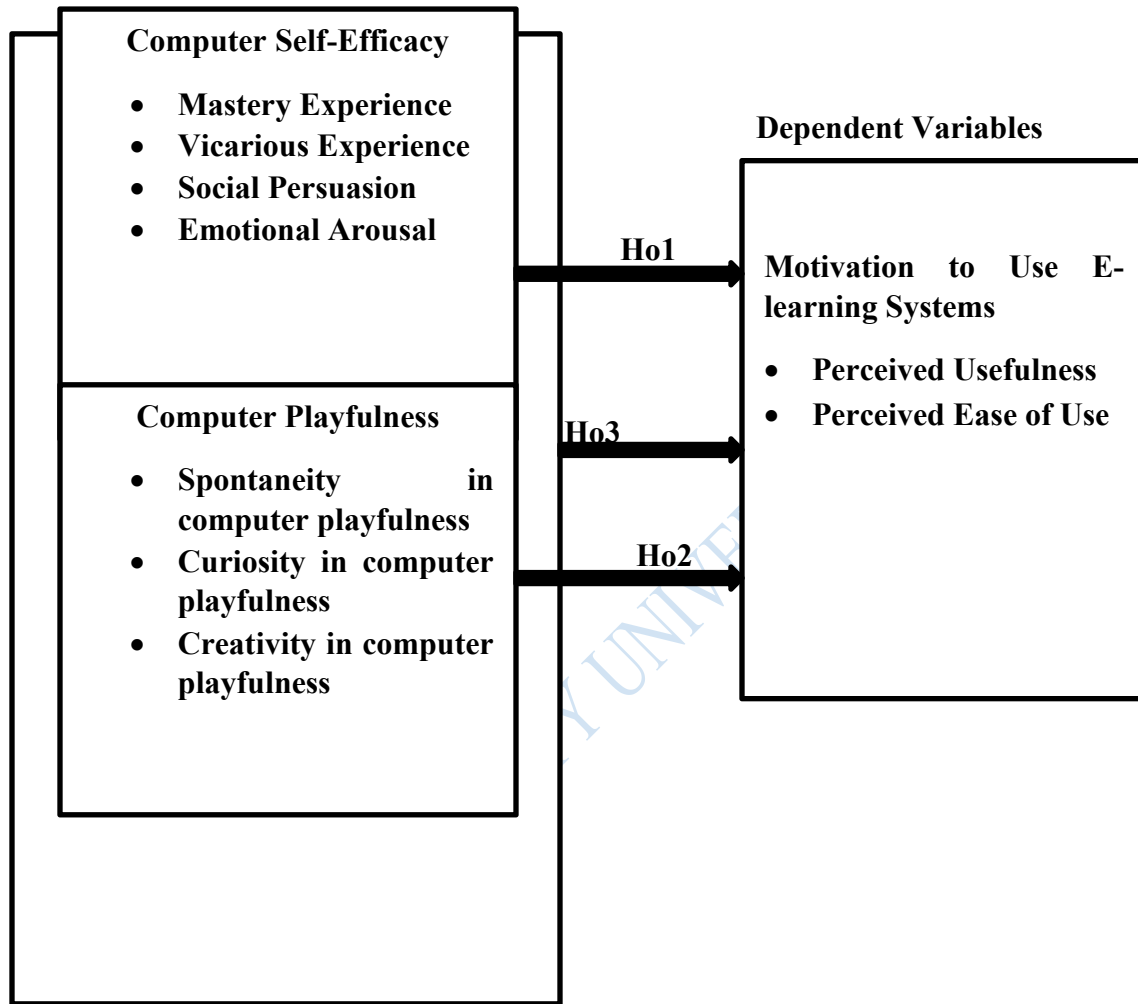


Fig 2.4: Conceptual Framework on Computer Self-Efficacy, Computer Playfulness and Motivation to use E-learning Systems by Library and Information Science Undergraduate 2022^{85 28 61}

The model proposes linkages between the dependent variable (Motivation to use e-learning systems by library and information science undergraduate) and the independent variables (computer self-efficacy and computer playfulness). Starting from motivation to use e-learning systems by library and information science undergraduates, it is obvious that e-learning systems is a learning process which is certain with a lot of benefits for instance, flexible- it is not limited by space and time; easy to receive- add learning

materials which students can interact with, it can take place at students' conveniences; learning more efficient, more open, and allow students' independent learning. As good as e-learning system is, there must be a reasons that could lead undergraduate students to use it. From this model it shows that undergraduate students may be motivated to use the e-learning systems due to their perceived usefulness of it, may be for academic or other personal purpose. At the same time undergraduate students may be motivated to use e-learning system may be due to perceived ease of use of the system to them¹²⁵.

Furthermore, from the model, it is assumed that there is a relationship between computer self-efficacy and e-learning system use by LIS undergraduate students. Undergraduate students' intention to use e-learning systems may be connected to their level of computer self-efficacy. Undergraduates who belief that they can use e-learning systems, can make them to produce a desired effect by their actions, computer self-efficacy influences their choice e-learning systems and their motivational level⁶⁰. Their lives are guided by their belief in their own self-efficacy and if they belief they are powerless they would not attempt to make things happen. Therefore, students with high level of computer self-efficacy will make use of the systems effectively. In the other hand students with low level of computer self-efficacy will not be able to use the system effectively⁶¹.

Also, there could be a link between computer playfulness and motivation to use e-learning systems by library and information science undergraduates. Computer playfulness which is individual's tendency to interact spontaneously with a computer⁶¹. It can be considered to be either a state of mind or an individual trait. Undergraduate students level of computer playfulness, which tends to be stable but also slowly changes over time⁶⁰.

Moreover, the model adapted its constructs for dependent variable Motivation to use e-learning systems by library and information science undergraduates of selected private universities, Oyo, state, (Perceived usefulness and perceived ease of use)^{82 125}. The independent variables are computer self-efficacy and computer playfulness. Mastery experience, vicarious experience, social persuasion and emotional arousal⁸⁵. Computer playfulness metrics are taken from the literature²⁸.

2.5 Summary of Literature Reviewed

Conceptual and empirical review of literature in this chapter are studies that have been conducted in different places across the world. The literature reviewed indicated that the motivation to use e-learning system by library and information science undergraduates had received a considerable attention. As provided in the literature, library and information science schools across the world especially in the developed countries have embraced e-learning system mode in the discharge of academic duties, and library and information science undergraduate are availing themselves of the much opportunity.

Consequently, comprehensive literature has been reviewed on motivation to use e-learning system; the types; the adoption and actual use by library and information science undergraduates; and the challenges encountered in the process of use. Again, anecdotal evidences and review of literature revealed that determinants such as computer self-efficacy as well as computer playfulness could greatly influence e-learning system use by library and information science undergraduates. motivation to use e-learning systems is jointly determined by two variables: perceived usefulness and perceived ease of use. Thus, presupposes that perceived usefulness and perceived ease of use influence attitude toward behavioural intention to use information and communication technology

Fundamentally, TAM presumes that perceived usefulness and perceived ease of use are of main relevance regarding computer acceptance behaviours”. The perceived usefulness and perceived ease of use are said to influence behavioural intention which is affected by attitude towards the behavior. Perceived usefulness and perceived ease of use are major factor that determines whether a potential user (library and information science undergraduates) would actually use ICT (or access and use of e-learning system) or not. Hence, with perceived usefulness and perceived ease of use as the determinants of attitude. This is consistent with the postulation that “attitude toward using is in turn a function of two beliefs: perceived usefulness and perceived ease of use. Thus, perceived usefulness and perceived ease of use have helped in application of the technology to explain and predict acceptance of the use of information and communication technology by different people (undergraduate students) in universities.

In addition, four theories were used for this work in this chapter: Technology Acceptance Model by Davis and Stimulus conceptual framework by Lai P. C. is adopted for Motivation to use e-learning systems by library and Information science undergraduates, social cognitive theory and computer playfulness theory was used for both independent variables. Moreover, e-learning systems has been in an existence for decades but it was evident in this chapter that the emergence of covid-19 pandemic has brought e-learning systems to be introduced to the academic activities of education globally even Nigeria as a country was not left behind in using e-learning systems to interact with, between students and instructors to communicate synchronously without being in the same geographical location. Also, the use of e-learning systems supposed to make learning easier to facilitate better understanding of use of it but most undergraduates are not taken

e-learning seriously, some undergraduates will join the online class, they will not listen they will just login and be doing another thing else when their lecturer speaks.

However, it seems much had not been conducted on the relationship between the independent variables of this study and the dependent variable within the context of Nigeria, especially among library and information science undergraduate in the private universities in Nigeria. This reflected in the review as majority of the studies were carried out in America, Europe and Asia, with very few conducted within the African continent and most especially Nigeria among the participants of the study which are library and information science undergraduate in private universities. Furthermore, there seems to be a plethora of studies conducted on the various factors that relate to adoption and use of e-learning system use, but studies on computer self-efficacy and computer playfulness as jointly related to e-learning use especially among library and information science undergraduate in private universities, Nigeria were few. This is the gap in knowledge that this study is filling.

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Chapter Three

Methodology

This chapter presents the method adopted in carrying out the study, under the following sub-headings: research design, the population of the study, sampling size and sampling technique, sources of research data, research instrument, validity and reliability of the instrument, data collection procedure and method of data analysis.

3.1 Research Design

The descriptive survey research design was adopted for this study. Specifically, the descriptive research design of the co-relational type was employed. This research design allowed the researcher to determine the relationships between the variables of the study without any manipulations. Thus, by the use of this research design, the researcher was identifying and establish the relationship between computer self-efficacy, computer playfulness and motivation to use e-learning systems by library and information science undergraduates of Ajayi Crowther University, Oyo and Lead City University, Ibadan, Oyo State, Nigeria.

3.2 Population of the Study

The population of this study consists of all library and information science undergraduates on full-time programme of selected private universities offering library and information science programme in Oyo State. These are; Ajayi Crowther University, Oyo, Oyo State, Nigeria and Lead City University, Ibadan, Oyo, state Nigeria. According to the data collected from Library schools of these universities, the total

number of library and information science undergraduates is 129. This number form the population for the study

Table 3.1 Population of the Study

Universities	Number of LIS Undergraduates
Ajayi Crowther University, Oyo	44
Lead City University, Ibadan	85
Total	129

Source: Field Survey 2022

3.3 Sample and Sampling Techniques

Sampling is a process that allows the researcher to scientifically chose who or what is included in the investigation. Literature reveal that sampling involves selecting in units from a population of interest so that the researcher may fairly generalise the results of a study. The total enumeration technique was used for this study. Total enumeration is a data collection technique in which data is collected from all members of the population². Through the use of this method, all 129 library and information science undergraduates in both universities across all the levels was participated in the study. This brought out an intensive and comprehensive research of the motivation to use of e-learning systems by library and information science undergraduates. In addition, the use of total enumeration for this study will provide benchmark data which could assist future studies on motivation to use e-learning system among library and information science undergraduates within and outside Nigeria.

3.4 Instruments for Data Collection

The questionnaire was used as research instrument for data collection in this study. The questionnaire was titled: Questionnaire on Computer Self-Efficacy, Computer Playfulness and Motivation to use E-Learning Systems by Library and Information Science Undergraduates (CPUESLUS). The instrument was adapted from various validated theories and tested studies. The questionnaire was divided into four sections, A-D as follows.

Section A: This section elicits information on the demographic information of the library and information science undergraduates with items such as; name of university, age, gender and level of study.

Section B: This section captured motivation to use e-learning system (ELS) by library and information science undergraduates. This contains 8 items adapted from theory⁸. The Likert type-scale of agreement ranging from Strongly Agree (SA) = 4, Agree (A) = 3, Strongly Disagree (SD) = 2, and Disagree =1. Example: what motivate you to use e-learning? i perceived usefulness ii perceived ease of use.

Section C: This section collected data on the computer self-efficacy (CSE) of library and information science undergraduates. This contain 12 items on the computer self-efficacy, adapted from theory⁹. The Likert type-scale of agreement ranging from Strongly Agree (SA) =4, Agree (A) =3, Strongly Disagree (SD) = 2, and Disagree =1. Example: indicate your level of computer self-efficacy, i mastery experience, ii vicarious experience, iii verbal persuasion, iv emotional state

Section D: This section covered computer playfulness (CP) of library and information science undergraduates. This section has 12 items adapted from a study¹⁰, and were measured with The Likert type-scale of agreement ranging from Strongly Agree (SA) =4,

Agree (A) =3, Strongly Disagree (SD) = 2, and Disagree =1. Example: level of computer playfulness you possessed, i spontaneity ii curiosity, iii creativity

3.5 Validity of the Instrument

In order to ascertain the face, content and construct validity of the instrument, the adapted measuring instrument was given to the supervisor and other experts in library and information science department who read through and make necessary corrections. Based on the criticisms and corrections of the experts, the instrument was modified to achieve the research objectives.

3.6 Reliability of the Study

Reliability is the ability of a research instrument to be consistent in returning the same results when administered to population of the similar in nature. Pilot test was used to determine the reliability of the instrument. Twenty questionnaires were administered by the researcher to library and information science undergraduates of Ajayi Crowther University, Oyo state. To test the reliability of the questionnaire, the Cronbach Alpha reliability method was used at 0.05 levels of significance. The reliability tests result shows the following yielded coefficient values; Motivation to use e-learning systems, 0.76; Computer self-efficacy, 0.81; and Computer playfulness, 0.69. Hence the instrument is reliable for the study.

3.7 Administration of Instrument and Method of Data Collection

A letter of introduction was collected from the Head of Department of Information Management, Faculty of Communication Studies, Lead City university, Ibadan to

introduce the researcher as Master student of the institution and to facilitate responses of the library and information science undergraduates. The copies of the questionnaire were administered to the respondents in the two library schools within the two weeks. The researcher visited the two library schools in the universities during the free period of the respondents to administer the questionnaire. The copies of the questionnaire were retrieved sequel to the completion of the responses by the respondents.

3.8 Methods of Data Analysis

Descriptive statistics of frequency counts, percentages, mean and standard deviation was used for research questions 1-4. Inferential statistics of Regression analysis was used to test hypothesis 1-3, simple regression analysis was used for hypotheses 1&2 while multiple regression analysis was used to test hypothesis 3 at a 0.05 level of significance.

Endnotes

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Chapter Four

Results and Discussion of Findings

This chapter presents the results of data analysis based on the questionnaire during the research. The researcher administered the study questionnaire to 129 undergraduate students from two private universities in Oyo State. Out of the 129 questionnaire, 122 was completed and returned. This represents 94.6% return rate which is considered adequate for generalisation.

4.1 Demographic Analysis

Table 4.1: Demographic Analysis

		Frequency	Percent
Institution	Ajayi Crowther University	39	32.0
	Lead City University	83	68.0
	Total	122	100.0
Sex	Male	47	38.5
	Female	75	61.5
	Total	122	100.0
Age	16 – 20	20	16.4
	21 – 25	42	34.4
	26 – 30	28	23.0

	Above 30	32	26.2
	Total	122	100.0
Level	400L	64	52.5
	300L	40	32.8
	200L	13	10.7
	100L	5	4.1
	Total	122	100.0

Source: Fieldwork 2022

Table 4.1 presents the demographic distribution of the respondent. The table shows that the respondents were from two private universities in Oyo State. Ajayi Crowther University, Oyo (39) contributed 32% of the total respondents while Lead City University, Ibadan (83) contributed 68% of the respondents. In addition, there were 47(38.5%) male respondents compare to 75 (61.5%) female respondents meaning that female respondents are in the majority. In term of age distribution, 20(16.4%) of the respondents are between the age 16 to 20, 42(34.4%) are in the 21 – 25 years' age bracket, 28(23%) are aged between 26 to 30 years while 32(26.2%) are above 30 years of age. Furthermore, 64 (52.5%) are in 400 level; 40 (32.8%) in 300 level; 13 (10.7%) in 200 level while only 5 (4.1%) of the respondents indicated that they are in 100 level.

The table also presented the response for the other sub construct which is perceived ease of use. The responses showed that all of the respondents indicating that they it easy to access notes using E- learning System This item has a high mean score of 3.48. this indicate that the system is considered highly easy to use. The rest of the responses were also mostly positive as 99.2% of the respondents indicated that they are skillful at using

E-learning System with the item has a high mean score of 3.52. in the same vein, 95% of the respondents agreed to the statement indicating that they can interact with E-learning System in a clearly and understandable way with the item also having a high mean score of 3.50. Furthermore, 90.1% of the students agreed that they had no problems when using E-learning system because it is easy to use. This item, like others also have a high means score of 3.34. the combination of all the items under perceived ease of use has an average mean of 3.46 indicating that the e-learning systems is highly perceived as easy to use among the respondents.

To obtain the actual level of motivation to use e-learning system, the study aggregates the mean score of both perceived usefulness (Mean = 3.60) and perceived ease of (Mean = 3.46). The result is an aggregate mean of 3.53. This indicates that the level of motivation to use e-learning systems among the respondents.

4.2.1. Presentation of Research Questions

4.2.1. Research Question One: What is the level of Motivation to Use E-Learning Systems Among Library and Information Science Undergraduates of Selected Private Universities, Oyo State?

Table 4.2: Motivation to Use of E-Learning System Among Library and Information Science Undergraduates of Selected Private Universities, Oyo State.

	SA	A	SD	D	Mean
Perceived Usefulness					
I have more confidence in using an E-learning System because it improves my academic achievement	99 (81.1%)	23 (18.9%)	--	--	3.81

My confidence in the usage of the E-learning system increases as I accomplish tasks more easily	66 (54.1%)	56 (45.9%)	--	--	3.54
E-learning system makes learning easier for me	73 (59.8%)	42 (34.4%)	7 (5.7%)	--	3.54
I find E-learning System useful for my academic performance because it save time	68 (55.7%)	47 (38.5%)	7 (5.7%)	--	3.50
Mean					3.60
Perceived Ease of Use					
I am skillful at using E-learning System	65 (53.3%)	56 (45.9%)	1 (0.8%)	--	3.52
I can interact with E-learning System in a clearly and understandable way	68 (55.7%)	48 (39.3%)	5 (4.1%)	1 (0.8%)	3.50
I find it easy to access notes using E-learning System	59 (48.4%)	63 (51.6%)	--	--	3.48
I do not have problems when using E-learning system because it is easy to use	54 (44.6%)	55 (45.5 %)	11 (9.1%)	1 (0.8%)	3.34
Mean					3.46

Decision rule: low mean is < 2.5, moderate mean is = 2.5 and high mean is > 2.5
Key: Strongly Agree (SA)=4, Agree (A)=3, Strongly Disagree (SD)=2, Disagree (D)=1
Source: Field work, 2022.

Table 4.2 presents data on the motivation of the respondents to use e-learning systems. The motivation to use e-learning is measure by perceived usefulness and perceived ease of use. Under perceived usefulness, majority of the respondents (100%) agreed that they

have more confidence in using an E-learning System because it improves their academic works. This item has a mean score of 3.81 which means it is highly rated. In the same vein, all of the respondents agreed that their confidence in the usage of the E-learning system increases as they accomplish tasks more easily. This item also has a mean score of 3.54 indicating high level of acceptability. Furthermore, 94.2% of the respondent reported that E-learning system makes learning easier for them. This item also has a means score of 3.54. Also, 94.3% of the respondents indicated that they find E-learning system useful for their academic performance because it saves time. This gives the items a mean score of 3.50 which is very high but is still below other items the list. The aggregate mean score for the sub construct of motivation to use e-learning applications among the respondents is 3.60 which means there is a very high perception of usefulness of electronic educational platform

4.2.2 Research Question Two: What is the Level of Computer Self-Efficacy of Library and Information Science Undergraduates of Selected Private Universities, Oyo State?

Table 4.3: Level of Computer Self-Efficacy of Library and Information Science Undergraduates of Selected Private Universities, Oyo State

Items	SA	A	SD	D	Mean
Mastery Experience					
E-learning system makes learning easier for me	89 (73.0%)	33 (27.0%)	--	--	3.73
I have more confidence in using an E-learning System because it improves my academic achievement	87 (71.9%)	33 (27.3%)	1 (0.8%)	-	3.7CC1
My confidence in the usage of the E-	67	52	2	--	3.54

learning system increases as I accomplish tasks more easily	84	31	6		3.66
	(55.4%)	(43.0%)	(1.7%)		
Mean					3.66
Vicarious Experience					
I love to observe how others make use of computers	84	31	6		3.64
	(69.4%)	(25.6%)	(5.0%)		
I compare my computer skills with the skills of other students	63	43	15	1	3.38
	(51.6%)	(35.2%)	(12.3%)	(0.8%)	
I take note of my progress in use of e-learning system	60	53	7	1	3.42
	(49.6%)	(43.8%)	(5.8%)	(0.8%)	
Mean					3.48
Social Persuasion					
My level of confidence in use of e-learning system depends on the opinion of others	56	54	6	4	3.35
	(46.7%)	(45.0%)	(5.0%)	(3.3%)	
I have more confidence in using e-learning system because other students believe I know how to use it	67	43	7	4	3.43
	(55.4%)	(35.5%)	(5.8%)	(3.3%)	
I have people around who tell me what I need to improve on	62	53	7	--	3.45
	(50.8%)	(43.4%)	(5.7%)		
Mean					3.41
Emotional Arousal					
I am always relaxed when using e-learning system	66	42	8	1	3.48
	(56.4%)	(35.9%)	(6.8%)	(0.9%)	
I don't make mistakes when using computer except I get nervous	51	51	14	6	3.20
	(41.8%)	(41.8%)	(11.5%)	(4.9%)	
I always concentrate on what I am doing unless I am tired	70	45	6	--	3.53
	(57.9%)	(37.2%)	(5.0%)		
Mean					3.40

Decision rule: low mean is < 2.5, moderate mean is = 2.5 and high mean is > 2.5

Key: Strongly Agree (SA)=4, Agree (A)=3, Strongly Disagree (SD)=2, Disagree (D)=1

Source: Field work, 2022.

Table 4.3 presents the response to the items measuring the level of computer self-efficacy of library and information science undergraduates of selected private universities, Oyo state. Computer self-efficacy was measured by four constructs namely; mastery experience, vicarious experience, social persuasion, and emotional arousal. The responses to the statement under mastery experience shows that all of the respondents (100%) agreed that E-learning system makes learning easier for them. This statement is further confirmed by a mean score of 3.73 which indicates a high perception of e-learning system as a tool to simplify learning activities. In the same vein, 99.2% of the respondents agreed that they have more confidence in using an E-learning System because it improves my academic achievement. This item has a mean score of 3.71 which indicates that the respondents have a high level of perception that the continuous use of e-learning systems is helpful in their academic works. In addition, 98.4% of the respondents also agreed that their confidence level increased with each task accomplished using the E-learning system. This has a mean score of 3.54 indicating a high level of confidence in their ability to use e-learning system to accomplish academic tasks. The mastery experience, which refers to the competence and confidence gained after repeated use of a system is very high among the respondents as indicated by the average mean score of 3.66.

The second metric of computer self-efficacy is vicarious experience which focuses on how users gain or lose confidence from the experience of others. From the responses, 95% of the students indicated that they love to observe how others make use of computers. This item has a mean score of 3.64 which indicates that the respondents are always

learning from others in the use of e-learning systems. Also, 86.8% of the respondent agreed that they compare their computer skills with the skills of other students. This is something that can give confidence or show where there is need for improvement. The item has a mean score of 3.38 indicating that this practice is high among the students. This is further confirmed by 93.4% of the respondents who agreed that they take note of their progress in use of e-learning system resulting in a mean score of 3.42 which shows a high level of self-evaluation among the students. Overall, the average mean for vicarious experience among the students is 3.48 which indicates a high level of vicarious experience. The respondents are also affected by social persuasion.

The responses under social persuasion shows that 91.7% of the respondents agreed that their level of confidence in use of e-learning system depends on the opinion of others. This has a mean score of 3.35 which indicated that the students highly gauge themselves through the opinions of others. Also, 90.9% of the respondents also agreed that they have more confidence in using e-learning system because other students believe they know how to use it. The mean score for this item is 3.43 indicating that they expectation of other is very high among the factors that drive computer use among the respondents. Indeed, 94.2% of the respondents agreed that they have people around who tell them what they need to improve on in the use of e-learning systems. This item has a mean score of 3.45 indicating a high level of access to these guides. Overall, the average mean for vicarious experience among the respondents is 3.41 indicating a high level of vicarious experience

The fourth metric of self-efficacy is emotional arousal. Under this metric, the responses showed that 92.3% of the respondents agreed that they are always relaxed when using e-

learning system. This item has a mean score of 3.48 which is an indication this feeling is very high among the respondents. The relaxed nature of the students also reflected in 83.6% of them indicating that they do not make mistakes when using computer except when they get nervous. The item has a mean score of 3.20 indicating high level of control among the respondents in the use of the e-learning system. Also, 95% of the respondents indicated that they always concentrate on what they are doing unless when tired. The mean score for this item is 3.53 which indicates that the system highly captures the attention of the respondents. Overall, average mean score for emotional arousal is 3.40 which indicated a high level of emotional arousal in the interaction of the respondents with the system.

With the data that has been presented, it is possible to gauge the level of computer self-efficacy of the respondents by obtaining the average of the various mean of the metrics such as mastery experience (mean = 3.66), vicarious experience (mean = 3.48), social persuasion (mean = 3.42) and emotional arousal (mean = 3.40). The aggregate of all these mean is 3.49 which indicates a high level of computer self-efficacy among the students.

4.2.3 Research Question 3: What is the Level of Computer Playfulness of Library and Information Science Undergraduates of Selected Private Universities, Oyo state?

Table 4.4: Level of Computer Playfulness of Library and Information Science Undergraduates of Selected Private Universities, Oyo state

Items	SA	A	SD	D	Mean
Spontaneity					
I find E-learning System fun because	53 (43.8%)	61 (50.4%)	6 (5.0%)	1 (0.8%)	3.37

it always arouses my interest					
E-learning System improves my level of critical thinking skills	81 (66.4%)	34 (27.9%)	7 (5.7%)	--	3.61
I use E-learning system without restrain	55 (45.1%)	59 (48.4%)	7 (5.7%)	1 (0.8%)	3.38
Using computer improves my level of understanding of E-learning System	68 (55.7%)	46 (37.7%)	7 (5.7%)	1 (0.8%)	3.48
Mean					3.46
Curiosity					
I always learn from my peers when using E-learning System	60 (50.4%)	61 (49.6%)	--	--	3.50
I derive happiness when using E-learning System	46 (37.7%)	62 (50.8%)	13 (10.7%)	1 (0.8%)	3.25
I derived joy when using E-learning System with others	68 (55.7%)	46 (37.7%)	8 (6.6%)	--	3.49
E-learning System improves my problem solving skill	68 (55.7%)	47 (38.5%)	7 (5.7%)	--	3.50
Mean					3.43
Creativity					
I derive ability to develop new ideas in E-learning System	78 (64%)	42 (34.4%)	--	2 (1.6%)	3.61
I have creative skills for using E-learning System	68 (55.7%)	53 (43.4%)	--	1 (0.8%)	3.54
I have no difficulty using E-learning System	69 (56.6%)	46 (37.7%)	6 (4.9%)	1 (0.8%)	3.50
I am imaginative when using E-learning System	68 (55.7%)	38 (31.1%)	14 (11.5%)	2 (1.6%)	3.41
Mean					3.52

Decision rule: low mean is < 2.5, moderate mean is = 2.5 and high mean is > 2.5
Key: Strongly Agree (SA)=4, Agree (A)=3, Strongly Disagree (SD)=2, Disagree (D)=1

Source: Field work, 2022.

Table 4.4 presented the results of the data collected to measure the level of computer playfulness of library and information science undergraduates of selected private universities, Oyo state. The level of computer playfulness was measured by three dimensions namely; spontaneity, curiosity, and creativity. For spontaneity, 94.2% of the respondents agreed that they find E-learning System fun because it always arouses their interest. The item has a mean score of 3.37 which indicates that the respondents are highly attracted by the fun nature of e-learning systems. In the same vein, 94.3% of the respondents also indicated that E-learning System improves their level of critical thinking skills. The mean score for this item (3.61) giving the indication that the respondents find the e-learning system highly stimulating. Also, 93.5% of the respondents indicated that they make use of the E-learning system without restraint. With a mean score of 3.38, it can be deduced that the respondents have a high level interest in the use of e-learning system. Furthermore, 93.4% of the respondents agreed that using computer improves their level of understanding of E-learning system. The item also has a mean score of 3.48. Overall the level of spontaneity in the use of E-learning system is shown by a average mean score of 3.46 which indicate a high level of spontaneity in the use of e-learning systems among the respondents.

The table also shows the result of responses to items under curiosity as a dimension of computer playfulness. The responses show that all of the respondents (100%) agreed that they always learn from their peers when using E-learning system. This item has a mean score of 3.50 which translates to a high level of the practice among the respondents. Furthermore, 88.5% of the respondents indicate that they derive happiness when using E-

learning System. This statement has a mean score of 3.25 which also indicate a high level of happiness derived from the use of e-learning system among the respondents. In the same vein, 93.4% of the respondents indicated that they derived joy when using E-learning System with others. The mean score of 3.49 for this item shows that it is very high among the respondents. Also, 89.2% of the respondent indicated that E-learning system improves their problem solving skill. The mean score for how e-learning system enhance problem solving among the respondents is 3.50 which indicates that this is high. The average mean score of create derived by aggregating all the mean scores of items under it is 3.43 which indicate a high level of curiosity for computer system usage among the respondents. This is also reflected in their level of creativity.

For the items measuring creativity, 98.4% of the respondents agreed that they derive ability to develop new ideas from using E-learning system. With a mean score of 3.61, this item is accepted as high. Also, 99.2% of the respondent agreed to have creative skills for using E-learning System. With a mean score of 3.54, this is accepted as very high. Similarly, 94.3% of the respondents also agreed that they have no difficulty using E-learning System. This item has a mean score of 3.50 which mean capacity for using the system is high among the respondents. Also, 86.8% of the respondents indicated that they are imaginative when using E-learning System. This item also has a high mean score of 3.41. Overall the average mean for creativity as a dimension of computer playfulness is 3.52 indicating a high level of creativity among the respondents. To answer the question regarding the level of computer playfulness among the respondent, the average means of all the dimensions, i.e.; spontaneity (3.46), curiosity (3.43), and creativity (3.52) is

computer. The result is an aggregate mean of 3.47 indicating a high level of computer playfulness among the respondents.

4.3 Presentation of Study Hypotheses

4.3.1: Hypothesis One: There is no Relative Influence of Computer Self-Efficacy on Motivation to Use E-Learning Systems by Library and Information Science Undergraduates of Selected Private Universities, Oyo state.

Table 4.5: Influence of Computer Self-Efficacy on Motivation to Use E-Learning Systems by Library and Information Science Undergraduates of Selected Private Universities, Oyo State.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.651 ^a	.424	.419	.26146

a. Predictors: (Constant), Computer Self Efficacy

ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	6.034	1	6.034	88.272	.000 ^b
	Residual	8.203	120	.068		
	Total	14.238	121			

a. Dependent Variable: Motivation to Use

b. Predictors: (Constant), Computer Self Efficacy

Coefficients^a

Model		Unstandardized Coefficients	Standardized Coefficients	t	Sig.
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		B	Std. Error	Beta		
1	(Constant)	1.361	.232		5.869	.000
	Computer Self Efficacy	.618	.066	.651	9.395	.000

a. Dependent Variable: Motivation to Use
Source: Field work, 2022.

The regression analysis presented in table 4.5 (a – c) shows the significant influence of computer self-efficacy on the motivation to use e-learning system by library and information science undergraduates of selected private universities, Oyo state. The first table (model summary) shows that computer self-efficacy explained 41.9% of the total variance in the motivation to use e-learning system by undergraduate students of private universities in Oyo state, Nigeria (Adj R² = 0.419), the remaining 58.1% variation in the motivation to use e-learning systems by library and information science undergraduates of selected private universities, Oyo state are explained by other factors not included in this study. Computer self-efficacy also shows a positive and significant relationship (R = 0.651) with the motivation to use e-learning system by library and information science undergraduates of selected private universities, Oyo state. Table 4.5b presents the analysis of variance in the relationship between computer self-efficacy and the motivation to use e-learning systems. From the values presented in the table, it also shows that computer self-efficacy has a significant influence on the motivation to use e-learning system by library and information science undergraduates of selected private universities, Oyo state. (F(1, 120) = 88.272, p < 0.05). Table 4.5c also shows that, if all other factors remain constant, a unit change in computer self-efficacy will lead to 0. 618 increase in the motivation to use e-learning system by library and information science undergraduates of selected private universities, Oyo state at 95% level of confidence (B =

0.618, $p < 0.05$). Therefore, based on the result of the regression analysis, the null hypothesis which states that; there is no significant the influence of computer self-efficacy on the motivation to use e-learning system by library and information science undergraduates of private universities, Oyo state is rejected.

4.3.2: Hypothesis Two: There is no Relatives Influence of Computer Playfulness and Motivation to Use E-Learning System by Library and Information Science Undergraduates of Selected Private Universities, Oyo State.

Table 4.6 (a-c): Influence of Computer Playfulness and Motivation to Use E-Learning System by Library and Information Science Undergraduates of Selected Private Universities, Oyo State.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.805 ^a	.649	.646	.20421

b. Predictors: (Constant), Computer Playfulness

ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	9.233	1	9.233	221.404	.000 ^b
	Residual	5.004	120	.042		
	Total	14.238	121			

a. Dependent Variable: Motivation to Use

b. Predictors: (Constant), Computer Playfulness

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.255	.154		8.151	.000

Computer Playfulness	.655	.044	.805	14.880	.000
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b. Dependent Variable: Motivation to Use

c. Source: Field work, 2022.

The regression analysis presented in table 4.6 (a – c) shows the significant influence of computer playfulness on the motivation to use e-learning systems by Library and Information Science undergraduates of selected private universities, Oyo state. From table 4.6a (model summary) it can be seen that computer playfulness explained 64.9% of the total variance in the motivation to use e-learning system by library and information science undergraduates of selected private universities, Oyo state. (Adj R2 = 0.649), the remaining 35.1% variation in the motivation to use e-learning systems by library and information undergraduates of selected private universities, Oyo state are explained by other factors not included in this study. Computer playfulness also shows a positive and significant relationship ($R = 0.805$) with the motivation to use e-learning systems by library and information science undergraduates of selected private universities, Oyo state. Table 4.6b presents the analysis of variance in the relationship between computer self- playfulness and the motivation to use e-learning systems by the respondents. From the values presented in the table, it also shows that computer playfulness has a significant influence on the motivation to use e-learning system by library and information science undergraduates of two private universities in Oyo state. ($F(1, 120) = 221.404, p < 0.05$).

In the same vein, table 4.6c also shows that, if all other factors remain constant, a unit change in computer playfulness will lead to 0. 655 increase in the motivation to use e-

learning system by library and information science undergraduates of selected private universities, Oyo state at 95% level of confidence ($B = 0.655$, $p < 0.05$). Therefore, based on the result of the regression analysis, the null hypothesis which states that; there is no significant the influence of computer playfulness on the motivation to use e-learning system by library and information science undergraduates of selected private universities, Oyo state is rejected.

4.3.3: Hypothesis Three: Computer Self-Efficacy and Computer Playfulness does not have Combined Influence on Motivation to Use E-Learning Systems by Library and Information Science Undergraduates of Selected Private Universities, Oyo State.

Table 4.7 (a-c): Combined Influence of Computer Self-Efficacy and Computer Playfulness on Motivation to Use E-Learning System by Library and Information Undergraduates of Selected Private Universities, Oyo State.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.805 ^a	.649	.643	.20506

c. Predictors: (Constant), Computer Playfulness, Computer Self Efficacy

ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	9.234	2	4.617	109.802	.000 ^b
	Residual	5.004	119	.042		
	Total	14.238	121			

a. Dependent Variable: Motivation to Use

b. Predictors: (Constant), Computer Self Efficacy, Computer Playfulness

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.242	.182		6.813	.000
	Computer Playfulness	.648	.074	.796	8.723	.000
	Computer Self Efficacy	.011	.087	.011	.126	.900

d. Dependent Variable: Motivation to Use

e. Source: Field work, 2022.

The result of the multiple regression analysis conducted to test the combined influence of computer self-efficacy and computer playfulness on motivation to use e-learning system by library and information science undergraduates of selected private universities, Oyo State, is presented in table 4.7 (a – c). The result as shown in table 4.7a shows that both computer self-efficacy and computer playfulness have a combined influence on the motivation to use e-learning system by library and information science undergraduates of selected private universities, Oyo state. From the table (model summary) it can be seen that the combination of computer playfulness explained and computer self-efficacy explain 64.3% of the total variance in the motivation to use e-learning system by library and information science undergraduates of selected private universities, Oyo state, Nigeria (Adj R² = 0.643), the remaining 35.7% variation in the motivation to use e-learning systems by library and information science undergraduates of selected private universities, Oyo state are explained by other factors not included in this study. Computer playfulness and Computer self-efficacy also shows a positive and significant relationship (R = 0.805) with the motivation to use e-learning system by library and information science undergraduates of selected private universities, Oyo state. Table 4.6b presents the

analysis of variance in the relationship between computer self-efficacy, computer playfulness and motivation to use e-learning systems by the respondents. From the values presented in the table, it also shows that the combination of computer playfulness and computer self-efficacy has a significant influence on the motivation to use e-learning system by library and information science undergraduates of selected private universities, Oyo state. ($F(1, 120) = 109.802, p < 0.05$). In the same vein, table 4.7c also shows that, if all other factors remain constant, a unit change in computer playfulness will lead to 0.648 increase in the motivation to use e-learning system by library and information science undergraduates of selected private universities, Oyo state while a unit change in computer self-efficacy will only lead to 0.011 change in in the motivation to use e-learning system by library and information science undergraduates of selected private universities, Oyo state at 95% level of confidence. This indicates that only computer playfulness has a combined significant as a predictor of the motivation to use e-learning systems among the students while computer self-efficacy is not significant. Therefore, based on the result of the multiple regression analysis, the null hypothesis which states that; Computer Self-Efficacy and Computer Playfulness does not have Combined Influence on Motivation to Use E-Learning System by Library and information science Undergraduates of Selected Private Universities, Oyo State is rejected.

4.4 Discussion of Findings

The study set out to investigate the influence of computer self-efficacy and computer playfulness on the motivation to use e-learning systems by library and information science undergraduates of selected private universities, Oyo state. Empirical data were collected and analysed in line with the research questions and hypotheses. This section is therefore a discussion of the study findings

The first research question seeks to identify the level of motivation to use e-learning systems among the respondents. The study found that the motivation to use e-learning systems is high with both constructs used to measure motivation to use recording high mean scores. It was found that the perceived usefulness and perceived ease of use of e-learning systems is high among the respondents. This finding is also reflected in other studies conducted by previous researchers. In a study which examined the efficiency of e-learning technologies and its application to the educational process of university students, it was found that the students found e-learning systems as user-friendly, efficient in time management, as well as highly useful in education². This is to be expected considering the fact that e-learning systems allow students to learn at their own pace, can be assessed even from home and they are on the devices that students are already used to.

Another researcher also reported that e-learning system is becoming popular due to students' perceptions of the systems' utility and their usability. The scholar found that, for e-learning to be successful, perceived usefulness and perceived ease of use are responsible. It demonstrates that a respondent will engage in e-learning if they believe it to be beneficial and straightforward². The majority of participants in the survey also believed that e-learning systems had beneficial aspects, as evidenced by the study's findings. Majority of the students agreed that e-learning systems expands opportunities for dialogue and collaboration among learners and lecturers. In addition, students say that e-learning allows them to contact with the teacher via e-mail anytime, anywhere, and delivers the subject 24/7. Apart from the perceived usefulness, researchers also observed that majority of students' homes already have Internet connections, making it convenient for them to do their schoolwork online. Similarly, a variety of multimedia inputs have

been shown to encourage interdisciplinary learning and help undergraduates seek knowledge that relates to their own experiences³.

The second research question seeks to find out the level of computer self-efficacy of library and information science undergraduates of selected private universities, Oyo State. The study found that the students rated themselves high in all the four dimensions of computer self-efficacy such as; mastery experience vicarious experience, social persuasion, and emotional arousal. This results in overall high level of computer self-efficacy reported in the study. Studies have also shown that young students who are often referred to as the digital natives have mastery over technology. However, despite this widely held opinion, the level of computer self-efficacy is not similar across students. A study conducted in Asia found that undergraduate students rate themselves highly on using e-mails, web-based search engines, the Internet and word processing software. They are also somewhat comfortable with presentation and spreadsheet software. However, only a few of them showed a higher level of computer self-efficacy especially as it relates to the use of database software, indicating that they do not perceive themselves as proficient in using databases⁴. Yet, in another study conducted in the United states of America it was found that many students lack computer self-efficacy. This study suggested the proficiency of students in the use of mobile phones and a few leisure and entertainment application is not the same as being able to use digital devices such as computers for purposeful, result-based tasks⁵. The findings of these studies shows that computer self-efficacy can be a challenge in both advanced and developed economies. The high level of self-efficacy recorded in this study can be attributed to the mandatory use of e-learning systems especially during the covid-19 pandemic. As can be

seen from the responses under mastery experience, majority of the students become more confidence in the use of computer systems and e-learning systems⁶. It can therefore be said that the development of computer self-efficacy comes with focused practice. Experts have also observed that computer self-efficacy is greatly helped when the individual has a high level of computer playfulness.

The focus of the third research question is to examine the level of computer playfulness among the students. It was found that the students rated themselves high on all the dimensions of computer playfulness such as spontaneity, curiosity, and creativity. All of these combined together to result in high level of computer playfulness among the respondents. The finding means that a vast majority of the respondents do not approach the use of computers with any fear. This finding has also been supported in other studies. Scholars have reported that computer playfulness factors such as creativity, originality, imaginative, inventive, spontaneity, remote accessibility, large information capacity, immunity from the effects of time and space limitations, convenience and strong share ability, currency of contents, and costs of access determine the acceptance and use of computer systems⁷. In other words, library and information science undergraduates that exhibit high level of computer playfulness when it comes to computer usage are more likely to explore new technologies, software, and databases than those with limited elements of computer playfulness. In line of the need to ensure widespread adoption of e-learning systems, the study also tested hypotheses on the influence of various factors on the motivation to use e-learning systems.

The first research hypothesis examined the influence of computer self-efficacy on the motivation to use e-learning systems by library and information science undergraduates

of selected private universities, Oyo state. It was found that computer self-efficacy has a significant influence on the motivation to use the system. This finding indicates that students with high level computer self-efficacy are more likely to make use of e-learning systems than student with low level of computer self-efficacy. This finding is echoed by several other studies from around the world. In a study of self-efficacy and the interaction model as predictors of student satisfaction and perceived learning in online learning environment. Result of the findings shows that self-efficacy significantly predicts student satisfaction to e-learning. It was found that student satisfaction and perceived learning is explained by other three predictor variables. Learner-learner interaction played the least significance role in predicting both student satisfaction and perceived learning within online learning environment⁸. Similarly, in a study conducted to determine the influence of computer anxiety, computer self-efficacy and attitude towards e-learning among students. Findings revealed that there is a positive significant relationship between computer self-efficacy and e-learning system among the students. It was concluded that computer self-efficacy influenced the student use of the systems⁹.

The second research hypothesis examined the influence of computer playfulness on the motivation to use e-learning systems among the students. It was found that computer playfulness has a significant influence on the motivation of the students to use e-learning systems. The study suggested that a high level of computer playfulness is essential for students to fully engage with digital learning systems which means that those students without or with low level of computer playfulness are unlikely to make good use of e-learning systems. There are several studies whose finding is in agreement with this study.

Respondents in a study established correlations between computer playfulness and e-learning systems. The correlation results in the study showed a significant positive relationship between computer playfulness and the intention to use e-Learning. This implies that a high level of computer playfulness is associated with high levels of intention to use e-Learning. On the contrary, a low level of computer playfulness is associated with a low level of decision to use e-learning systems. In other words, an improvement in high level of computer playfulness is positively associated with an improvement in decision to use e-learning system. On the other hand, a decline in computer playfulness is associated with a decline in decision to use e-learning system. Another study however reported that computer playfulness is not significant to university students' participation in e-learning systems but has a significant impact on participation intention in online education, indicating that computer playfulness is one of the critical factors affecting participation in e-learning mode of study¹⁰. The authors went further to emphasise that although computer playfulness does not directly affect the students, it directly affects students' willingness to participate, and playfulness in online learning can also stimulate students' learning enthusiasm. The research results however, show that the computer playfulness in online education conforms to the intrinsic motivation of university students, so their participation intention is also positively affected by the computer playfulness¹¹.

It is clear that students' position on computer playfulness as a factor, could easily determine whether they are to use digital resources or not. Interestingly, the more flexible a LIS undergraduate student can interact with digital/computer system, the more they find it inventive and easy to use. In other words, library and information science

undergraduates' levels of computer playfulness to a very large extent influence their use of computer systems as well as digital information resources¹².

The third research hypothesis explored the combined influence of computer self-efficacy and computer playfulness on the motivation of students to use e-learning systems. The findings showed that there is a significant combined effect of computer self-efficacy and computer playfulness on the motivation to use e-learning systems among the students. This is supported by another scholar who have also submitted that computer self-efficacy and computer playfulness have a significant impact on students' perceived ease of use of e-learning¹³. However, it was found that only computer playfulness has a significant joint influence while computer self-efficacy is not significant. This is instructive in the modern age where computers have become ubiquitous and people only have to reach out to enjoy the benefits they offer. Studies have shown that computer self-efficacy, computer playfulness and other external variables, was correlated with e-learning systems. It was however recognized that computer playfulness has a positive significant effect on students' attitude towards the use of e-learning systems. It was showed that computer playfulness¹⁴. This can be explained in the sense that even when students have low perception of their computer skills, if they are 'playful' enough, they are more likely to make attempt to use the computer and find out how it can work for them. It is possible to say that computer playfulness is a great factor in computer self-efficacy. In other words, LIS undergraduate students that exhibit high level of computer playfulness when it comes to computer usage are more likely to explore new technologies, software, and databases than those with limited elements of computer playfulness.

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Chapter Five

Conclusion

5.1 Summary of Findings

The findings of this study which examined the influence of computer self-efficacy and computer playfulness on the motivation to use e-learning systems by library and information science undergraduates of selected private universities, Oyo state can be summarized as follows;

- i. The study found that motivation to use e-learning systems by library and information science undergraduates in selected private universities, Oyo state is high with the students scoring the systems high on perceived usefulness and perceived ease of use.
- ii. The study also found that the study has a higher level of computer self-efficacy. However, the fact that mastery experience ranked highest among the dimensions of computer self-efficacy indicates that students may have been left without support in using e-learning systems, instead being left to learn on their own.
- iii. Furthermore, the study also found that there is a high level of computer playfulness among the undergraduates. While all the three dimensions of computer playfulness are high spontaneity comes third which means that there are still some undergraduates who are not spontaneous or self-driven in the use of e-learning systems.
- iv. The first hypothesis tested found that computer self-efficacy is a significant predictor of the motivation to use e-learning systems among the undergraduates. It indicates that if the level of computer self-efficacy can be boosted, the motivation to use the e-learning system will increase accordingly.

v. The second research hypothesis tested found that computer playfulness is a significant predictor of the motivation to use e-learning systems among the undergraduates. It indicates that if the level of computer playfulness can be boosted, the motivation to use the e-learning system will increase accordingly.

vi. The third research hypothesis found that both computer self-efficacy and computer playfulness jointly predict the motivation to make use of e-learning systems among the undergraduates. It was however found that, individually, only computer self-efficacy has a joint significant effect on the motivation to make use of e-learning systems among the undergraduates

5.2 Conclusion

The integration of technology into educational activities has been on for decades. However, the emergence of the COVID-19 has further solidified the argument that technology use is highly important in education. E-learning systems offers numerous advantages which include decongesting classrooms, help student learn in their own pace and enhance the quality of instruction. It is expected that every student will embrace these technologies and use them in learning. It is obvious that factors such as computer self-efficacy and computer playfulness are going to play an important role in the motivation of the students to make use of these systems. The interesting finding of this study is that computer playfulness can be more important than computer self-efficacy. It is obvious that students who are driven by curiosity and spontaneity are more likely to make use of e-learning systems than others.

5.3 Recommendations

Based on the findings and conclusions reached in this study, the following recommendations are considered relevant;

1. Private universities in Oyo state should ensure proper maintenance and upgrade of their e-learning facilities so that the students will continue to perceive them as useful and easy to use thereby sustaining their high motivation to use these systems.
2. While students may exhibit high level of computer self-efficacy, it is still important that universities organize periodic awareness and sensitization programmes to further boost the knowledge and skills of the students about the use of e-learning systems.
3. The university management should ensure that the high level of computer playfulness among the students is channeled into productive academic works through the production of innovative academic contents.
4. Given the importance of computer self-efficacy on the motivation to use e-learning systems, the university should organize regular computer skills development programmes for students to ensure that those who lack computer skills are able to gain the needed skills.
5. There is also the need for proper orientation for the students to ensure that computer playfulness is directed at productive academic work and not leisure activities. Students should be properly oriented on the fact that academic work

may not always be fun. This will ensure they are not discouraged when they face complex tasks using the e-learning system.

6. The institutions should encourage computer playfulness among the students by providing all the necessary infrastructure such as computer systems, internet connection, stable power supply and the necessary technical support to assure students that they can have no problems when using computers and other digital devices for academic purposes.

5.4 Contribution to Knowledge

The study has made significant contributions to theory and practice of librarianship as well as education in general. The contributions can be categorized under empirical, theoretical and conceptual contributions. Furthermore, it has also made significant contributions to the theory and practice of librarianship as well as being of benefit to the larger society.

The study has made conceptual contribution to knowledge by developing a conceptual model which outlines all the constructs of computer self-efficacy, computer playfulness and motivation to use technology in the context of education. Through this model, the study contextualizes all of the study variables and highlight the link between each and all of them. The study also made theoretical by integrating four different theories, namely; Technology Acceptance Model (TAM), Stimulus Theoretical Framework, Social Cognitive Theory (SCT), and Computer Playfulness Theory into on single model to study the use of e-learning g system among private university students in Oyo state. This has never been done in any of the previous studies that the researcher is aware of. The successful integration of these theories is a further validation of their relevance to

research in the African context. The study also contributed empirically through the collection, analysis and presentation of primary quantitative data from undergraduate students.

5.5 Suggested Areas for Further Studies

This study is focused on only two private universities in Oyo state. This allows for further studies. Future studies can expand the scope to include more universities both private and public in Oyo state or across South-West Nigeria. It can also be extended to a comparative study of government owned and private universities to highlight any differences or similarities. Studies that can be conducted includes the followings;

1. Computer self-efficacy, computer playfulness and motivation to use e-learning systems by library and information science undergraduates of private universities in Oyo state
2. Computer self-efficacy, computer playfulness and motivation to use e-learning systems by library and information science undergraduates of private universities in south-west, Nigeria
3. Computer self-efficacy, computer playfulness and motivation to use e-learning systems by library and information science undergraduates of tertiary institutions in Oyo state (A comparative study)
4. Computer self-efficacy, computer playfulness and motivation to use e-learning systems by library and information science undergraduates of tertiary institutions in south-west Nigeria (A comparative study)

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Appendix

Research Instrument

Lead City University

Faculty of Communication and Information Sciences (FCIS)
Department of Information Management
Questionnaire

Dear Respondent,

This questionnaire was designed to collect information on Computer Self-Efficacy, Computer Playfulness, and Motivation to Use E-learning Systems by Library and Information Science Undergraduates of Selected Private Universities, Oyo, State. The questionnaire is mainly for Academic research purposes, kindly respond to the items as honestly as possible. All information supplied here shall be treated confidentially.

Thank you
 Oyadele, Olawumi G.

Section A: Demographic Information

Gender: Male (), Female ()

Age: <16 (), 16 – 20 (), 21 – 25 (), 26 – 30 (), >30 ()

Name of Institution: -----

Level of Study: 100 (), 200 (), 300 (), 400 ()

Section B: Motivation to Use E-learning Systems

Please indicate your opinion by ticking the appropriate option provided. What motivate you to use e-learning?

S/N	To what extent do you agree with the following	SA	A	SD	D
	Perceived Usefulness				
1.	I have more confidence in using an E-learning System because it improves my academic achievement				
2.	My confidence in the usage of the E-learning system increases as I accomplish tasks more easily				
3.	E-learning system makes learning easier for me				
4.	I find E-learning System useful for my academic				

	performance because it save time				
	Perceived Ease of Use				
5.	I am skillful at using E-learning System				
6.	I can interact with E-learning System in a clearly and understandable way				
7.	I find it easy to access notes using E- learning System				
8.	I do not have problems when using E-learning system because it is easy to use				

Section C: Computer Self-efficacy

Please indicate with a tick () your level of Computer Self-Efficacy

S/N	To what extent do you agree with the following	SA	A	SD	D
	Mastery Experience				
1.	I have more confidence about my computer skills because I have always learn from my past mistakes				
2.	I focus on the positive even when I fail in previous attempt				
3.	My confidence in usage increases as I use the e-learning system				
	Vicarious Experience				
4.	I love to observe how others make use of computers				
5.	I compare my computer skills with the skills of other students				
6.	I take note of my progress in use of e-learning system				

	Social Persuasion				
7.	My level of confidence in use of e-learning system depends on the opinion of others				
8.	I have more confidence in using e-learning system because other students believe I know how to use it				
9.	I have people around who tell me what I need to improve on				
	Emotional Arousal				
10.	I am always relaxed when using e-learning system				
11.	I don't make mistakes when using computer except I get nervous				
12.	I always concentrate on what I am doing unless I am tired				

Section D: Computer Playfulness

Please indicate with a thick () the level of Computer Playfulness you possessed

	Please indicate your level of agreement with following				
	Spontaneity				
1.	I find E-learning System fun because it always arouses my interest				
2.	E-learning System improves my level of critical thinking skills				
3.	I use E-learning system without restrain				
4.	Using computer improves my level of understanding of E-learning System				
	Curiosity				

5.	I always learn from my peers when using E-learning System				
6.	I derive happiness when using E-learning System				
7.	E-learning System improves my problem solving skill				
8.	I derived joy when using E-learning System with others				
	Creativity				
9.	I derive ability to develop new ideas in E-learning System				
10.	I have creative skills for using E-learning System				
11.	I have no difficulty using E-learning System				
12.	I am imaginative when using E-learning System				

Bio-data

Personal Data

Full Name: Olawumi Grace OYADELE

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Date/Place of Birth: 19th April, 1985/ Ibadan, Oyo State

Nationality: Nigerian
Religion: Christianity
Marital Status: Married
Name and Address of Next of Kin: - Oyadele Daniel/Dorcas, Adeoye House Papa
Alajiki, Ogbomoso. /08155326132

Educational Background

Educational Institution Qualification Obtained/Date:

Lead City University, Ibadan	MLIS
University of Ibadan, Ibadan	(BLIS) 2011-2017
Oyo State College of Education	(NCE) 2002-2005
Anglican Methodist Secondary School, Oyo	1996-2002
St. Andrew's Demonstration (Sp.) School, Oyo	1990-1996

Work Experience with Date

Community Secondary School Oke olola, Oyo	TP Teacher 2005
Agboye Baptist Nursery and Primary School	Teaching/2006-2010
Ajayi Crowther University, Oyo (Assistant Librarian)	2010-till date

Membership of Professional Bodies

- Librarian's Registration Council of Nigeria (LRCN)
- Nigeria Library Association (NLA)

Publications

- Survey of Human and Material Resources Available for the Teaching and Learning of Geography in Secondary Schools. A Study of Selected Secondary School in Oyo Town (Unpublished)

- Availability and use of Electronic Information Resources in Academic Libraries. A case study of two Colleges of Education in Oyo State Nigeria (Unpublished)
- Information Need and Information Seeking Behaviour of Students for Academic Success: A Case Study of Undergraduate Students in the Faculty of Natural Sciences, Ajayi Crowther University, Oyo. (Unpublished)

Conferences, Seminars and Workshops Attended

- The Web and other E-Resources-Training in the Use of E-resources for Undergraduate Students, December 2015 by Tommy Bashly Library Consult.
- A 1-day Staff Development Training at Ajayi Crowther University Library 2018
- 15th Library and Information Technology (LITT) National Workshop of Nigeria Library Association, October 2021.
- 8th Conference of Certified Librarians in Nigeria on “Emerging Trends and Technologies in Library and Information Services, November 2021
- NLA 60th Nation Conference and AGM on Library and Information Services in the Development of Nigeria: 1962-2022, July 2022

Signature

Date

University Compliance Certificate

This is to certify that this thesis by Olawumi G. Oyadele with Matric No. LCU/PG/001982 in the Department of Information Management, Faculty of Communication and Information Management Science, Lead City University, Ibadan, is in FULL compliance with the approved university format and style.

Signature

Date

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