ACCEPTANCE, ADOPTION AND USABILITY OF MOBILE LEARNING DEVICES AS CORRELATES OF LIBRARY ELECTRONIC RESOURCE UTILISATION AMONG POSTGRADUATES IN PRIVATE UNIVERSITIES IN SOUTHWESTERN NIGERIA

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CERTIFICATION

I certify that this study was carried out by Abiola Amos **OKUNLOLA** (Matric. No. 102126) under my supervision at the Department of School Library and Media Technology, Faculty of Education, University of Ibadan, Ibadan, Nigeria.

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DEDICATION

To God Almighty

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ABSTRACT

Library electronic resources are essential information materials which are generally utilised by library patrons. Reports have shown that library electronic resources are underutilised by postgraduate students particularly in Nigerian private universities. Previous studies focused largely on information availability, accessibility and students' information literacy skills with little attention paid to acceptance, adoption and usability of mobile learning devices. This study, therefore, was carried out to investigate acceptance, adoption and usability of mobile learning devices as correlates of library electronic resource utilisation (purpose, frequency of use and types of resources) among postgraduate students in private universities in southwestern Nigeria.

Unified Theory of Acceptance and Use of Technology served as the framework; while the survey design of the correlational type was used. Purposive sampling procedure was adopted to select nine private universities that were approved to run postgraduate programmes by the National Universities Commission as at 2016. All the Ph.D. students were enumerated, while proportionate to size sampling technique was used to select 622 Master degree students in the commonly available faculties/schools namely: Business and Social Sciences, Education and Humanities, Engineering, Environmental Sciences, Leadership Development Studies, Media and Communication, Natural Sciences, Natural and Basic Medical Sciences, and Science and Technology. A total of 764 postgraduate students in the universities were randomly selected as follows: Afe Babalola University, Ado Ekiti (76); Babcock University, Ilisan (343); Bowen University, Iwo (29); Caleb University, Imota (80); Covenant University, Ota (59); Joseph Ayo Babalola University, Ikeji-Arakeji (22); Lead City University, Ibadan (60); Pan Atlantic University, Lekki Lagos (45) and Redeemer's University, Ede (50). The instruments used were: Utilisation of Library Electronic Resources (r=0.74), Acceptance of Mobile Learning Devices (r=0.72), Adoption of Mobile Learning Devices (r=0.72), and Usability of Mobile Learning Devices (r=0.71) questionnaires. Data were analysed using descriptive statistics, Pearson's product moment correlation and Multiple regression at 0.05 level of significance.

Respondents' age was 21.30 ± 3.65 years and 52.4% were males, while their distribution based on educational programmes were Ph.D. (18.6%), Master degree (81.4%). Utilisation of electronic resources ($\bar{x}$=2.63) and usability of mobile learning devices ($\bar{x}$=2.56) were moderate, while levels of acceptance ($\bar{x}$=2.95) and adoption ($\bar{x}$=2.70) were high as against the threshold of 2.50. There were significant relationships between acceptance (r= 0.15), adoption (r=0.28), usability of mobile learning devices (r=0.40) and utilisation of electronic resources. Acceptance, adoption and usability of mobile learning devices jointly contributed to utilisation of electronic resources ($F_{(3;760)}$=56.01: Adj.R^2=0.17), accounting for 17.0% of its variance. Usability of mobile learning devices (β = 0.36), acceptance of mobile learning devices (β = 0.10) and adoption of mobile learning devices (β = 0.05) relatively contributed to library electronic resource utilisation among the postgraduate students.

Acceptance, adoption and usability of mobile learning devices influenced utilisation of library electronic resources among the sampled postgraduate students in private universities in southwestern Nigeria. Private university libraries in southwestern Nigeria need to take cognisance of these factors for improved library electronic resources utilisation.

Keywords: Library electronic resource utilisation, Mobile learning devices, Private universities in southwestern Nigeria

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE
INTRODUCTION

1.1 Background to the study

Library electronic resources make tremendous impact on learning and student development in any institution of higher learning. Without any doubt, electronic information resources are the key to the realisation of the goals of the university library, as well as the institutional outcomes, especially in relation to postgraduate studies. In short, the importance of electronic resources in university education cannot be overstressed. Library electronic resources in this context refer to electronically supported information materials subscribed to, licensed or housed in the library or print library materials in electronic formats. Advancement in technology and related facilities has enhanced provision and availability of university-based electronic resources or e-resources in Nigerian universities, especially in the library where most of these electronic resources are accessible and accessed. As a result of this, postgraduates now have many sources of accessing and utilising information, as against the physically restricted source.

The postgraduates are groups of students that require information for academic and research purposes more than any other category of students within the university. Without doubt, post graduate programmes need a substantial body of knowledge for research and investigations on various forms of academic enquiries. Besides, postgraduates are supposed to be matured independent learners who should depend on reliable sources of information such as are provided by the university libraries. This particular research is interested in postgraduates in private universities in order to extend the frontiers of knowledge in the area of higher education that is focused mainly on research students. Only few investigations have been done with respect to postgraduate students and utilisation of library electronic resources as opposed to undergraduates and public universities in Southwestern Nigeria. Hence the gap being filled by this study. A number of university-owned educational electronic resources now seems to be available for the use of postgraduates and researchers in private

universities in Nigeria, most especially in the Southwestern geopolitical zone, even though availability does not simply translate to accessibility or utilisation. The resources may be available but not well utilised. This study was thereforelimited to electronic resources within the library and postgraduate users within the university network for proper focus.

In Nigeria, a private university is any university that is not funded by public means through the Federal or state government but by private or religious organisations and individuals. Private universities in Nigeria are established primarily to complement the public universities which are becoming overstretched (Ajadi, 2010). As at the time this study was conducted, there was a total number of 61 private universities in Nigeria out of which 28 are spread around the Southwestern geopolitical zone. Nine out of the twenty-eight universities in the zone are approved by the Nigerian National Universities Commission to run postgraduate programmes. The post graduate studies consist of higher degrees usually in the following categories: post graduate diploma, master, and doctoral degrees. This study, however, focused on Master and Doctoral degree programmeswhich entail more research works and require adequate use of information resources. It is at this level that postgraduate work requires research and training materials necessary for deeper academic enquiries. It is during postgraduate studies that postgraduates are exposed to the relevant body of knowledge and learning activities which enable them to develop relevant competencies and deeper knowledge of their chosen subject areas and careers. This grants students the opportunity to acquire new knowledge and develop further skills and innovations necessary to cope with academic, social and career responsibilities.

Many private universities across Southwestern Nigeria appear to be adopting information and communication technology devices for students' information needs in an effort to create enabling environments for postgraduates to get better involved in scholarly activities and for them to gain access to information more efficiently than before. This objective can only be achieved if those resources are well utilised by students. Private universities in this study refers to universities owned by private individuals or groups of individuals as opposed to those owned by the government.

Library electronic resource utilization by postgraduates is generally in the form of browsing, reading, communicating, posting or receiving information

orlearningmaterials by way of electronic mail, accessing electronic databases, World Wide Web, The Internet or other similar sources. It is generally believed that electronic resources or e-resources provide more functions and benefits than print resources because any time students are connected to the internet, they getaccess to information from different sources all around the world.

These observations notwithstanding, the extent and purpose of utilisation of library - based electronic resources still remains an issue in southwestern Nigeria, especially for the academic libraries where the resources are resident. It is mostly believed that these reliable library-licensed electronic resources are underutilised or at least not well utilised (Ukachi, 2015). The same had been corroborated by the majority of systems librarians in private universities in southwestern Nigeria who testified during the preliminary survey that different training sessions and awareness programmes were regularly embarked upon to sensitise students and boost electronic information resource utilisation in their respective libraries. This shows that there is the need to boost theutilisation of these resources for the library to justify their provision. Access and utilisation of these resources must be in line with modern practices obtainable in more advanced climes where students are in tune with the library with full access to full textbooks at home on mobile phones through the use of mobile library cards (MLC) and other relevant applications for greater effectiveness and productivity.

In a related study, Eruvwe, Sambo, and Salami (2014) observed that majority of the postgraduates in the University of Nigeria Nsukka made use of their mobile phones for research rather than the available library-based electronic resources. They noted further that postgraduates made use of mobile phones all the time and majority of them agreed that cell phones helped them to meet their information needs. This was corroborated by Madukoma (2015) who submitted that in spite of the transformation brought by Information and Communications Technology (ICTs) in Babcock University Library, it seems that users are yet to experience the tremendous advantage brought by Information and Communications Technology ICTs in the aspect of library electronic resources.

Electronic resources in the university are primarily situated and accessible in the library. However, by the use of the latest technologies most of these resources could be accessed anywhere else because with certain username and password some library-

based electronic resources of a particular library could be accessed miles away. Major electronic information access points which make information retrieval easier for students include: mobile learning devices, libraries, ICT centres, cybercafé, dormitories and classrooms. Ajegbomogun and Fagbola (2015) identified global system of mobile telecommunication (GSM), cybercafé, ICT Centres, home, library and departmental offices as major access points for utilisation of electronic resources by postgraduates. However, the GSM was discovered to be the most easily accessible point. This suggests a shift in information users' preference for mobile sources rather than the stationary library point. However, making information resources available through mobile learning devices has not been optimised in the Nigerian academic libraries as it is done in Europe and America. This, perhaps may be whyNaveed, Q. N., Alam, M. M. and Tairan, N. (2020) were of the opinion that every area of the world is already being dominated by technological developments. Undoubtedly, utilisation of these new technologies in most part of Nigeria and some other parts of the developing world is still very low (Almaiah, and Al Mulhem, 2019)

In all, there seems to be a major challenge in terms of wastage or neglect of the library-licensed, hard earned resources if they can only be accessed in the libraries, ICT centres or only within the university campus when many postgraduates seem to prefer other points of access like the mobile platform. The university library in conjunction with the ICT unit is meant to create the enabling environment for teaching, learning and research and this must be fully operational to facilitate research and development. University libraries constitute an essential part of the educational environment and support the academic institution through academic curriculum, teaching and learning thereby contributing immensely to academic and institutional outcomes in different ways.

The university library is a repository of academic resources and the custodian of most reliable library-licensed electronic resources in the university. The academic library's major function is to serve its clientele, that is students, faculty, researchers and staff. For instance, the university library has the responsibility of providing information in print formats like books, journal articles, government documents, research and technical reports and rare materials as well as other non-print and electronic formats. These materials are for the use of postgraduates and other scholars who are eager to discover new ideas in any available media, especially through the use of the latest

technological devices such as tablet phones, phablets and other handheld devices which are freely available to them. It appears that many Nigerian private universities seem to have adopted these information and communication technology tools, at least in part to facilitate teaching and learning, but not up to optimum use. In spite of this transformation, it appears that postgraduates are yet to fully utilise all the advantages brought about by ICTs in the aspect of electronic resource and service usage. It appears that the services currently available to postgraduates through the library are not being used to their full potentials and some are hardly being used at all (Eruvwe, Sambo, and Salami, 2014). This can only amount to wastage or resource underutilisation.

Other research works that have been carried out to assess the utilisation of the facilities provided by librariesICT or for research by postgraduates of universities in southwestern Nigeria like Idowu and Oduwole (2012) and Nweke, Yakub and Omale (2012)have affirmed that in many cases the use of the technologies is below expectation resulting from issues like a large chunk of irrelevant information, download delay, failure to find information, lack of search skills, power outages, and unavailability of some websites. Other problems observed include inaccessibility of some websites and difficulties in navigating through e-resources, maintenance cost, and acquisition cost, in addition to time wastage. All these inhibit quick and easy access to electronic resources in the university or at least restrict access to some relevant materials (Akporhonor and Akpojotor, 2016). Therefore, this study considered three dimensions of utilisation of these resources namely: the types of e-resources being used, frequency and purpose of utilisation of university based electronic resources which are mostly resident in the institutional libraries.

However, little or no research has been carried out to investigate the impact of mobile learning devices on utilisation of library-licensed electronic resources, which could be a major factor. Perhaps, the perceived advantages derivable from accessing electronic information from other available sources especially mobile devices could also be a major challenge regarding access to and utilisation of information in private universities.

Electronic resources which refer to electronically generated information are often used to complement print resources and rare materials to enrich the university system

(Asproth, 2005). Electronic resources, according to International Federation of Library Associations and Institutions (IFLA 2012), consist of tangible and intangible contents in electronic or digital formats representing the physical library holdings such as dictionaries, encyclopedias, indexes, abstracts, handbooks, almanacs, atlases, institutional documents, rare materials and textbooks. They also include theses, reports, newspapers, magazines, manuscripts, monographs, treaties, audiovisual materials, electronic journals, e-books, CD-ROM databases, internet and e-mail content. Other forms are videotapes, cassettes, diskettes, magnetic disks, microforms, educational software/electronic contents, computers and other information-carrying media which are all essential for access and utilisation of educational resources.

With respect to this study however, electronic resources included the Internet, e-books, e-journals, websites, multimedia, CD-ROM/DVD databases, datafiles, OPAC, e-theses/ dissertations, and e-databases such as EBSCOHOST, SCIENCE DIRECT, OARE, BIOONE, JSTOR, HINARI, and AGORA. Observable clues from the surveyed institutions revealed that in most of the Nigerian private universities, information resources such as e-books, e-journals, CD-ROM databases, MP3, OPAC, internet and e-mail content, videotapes/games, and educational electronic resources are sometimes available for the use of postgraduates, even when it is believed they are not well utilised.

According to Komolafe-Opadeji (2011), postgraduates of a Nigerian private university regularly access the Internet and preferred using free online resources from Google and Wikipedia to subscribed electronic resources and databases such as HINARI, EBSCO Host, JSTOR, Questia and High Beam. This further stresses the fact that these resources seem to be selectively used or underutilised by postgraduates. They seem to prefer sourcing for electronic resources sometimes through mobile learning devices such as mobile phones, tablets and PDAs. This trend is observable in most university campuses in Nigeria, including private universities in southwestern Nigeria. This observation can best be explained in terms of the mobility, flexibility, ease of use and portability qualities of mobile learning devices. Postgraduates who are mostly engaged in different activities may lack sufficient time to spend reading and sourcing for similar information in a fixed physical location like the library or ICT centre and may decide to leverage on the perceived advantages of the mobile learning devices.

Electronic resources are generally in different types and formats, all of which assume convenient access points for users. According to Chimah and Nwokocha (2015), there are seven categories of electronic resources namely: Federated Search, Virtual Reference, Digital Institutional Repository, Online Databases, Digital Libraries, Virtual Libraries and Open Access Repository. This study, however, concentrated on the aforementioned computer based and subscription-based electronic resources available in Nigerian private universities in the Southwestern geopolitical zone.

Apart from adequate instruction, availability of and access to quick and relevant information resources especially in non-print formats is a sine qua non to postgraduate training. Depending on the background and other social factors, majority of postgraduates in southwestern Nigeria are believed to have been introduced to the use of computers and related gadgets like mobile learning devices to perform different tasks, including surfing the internet. The study was carried out in private universities in southwestern Nigeria because the majority of private universities approved to run postgraduate studies as at 2016 are found in the southwest. Most of these universities are relatively young and apt to adopt new technological tools in information management. Besides, not many studies have been conducted on private universities in this regard. Most of these private universities have adopted electronic resources with the majority of student population who are 'digital native', young adult learners.

It is no longer news that Nigeria has one of the highest rate of internet usage. According to digitalfacts: Nigeria, West and Central Africa cited in Olaleye (2016) Nigeria has been ranked number one in Africa and eight in the world in terms of internet usage with about 63 million internet users in the country, as at 2016. It was also noted that most of the access to internet in the region is through mobile devices. There is no doubt that most of these internet users are students especially those in the university. Most electronic resources could be accessed through mobile devices which are generally available to the majority of mobile prone students in private universities in Nigeria. However, based on anecdotal facts these university electronic resources are still not easily accessible to postgraduates via mobile learning devices as much as would have been expected. This may be probably because many of these electronic resources are still not easily accessible through mobile supported media in many of the Nigerian private universities. The wide popularity of mobile learning devices,

however, certainly calls for new ways of managing and presenting information to postgraduates in Nigeria.

It is worthy to note however, that the possession of mobile learning devices by university postgraduates in Nigeria is commonplace. From all observable trends, almost all postgraduates of most Nigerian universities can afford these devices. However, how much Nigerian university postgraduates use these devices for academic or research purpose vis-à-vis use of the available library based electronic resources in the current Nigerian context is a major concern of this research.

A mobile learning device can be described as a handheld electronic device which is capable of storing and retrieving information generally needed by scholars. Mobile learning or M-learning refers to any sort of learning that happens when the learner is not at a fixed, predetermined location, or learning that happens when the learner takes advantage of the learning opportunities offered by mobile technologies (O'Malley, Vavoula, Glew, Taylor and Sharples, 2005). It would be difficult to discuss mobile learning devices without reference to the concept of mobile learning. In other words, a mobile learning device is basically any handheld computer device that isdeveloped to be very portable, often suitable to the palm of the hand or in the pocket, and could be used to facilitate mobile learning (Egunjobi, 2011).

The mobile learning devices which this study focused on can be categorised into (1) Cell phones (2) tablet computers, (3) phablet phones (4) e-readers, (5) smartphones, and (6) Personal Digital Assistants (PDAs) (Livingston, 2004). These appear to be the commonly used devices among students in southwestern Nigeria. They are all portable mobile devices which students can use to access information online. Livingston (2004) offered the following categorisation of mobile devices: 1) Mobile phones 2) Web-enabled phones 3) Extensible phones 4) Smartphones 5) PDAs or Personal Digital Assistants 6) Digital Audio Recorders and Players. Of all these categories, the mobile and smart phones are the most significant because they are many devices merged into one single device; that is a camera, MP3 player, Wi-Fi terminal, GPS device, and a PDA. Smartphones represent the most suitable gadget for educational purposes since they can, in a single appliance, provide many of the modern technology devices such as PDA, MP3, mobile phones, and GPS. Smartphones can also be used for a lot of other basic functions in information

communication such as SMS and email, and can be customised to support various computer applications purposely designed for their operating system, such as the mobile learning management systems otherwise known as (MLMS).

Mobile learning devices encourage users to attempt a variety of learning activities, including searching for knowledge, accessing library catalogues, completing assignments, participating in discussion groups and accessing informational contents online (Egunjobi, Adesanya, Akorede and Olori, 2007). In other words, the mobile phone is now an important part of everyday modern life. In reality, the mobile phone, to many, is more than a device for making just phone calls, but rather, a 'lifeline' to the social networking space and an instrument for smoothly operating and coordinating their everyday life (Halder, Halder, and Guha, 2015). Herrington, Herrington, Mantei, Olney, and Ferry, (2009) observed that modern mobile phones can be used to help students to access web -based contents, remix it, share it, collaborate with others and create media rich deliverable for the classroom teachers as well as global audience. This is probably part of the reasons for the popularity or wide acceptance of mobile learning devices among postgraduates in southwestern Nigeria.

To this end, acceptance of mobile learning devices is an important construct in this study. The Oxford Advanced Learner's Dictionary (2014) describes acceptance as the action of consenting to receive or undertake something offered or as the act of taking or receiving something offered with approbation, satisfaction, or acquiescence; especially, with favorable reception and approval. The popularity of mobile learning devices among postgraduates in southwestern Nigeria is an indication of their approval and acceptance of these devices. For instance, many Nigerian university postgraduates carry these devices and use them for different purposes including reading and sourcing information. In developed countries, many universities support the use of cell phones to stay connected and for security of life and property, for advertising events and happenings on the campus, and for promoting the university image among their students (Silk, 2010). In the same way, many Nigerian universities also accept the use of mobile learning devices, especially for information and academic purposes on campus.

According to Abu-Al-Aish and Love (2013), the fast spread of mobile devices and wireless networks within university campuses makes university education a convenient point for integrating student-centered mobile connection. They believed that mobile learning which utilises ubiquitous gadgets such as the mobile learning devices will be a great initiative now and, in the future, because those tools (PDA, tablet PC, smart phone) are mostly attractive to students in institutions of higher learning for many reasons. One of such reasons being the low cost of the mobile devices when compared with normal Personal Computers; in addition, they have social and economic values. Mobile learning devices are generally inexpensive, functional, and easy to use through upgrading and improved technology. According to them, these devices can extend the benefits of e-learning systems by offering university students opportunities to access course materials and online information, learn in a collaborative environment, and obtain formative evaluation and feedback from instructors. Perhaps, another major reason for the popularity of mobile learning devices among Nigerian postgraduates is mobility. Mobility in this context implies that every student has their own online encyclopedias, dictionaries, handbooks, e-textbooks and other learning materials in their pockets everywhere they go. Students may be apt to approve of these mobile learning devices because they provide them with mobile or parallel libraries.

Ownership or acceptance of mobile learning devices could facilitate accessing relevant information with ease (Egunjobi, 2011). The use of mobile devices for academic information now seems popular among Nigerian postgraduates and young adult learners, probably due to the affordability and availability of those devices. Common indicators of acceptance of mobile learning devices include: attractiveness (having the features that will arouse users' interests in using the device), mobility (the qualities that can make the device to be easily and freely moved about), likeability (the attributes that make the devices likable), availability (qualities that make the device able to be used or obtained), and portability (features that make the devices to be easily carried about) among others. Availability of these mobile devices and students' acceptance of them may influence postgraduates' decision to utilise library electronic resources through them. This phenomenon is becoming more and more noticeable among young adult learners and postgraduates in Southwestern Nigeria.

Globally, researches indicate wide acceptance of mobile learning devices among young adult scholars and it will be difficult to dispute similar observable facts of acceptance even in the Nigerian situation because similar trends are equally obtainable. A major basis for this study is to carry out an investigation in order to better understand the nature of the utilisation of academic electronic resources by postgraduate users of them in the Southwestern part of Nigeria and to determine whether there is a significant decline or demand for using the university electronic resources with the acceptance of these small screen mobile devices. It is expected that students who have widely accepted mobile learning devices, should be willing to adopt and use such devices, hence the need to study the adoption of mobile learning devices.

Another major construct that is germane to this research is the adoption of mobile learning devices. Acceptance does not automatically mean adoption. Adoption refers to the act of appropriating something as one's own, embracing ideas, habits, or the decision to choose or make use of something for one's advantage. By extension, in this study it may also mean accepting and using technology especially for academic purposes. Many information users tend to adopt new technologies which are capable of providing reference and other academic information, especially those that are economical and can give timely information. Management of learning becomes easy as students are able to access, store, create, and modify information increasingly better through the use and adoption of mobile learning devices. Students' inclination to adopt new technologies serves a major role in tablet and mobile phone ownership. The cellphone or smartphone is an ever-present device among university students and has had a great impact on students' lives, regardless of status, economic background, career focus or social interest (Egunjobi, 2011). Access to social networking websites, such as Facebook and Twitter, and related aspects, especially texting have grasped the attention of young students, and many students spend appreciable amount of time utilising these media features through mobile learning devices.

According to a survey conducted by Pearson Student Mobile Device Service (2014), College students have high interest in tablets for school work. Based on the report, a vast majority of college students agree that tablets will transform the way college students learn in the future and that they make learning more fun. When asked

whether tablets help students learn more efficiently (66%) agreed and whether tablets help students perform better in class (62%) agreed. Only one in five (17%) would like to use mobile devices less often than they do now. This prediction is becoming fulfilled because the number of smart phone users among students in higher institutions is increasing even in southwestern Nigeria. In a study on graduate students' utilisation of the available mobile devices for learning in selected universities in Nigeria conducted by Ogunlade, Ojoye and Ogunlade (2013), it was discovered that 68.46% of respondents had access to internet through cellular network on their mobile phones.

Apple (2011) also corroborated this: 63% of all students enrolled in colleges and universities owned smart phones. It also confirmed that positive use of mobile learning devices can facilitate learning across all contexts. Mobile learning devices support learning when the mobile learning device user is not at a specific, predetermined location. In other words, it affords students the opportunity to learn anywhere they go without the formalities of a school setting. These devices can equally ensure the provision of course content and assist in providing services to off-campus or distance learning students and provide links to the World Wide Web, library portals and other resources without physical presence in the university library. The growing adoption of these mobile phones among the Nigerian university students can potentially revolutionise the educational system. Necessities and expectations of the society are changing very rapidly and the quality of higher education training requires to be sustained at the expected level, where postgraduates can be motivated to access information and learn in their own convenient ways. This growing trend can greatly enhance flexibility (that is, properties contained in the devices which make for being easily modified) in learning.

Other indicators of adoption of mobile learning devices apart from flexibility include: compatibility (that is, the device is consistent with the majority of students' style of living), affordability (having affordable prices to students), sociability (the qualities of being friendly and inviting in relation to others in society) and triability (being able to subject the devices to test or examination) among others. It appears that many students perceive using mobile learning devices to interact socially or search for information as fun. Others consider them very easy to use and always use them for

collaborative work. Regardless of the fact that mobile learning devices are generally not considered as good word processors, students still seem to prefer using them for sourcing and managing academic and library related information. The mobile device platform appears to present an opportunity for postgraduates to gather timely information, process and analyse data, share such information and communicate same with relative ease.

It could be said that postgraduates do not only see mobile learning devices as an information tool but also consider them as having great potential for enriching their academic and social experience. The availability of 'just-in-time' and 'all-in-one' opportunities and the ability to demonstrate their digital literacy skills by way of the use of mobile devices may captivate postgraduates and invoke in them the belief that mobile devices could meet all information needs promptly and economically. Consequently, research students in private universities, which is the focus of this study, may assume that mobile learning devices are more useful or usable for sourcing information rather than the university library with more reliable information sources or ICT centres, hence the need to investigate usability.

Another important variable in this research work is usability of mobile learning devices, which refers to the usefulness or 'usableness' of mobile learning devices. Usability could be defined as the capability of a product to be understood, learned, operated and be attractive to users when used to achieve certain goals with effectiveness and efficiency in specific environments (Bevan, 1995; Hornbæk and Lai-Choong, 2007; International Organisation for Standardization, 2002). Usability of a product is generally revealed through its interfaces, as is commonly found in the case of mobile learning devices often employed by young adult learners in reading and learning.

Postgraduate users seem to prefer mobile learning devices that can perform such tasks as note taking, writing and texting messages and browsing the internet. Nielsen (1994) conceptualised usability as a good and usable user interface, which provides the basis for all possible usability testing. He provided several usability guidelines such as user friendliness, ease of navigation, learning ability, integration of functions, consistency and simplicity of design as guidance for designers. These features are what higher education students seem to expect in mobile learning devices regardless of the model.

This is probably because they find such mobile devices suitable for learning and sourcing information anytime, anywhere.

From engineering and designing perspectives, usability could be defined from two aspects which are hardware (physical) and software (system) (Han, Yun, Kwahk and Hong, 2001). The physical aspect refers to the physical characteristics of products such as screen display, button and indicator. In spite of the limitations of the size, mobile learning devices are still in high demand by Nigerian postgraduates. Usability can also refer to the goal achieved so as to fulfill user satisfaction.

Users generally seem to be interested in such usability dimensions of mobile learning devices as effectiveness, efficiency, satisfaction, usefulness, aesthetics, learnability, simplicity and ease of use. Heo, Dong-Han, Sanghyun, Chiwon and Wan (2009) in their research advanced a framework for usability evaluation involving eight requirements to provide the basis on which a multi-level hierarchical model can be placed. The study then established that fact-based modularisation, hierarchical optimisation, user-oriented, implementable, and context-based designs formed the prerequisites for a good evaluation framework. The usability evaluation discussed in the framework covers effectiveness, usefulness, efficiency, consistency, compatibility and understandability. Although most mobile learning devices were not developed with educational applications in mind, they have continued to enjoy relevance in academic environments. Use of smartphones, tablets, phablets, PDAs and other mobile learning devices by Nigerian postgraduates has become very noticeable in southwestern Nigeria as it is easy to find many students sourcing different kinds of information through these devices. Even with the provision and availability of electronic journals and sundry information resources in the academic library, universities still have to contend with inadequate ICT facilities, access time limit, poor internet facilities and restrictive library policies which could hinder maximum utilisation of electronic resources and make use of such resources difficult for postgraduates, hence the need for this research. This gap has equally been observed by Robson (2003) who pointed out that continual access to the Internet changes the way that people search, discover and retrieve information, if for no other reason than convenience. The fact is that, as Prensky (2001) noted, “Today’s students are no longer the people the educational system was designed to teach.” Access to

ubiquitously connected, portable and powerful handheld computers has the potential to close the gap between how teachers teach and how learners learn.

Thus, increased popularity, acceptance, adoption and usability of mobile learning devices in recent times has attracted research attention and has prompted this research. This study sought to investigate if postgraduates find the use of mobile learning devices more convenient for accessing some of the academic information resources and whether this has been responsible for the underutilisation of the conventional library- based electronic resources. By reason of their dynamic nature, young adults and postgraduate scholars may get curious and opt for more convenient sources of information out of many sources available. Or sometimes bypass electronic information seeking protocols to access information from alternative sources such as mobile learning devices for what they could normally access from the university controlled and more reliable databases.

Many studies (Abu-Al-Aish and Love, 2013; Chimah and Nwokocha, 2015; and Daramola, 2016) have been carried out to investigate utilisation of electronic information resources by students in higher education, acceptance or adoption of mobile learning devices by postgraduates among others. Among other things, they have identified factors responsible for their low utilisationsuch as difficulties in navigating through e-resources, maintenance cost, and acquisition cost, large mass of irrelevant information, download delay, failure to find information, lack of search skills, power outages, and unavailability of some websites. Other problems observed include inaccessibility of some websites, lack of awareness and inadequate information literacy skills. However, no attempt has been made to investigate acceptance, adoption and usability of mobile learning devices in relation to the utilisation of university- based or library-licensed electronic resources. This study therefore among other things, investigated this gap by looking at how postgraduates' acceptance, adoption and usability of mobile learning devices for accessing needed academic information has been affecting their utilisation of university and library-licensed electronic resources available and accessible in private universities in southwestern Nigeria.

1.2 Statement of the problem

The major concern with the utilisation of electronic resources in Nigerian universities has been underutilisation of the resources, even in private universities. Despite the availability of electronic resources, observable trends and studies show that the resources are underutilised by students. Available literature attested to this and affirmed that the low utilisation of library based electronic resources in Nigerian universities hampers the realisation of the goals of the university libraries. Some of those useful resources meant for students' personal and academic development simply lie fallow in the libraries. This may result in wastage or neglect of reliable university electronic. Wastage of these hard-earned resources must be avoided by all means.

Studies have shown that more and more postgraduates utilise mobile learning devices for academic purposes.Perhaps for convenience's sake students seem to stick to mobile learning devices for accessing information; but they could be missing out on the more reliable library-based electronic resources. This phenomenon may affect proper utilisation of electronic information resources, as well as postgraduates' output as researchers and could result in partial or total neglect or outright wastage of those hard-earned resources. It could also jeopardise the objectives of setting up the university libraries.

However, the extent to which use of these devices has affected the utilisationof thesereliable library electronic resources has not clearly been established. This may be responsible for the poor or low utilisation of university electronic resources. The trend could also be as a result of convenience, ease of use, mobility, portability or proximity of mobile learning devices as against the physically restricted electronic resources. This must be investigated. Postgraduates' access to reliable library-licensed electronic resources through mobile learning devices can leverage the available resources and increase utilisation. However, little or no attempt has been made to investigate use of mobile learning devices in relation to utilisation of electronic resources in the university which researchers have shown that are underutilised. This represents the gap which this study sought to fill.

Most research studies on postgraduates' use of electronic resources have been done in relation to availability, accessibility and attitude of the students, among others with little attention to whether or not students actually prefer searching the

electronicsources and catalogues of university information materials to finding information online through the use of mobile learning devices which may provide a parallelor an alternate library. This study therefore, investigated acceptance of mobile learning device, its adoption and usability as correlates of utilisation of library electronic resourcesamong postgraduates in private universities in Southwestern Nigeria.

1.3 Objectives of the study

The general objective of this study was to investigate the correlation between acceptance, adoption and usability of mobile learning devicesandthe utilisation of electronic resources among postgraduates in private universities in southwestern Nigeria.

The specific objectives of the study were to:

1. find out the level of acceptance of mobile learning devices among postgraduates in private universities in Southwestern Nigeria;
2. determine the level of adoption of mobile learning devices among postgraduates in private universities in Southwestern Nigeria;
3. find out the level of usability of mobile learning devices among postgraduates in private universities in Southwestern Nigeria;
4 investigate the purpose ofutilisation oflibrary-based electronic resource among postgraduates in private universities in Southwestern Nigeria;
5 ascertain the library-based electronic resources most frequentlyutilisedby postgraduates in private universities in Southwestern Nigeria;
6 identify the types of library -based electronic resources being utilised by postgraduates in private universities in Southwestern Nigeria;
7 find out the relationship between acceptance of mobile learning devices and utilisation of library based electronic resources among postgraduates in private universities in Southwestern Nigeria;
8 investigate the relationship between adoption of mobile learning devices and utilisation of library-based electronic resources among postgraduates in private universities in Southwestern Nigeria;

9 find out the relationship between usability of mobile learning devices and utilisation of library based electronic resources among postgraduates in private universities in Southwestern Nigeria;

10 establish the joint contribution of acceptance, adoption and usability of mobile learning devices to the utilisation of library -based electronic resources among postgraduates in private universities in Southwestern Nigeria; and

11. examine the relative contribution of acceptance, adoption, and usability of mobile learning devices to the utilisation of library-based electronic resources among postgraduates in private universities in Southwestern Nigeria.

1.4 Research questions

The following research questions were answered in this study:

1. What is the level of acceptance of mobile learning devices among postgraduates in private universities in Southwestern Nigeria?
2. What is the level of adoption of mobile learning devices among postgraduates in private universities in Southwestern Nigeria?
3. What is the level of usability of mobile learning devices among postgraduates in private universities in Southwestern Nigeria?
4. For what purpose do postgraduates in private universities in Southwestern Nigeriautilise library -based electronic resources?
5. Whichlibrary-based electronic resources are most frequently utilisedamong postgraduates in private universities in Southwestern Nigeria?

6 What types of library-based electronic resources are being used by postgraduates in private universities in Southwestern Nigeria?

7. What is thejoint contribution of acceptance, adoption and usability of mobile learning devices to utilisation of library-based electronic resources among postgraduates in Southwestern Nigeria?
8. What are the relative contributions of acceptance, adoption and usability of mobile learning devices to the utilisation of library based electronic resources among postgraduates in private universities in Southwestern Nigeria?

1.5 Hypotheses

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

H0 1: There is no significant relationship between acceptance of mobile learning devices and utilisation of electronic resources among postgraduates in private universities in Southwestern Nigeria.

H0 2: There is no significant relationship between adoption of mobile learning devices and utilisation of electronic resources among postgraduates in private universities in Southwestern Nigeria.

H0 3: There is no significant relationship between usability of mobile learning devices and utilisation of electronic resources by postgraduates in private universities in Southwestern Nigeria.

1.6 Scope of the study

This study investigated the acceptance, adoption and usability of mobile learning devices as correlates of postgraduates' utilisation of electronic resources in private universities in southwestern Nigeria. The study covered only universities accredited by the National Universities Commission (N.U.C.). There were 9 accredited private universities to run postgraduate programmes in Southwestern Nigeria as at 2016. The three independent variables are (acceptance of mobile learning devices, adoption of mobile learning devices and usability of mobile learning devices) while the dependent variable is (utilisation of library electronic resources). The study covered three indicators of utilisation namely: purpose of utilisation, frequency of utilisation and types of electronic resources. The study involved types of electronic resources such as E-journal, E-Books, Library Online Reference, Library OPAC, Sage Knowledge, Sage Journals, Electronic Databases like JSTOR, EBSCOHOST, HINARI and Science Direct among others by postgraduates in private universities in Southwestern Nigeria.

The aspects of acceptance the research focused on included attractiveness, portability and mobility among others while those of adoption include compatibility, sociability and triability among others. Aspects of usability of mobile learning devices which the study investigated included ease of use, perceived usefulness, and convenience among others. In this way the study considered the place and relevance of acceptance, adoption and usability of mobile learning devices in utilising library electronic

resources by private university postgraduates in southwestern Nigeria, particularly the use of mobile phones for academic information as it correlates with utilising library electronic resources.

The study covered all states in Southwestern Nigeria because the majority of universities approved to run postgraduate programmes as at 2016 were found in Southwest Nigeria. Furthermore, the study population consisted of Master and Ph.D. students of faculties of science, social science/management and arts/humanities in all selected private universities in Southwestern Nigeria because these constituted the core subject areas common to all the selected private universities.

1.7 Significance of the study

This study derived its relevance from the growing literature on acceptance of mobile learning devices, adoption of mobile learning devices and usability of mobile learning devices in relation to utilisation of library electronic resources in academic libraries in southwestern Nigeria. It is expected that the output of this research will benefit students, the university libraries, academic librarians, university administration, National Universities Commission and Federal Government of Nigeria by eliciting the basis for making recommendations that will improve information resource utilisation and services in private universities in Nigeria. The research will show the level of the students' use of the university library electronic resources and services vis-à-vis their use of mobile learning devices to source for relevant information. This could help the stakeholders to understand how best to sustain students' attention on maximum use of the university electronic resources as well as mobile learning devices for best results.

The research could be of great value to the field of Media Studies and Library and Information Sciences as it will add to the existing literature on use of mobile learning devices in relation to use of electronic resources and services. And it would also add to the available academic literature on acceptance, adoption and usability of mobile learning devices. Also, the findings could be used by library management and library committees to proffer professional solutions to the university authorities and the government on how to address issues affecting postgraduates' use of information resources and services.

Again, the findings of this study could provide facts that will enable the ministry of education and National Universities Commission to know what arises from students' use of university electronic resources or otherwise. The findings could increase knowledge and deepen understanding of students' use of mobile learning devices in sourcing for academic information. It could provide information that may help in designing intervention programmes necessary to stimulate use of mobile learning devices to facilitate easy access to library and ICT materials. Upon successful completion of this research, it would be very relevant to various groups of people and stakeholders in the Nigerian education sector. The study is therefore significant in that it will contribute to knowledge in the areas of information utilisation and use of mobile learning devices for accessing information by postgraduates in private universities in Southwestern Nigeria.

1.8 Operational definition of terms

Acceptance of mobile learning devices: In the context of this study, is how students in private universities in southwestern Nigeria generally receive or approve of the use of mobile learning devices and come to own them especially for their academic pursuits. The indices examined are attractiveness, mobility, likeability, availability, and portability. It was measured at two levels of high and low.

Adoption of mobile learning devices: As used in this study, it is how postgraduates in the private universities in southwestern Nigeria tend to possess and use mobile learning devices such as smart phones, e-book readers and PDAs for various purposes, especially for research purposes. This was measured based on compatibility, affordability, sociability and triability and dichotomised into high and low levels.

Library electronic resources: These are the library-licensed or library-based information materials in the selected private universities that contain formats supported by computer systems or related ICT devices including the services supporting use of such materials in possession of each of the universities in this study. These include e-books, e-journals, CD-ROM, DVD databases, e-databases, online services among others.

Mobile learning devices: These are portable electronic gadgets which postgraduates of private universities in Southwestern Nigeria can use for accessing and using data/information sources. They are: Personal Digital Assistance (PDAs), cell phones, smart phones, tablets, and phablets among others for research tasks.

Southwestern Nigeria: It is the geo-political zone in the southern part of Nigeria that comprises Ekiti, Lagos, Ogun, Ondo, Osun and Oyo States.

Utilisation of library electronic resources: As used in this study, it refers to the use of library-licensed or library-based electronic/digital resources such as e-books, e-journals, computers, e-databases, internal and external online services available to postgraduates in the selected private universities in southwestern Nigeria. This was measured based on the types of e-resources being used, frequency and purpose of utilisation of library- based electronic/digital resources.

Usability of mobile learning devices: This refers to the attributes which make mobile learning devices usable or useful in achieving the goals of using the devices. This was examined in terms of flexibility, usefulness, ease of use and portability. Usability was also investigated based on the dichotomy of high and low.

Postgraduates: As used in this study, they are the higher degree students in the private universities in southwestern Nigeria who are currently on the Master's degree and Doctoral programmes in the universities used for the study.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

This review covers copiously the relevant and current information on the following:

2.1 Utilisation of library electronic resources and services among postgraduates

Electronic/digital resources refer to those resources which complement or supplement the traditional print resources of a library. According to IFLA (International Federation of Library Associations and Institutions) (2012), library electronic resources can be described as those information materials which require access to a computer, regardless of whether through a PC, centralised server or handheld cell phones. They may either be logged into remotely by means of the web or locally. The absolute most normal sorts among them are e-diaries, digital books, full-content (accumulated) databases, ordering and abstracting databases, reference databases, for

example, life stories, word references, catalogues, reference books, numeric and factual databases, e-pictures. e-sound/visual resources et cetera (IFLA, 2012).

Yusuff (2011) included among the list of electronic/digital resources such gadgets as: utilitarian PCs, reprographic machines, CD-ROM, microforms, microform readers, fax machines, web, local area network, radio messages, phone, lighting and PC workstations for library clients. These must be examined on a regular basis by the university library to ensure that the resources and services are up to date and so as to ensure that the resources can meet the set objectives of the institutions. The increase in the amount of electronic/digital resources found in the university libraries has had a positively high sway in transit by which the scholarly institutions now use, store, and preserve information (Heterick, 2002). In today's Internet communities we have e-libraries and virtual libraries which give access to electronic books and diaries, online references, web-resources, web-lists and so forth. Aina (2004) submitted that online and digital information files are generally kept as floppy diskettes and went further to identify some additional electronic/digital resources' stockpiling configurations to incorporate CD-ROM plates just as web resources. He noted additionally that electronic/digital resources could incorporate the accompanying: online lists, electronic books and messages, electronic diaries, electronic indexes (library inventories), reference sources, factual sources, sound chronicles, picture databases (art, Maps, Medical among others).

According to Tsakonas and Paptheodorou (2008) library-based electronic/digital resources are information materials available in digital formats, which may also include computer – based electronic networks, Compact Disk Read- Only- Memory databases, databases online, electronic journals, and resources available from online or the Internet like electronic books among others. According to Idowu and Oduwole (2012), the traditional information-related functions performed by the library include, selective dissemination of information (SDI), current awareness services (CAS), reprographic services, reference services, readers' services, among others. However, the emergence of ICT has increased the range of these services and the mechanism for delivering associated services. Isiakpona, and Ifijeh (2012) believed that it is essential for libraries to obtain electronic resources in order for them to maintain patronage in this period of global connectivity in the area of electronic/digital resources where online databases, CD ROMs, and Internet have become the order of the day.

Acquiring large electronic collections can greatly be determined by the type of policy and clientele (students and faculty) proclivity in the scholarly atmosphere (Clarke, 2004).

Mwirigi (2012) submitted that in the recent years, owing to rise of automation, libraries now manage and accommodate something other than books. Technology has permeated every aspect of human life and the application of Information and Communication Technology has become predictable in the 21st century. Libraries use ICT for improved services and meeting various needs of users. Libraries have metamorphosed into digital and virtual environments where books, journals and magazines have changed into e-books, e-journals and e-zines. This has expanded the global transmission of information. Electronic/digital resources are easily accessible outside some of the university libraries. Electronic/digital resources clear up most of the capacity issues and control the surge of data in many university libraries. Print sources are being digitised. Electronic/digital resources available in Nigerian universities are diverse. According to Ibrahim (2014) Email Services, WWW Services, Databases Services and Printing Services were the electronic information services available in the 2 MTN libraries studied by the researcher while SABINET online reference database, EBSCOHOST, JSTOR, Nation Academic press database, Virtual Libraries Online, Free Library Online, Google Search Engine and E-newspapers were among the sorts of electronic resources accessible with the highest frequencies. He noted however that there was little or no difference between the ABU and UNIBEN MTN Universities connect libraries customers in the type of electronic/digital resources and services they preferred most.

Ibrahim (2014) reported that EBSCOHOST, CD ROMs, Academic Press database, Linguistic database, free library online, e-magazines, e-newspapers were underutilised by Nigerian university students. In a study of two Nigerian universities by Ibrahim (2014), the researcher came to the conclusion that electronic/digital resources are vital and that they provide a strong support for any collection that is dynamic. A large portion of the electronic resources found in libraries, for example, full content databases, electronic books and so on are not openly accessible for nothing out of pocket but rather they are costly, and they offer innovative conceivable outcomes for extending access just as changing learning conduct and scholarly research in Universities. In any case, as indicated by an investigation Edem and Egbe (2016) did

at the University of Calabar, Nigeria online databases were underutilised. The University Library had e-diaries, digital books and access to databases and Internet resources. They recognised the absence of PC capabilities, slow system, conflicting web availability, control blackout and unimportant electronic resources as serious issues postgraduates experienced while getting to and utilising electronic resources in Unical Library.

Ifijeh (2012) likewise noticed that library electronic resources are very costly to obtain particularly considering the thin spending assignments to universities. Isiakpona, and Ifijeh (2012) identified other encounters fronting the implementation of electronic/digital resources in libraries such as: electricity power outage, infrequent Internet access, large volumes of useless information retrieved, and absence of technical backing of staff of library, among others. This supported Okello-Obura, (2010) who reported that many of the issues recognised were: slow Internet availability, insufficiently arranged PCs, absence of access to easy printers in the library, utilising propelled search methodologies of most databases and absence of consciousness of the majority of the e-resources. In the same vein, Ibrahim (2014) itemised such hick ups as power outages, denial of access, network fluctuations and system breakdowns as hindrances to access and utilisation of electronic resources and services in the libraries. All this may account for why electronic/digital resources are not well utilised in universities in Southwestern Nigeria. However, availability of alternative and more convenient sources of information such as mobile access to information on handheld devices may be a major factor. This is the thrust of this study.

In spite of all this, online electronic/digital resources seem to enjoy higher frequency of utilisation than the library-based electronic/digital resources. For example, in a recent research by Ajegbomogun and Fagbola (2015), to determine the frequency of use of electronic/digital resources by postgraduate students of the Federal University of Agriculture, Abeokuta in which they reported that automated mailing was the source of electronic/digital resources that was most frequently used 91%, while the frequency of use of electronic databases and AGRICOLA were 41% and 33% respectively. They concluded that the postgraduates in the university use email mainly for the purposes of correspondence while other accessible electronic offices that could help their exploration works were not well enough utilised by them. These findings

show that university- based electronic/digital resources are not frequently utilised. It is believed that the use of technologies in libraries facilitate accessibility to and utilisation of available resources.

Ekenna and Mabawonku (2013) opined that developments in data correspondence advancements/ (ICT) and the idea of world globalization have made getting to, recovering and utilising of electronic resources moderately simple for learners. This is because of the way that a large portion of the records to be counselled for instructive results are accessible in electronic resources like the Internet, CD-ROM, OPACs, electronic diaries and electronic books. College learners could now recover tremendous measures of applicable data for their scholastic needs from library electronic resources. They pushed further that this conclusion is verified by Adeyemi (2002) who clarified that electronic literature is extremely valuable for research learners because of the immense measure of information it contains.

The gigantic measure of data available to them empowers learners to have a top to bottom perspective on the examination point. In their view, exploring and other scholastic exercises require innovation and this leads postgraduates to recover data for their work from remote PCs around the globe through the Internet. The Internet, which is a significant asset for learners, is respected by Ekenna and Mabawonku (2013) as the best wellspring of data recovery since it is the passage to the globe. It has permitted various gatherings of individuals, particularly analysts, to make channels of correspondence and self-articulation. It must be noted anyway that not all data accessible through the Internet is adequate or as dependable as the library-authorised sources.

As indicated by Thomas (2004), the Pew Research Center in 2001 announced that 94% of learners with access to Internet depend on online data for research assignments and 71% of them utilised the Internet as the significant hotspot for their latest school ventures. Fifty-eight per cent (58%) of the learners have utilised sites set up by the school or a class, 34% have downloaded an investigation control while 17% have made a page for a school venture. All in all, electronic resources are gainful for educating, learning and research. Notwithstanding, the absence of aptitudes or inaccessibility of important resources could hinder learners' recovery of data from electronic resources through accessibility of elective web consistent sources like cell

phones.

Dilek-Kayaoglu (2008) evaluated the utilisation of electronic resources by a scholarly network in Istanbul, Turkey, and discovered that the vast majority of the respondents were on the side of the change from print to electronic resources. Ayoo and Lubega (2014) focused on those electronic resources which comprise a considerable piece of a foundation's libraries and scholastic data resources which could incredibly help to pick up, instruct and examine exercises at schools and colleges. Since data has turned into an item that ought to be rapidly and effectively seen if specialists and researchers are as proficient and aggressive, assigning resources to the advancement of library data frameworks and online electronic administrations and resources is urgent in light of the fact that electronic access to scholarly data is unquestionably one of the key factors in expanding the number of logical distributions by scientists. It is relevant to take note of the fact that e-resources are in three major categories namely: Open Resources, Secured Resources and Repositories. The three categories can be found in many of the private universities in Nigeria. However, although most electronic/digital resources in private universities in Nigeria are in the form of databases with either secure or open access, the majority of useful electronic/digital resources are generally secured. And in such cases, according to Idowu, and Oduwole (2012) giving access to clients is hazardous in view of the various ways suppliers enable access to their online material.

Certain electronic asset suppliers control access through (1) ID login and secret words (2) IP confirmation (3) Licensing strategies which make information retrieval difficult for information users. All this may inhibit and hinder the utilisation of electronic/digital resources by postgraduates. Isiakpona, and Ifijeh (2012) admitted that electronic resources are normally made accessible in assorted structures however most usually as databases. Databases are just available to the clients using the basic infrastructure, for example, power, PC frameworks which incorporate equipment, programming and human product, and web offices. The data contained in these electronic resources must be accessed when these foundations are set up. Great utilisation of electronic data asset is reliant on adequate provision of the aforementioned infrastructure which makes access and retrieval restricted in quality and quantity as well as in time and space because it is often the case in many Nigerian universities that when subscription to an e-resource is due, it takes several months or

years to restore, if at all. There seems to be less of these restrictions with mobile learning devices which are readily and widely available to students. With the application of portable remote system or administration and versatile remote gadgets in study halls, learners can access and arrange data whenever, wherever (Hahn, 2008).

Daniel (2012) asserted that development, management and delivery of electronic library services is one of the major current challenges for universities and information services. He identified such challenges as bandwidth, electricity power outage, infrequent Internet access, large volumes of useless information retrieved, unfriendly software, and lack of technical support from library staff among other things. All this may constitute hindrance to the utilisation of electronic resources by postgraduates and could be frustrating access to electronic resources in numerous private colleges in Nigeria. Nweke, Yakub and Omale (2012), plot the significant focal points and elements of electronic data administrations which may likewise be helpful in the foundation and the board of electronic libraries in Nigeria. These include: arrangement of a beginning stage for all examination, giving sufficient and proper instructive open doors for all learners in higher foundations, giving superb chances to a wide scope of benefactors to discover suitable research materials across the board place, encouraging access to data paying little heed to the supporter's area, access to the system without each and every client having a specific kind of PC framework or even a PC contraption by any means.

They likewise recognised a few issues of the electronic library which include: the absence of web and epileptic power supply, an excessive number of resources to browse, trouble in cutting and, gluing of things to new clients because of PDF organization, and out-of-date quality of books.

Nweke, Yakub and Omale (2012) distinguished other cardinal elements of electronic library, for example, encouraging simple access to a wide scope of data in all controls and giving administrations appropriate to a library of the 21st century, including making data promptly accessible through the electronic library. Mechanising the library procedure makes access to magazine articles, books, papers, pictures, sound records and recordings conceivable on the web and empowers the clients to straightforwardly get to electronic information by means of broadcast communications systems. Opoku (2011) additionally conceded that the scholarly

library administration is a perplexing and dynamic joint effort between the library staff and the client. Numerous issues influence the manner in which administrations are given in the library on an ordinary premise. The expanding learners'enrolment into the college, combined with cutting edge Information and Communication Technology (ICT) advancement every day has made another sort of data clients requesting progressively productive library administrations.

In a technology driven space that we have now, whereby portable and smart phone culture brings a significant change in human experience about how, when, and where to get items of information, postgraduate users' needs must be taken seriously. The never-ending social media streams, intelligent news channels, and self-ruling exploration alternatives give various roads to data looking for clients. It should be noted that creating the awareness of students about the new library environment, especially in many Nigerian university libraries, is difficult, as a consequence of the gap in data transmission at the level of information users and information services providers, yet service providers need to go round the circumstance by calling the attention of users to the available resources by any possible means at all- pictures, posters, web pages, words, sentences, convenient reactions to messages, directing the conveyance procedure, and crisis conveyance (Norshinfard and Ziaei 2011).

Adegbore (2011) concurred that electronic resources speak to an undeniably significant segment of libraries and are becoming more and more important for the academic communities. Mwirigi (2012) admitted that a major advantage of soft and digital information copies is that cost of materials in delicate duplicate or computerised arrangement is a lot less expensive and conveyance is practically the moment after instalment, not at all like in the case of the print format when librarians had to wait for months for a selected printed book to be delivered. In a study to find out the major reasons users access the library website, Mwirigi (2012) reported that the main reason students of Kenya School of Law Library visit the library's website is to access the digitised lecture notes, cases and past question papers.

Owolabi, Ajiboye, Lawal and Okpeh (2012) identified the following as the purpose for accessing electronic/digital resources by users: research, current material, reliable access to information, preparation for lecture notes, and teaching. In a related study Ibrahim (2014) reported research, assignment, updating of knowledge, lecture and

recreation, searching for jobs, watching online games and videos, communication, preparation for examinations as major reasons why postgraduate students access electronic/digital resources. In the study, it was observed that over 70% of university students indicated that they used electronic/digital resources for such purposes as conducting research, completing assignments, updating knowledge and preparing for examinations in the MTN Universities Connect libraries in the Nigerian Universities studied. This finding agreed with that of Manda (2005), Renwick (2005) and Okiki and Asiru (2011). The researchers discovered most of the respondents were motivated to use electronic/digital resources and services for their research project, writing term paper and course assignment. These suggest that the main purposes of utilising university -based electronic/digital resources are for research, knowledge and scholarship.

Justifying the need for libraries to investigate the level of utilisation of their resources in the era of widely available sources of information, Von, Trump, and Dugan (2001) observed that in the wake of various roads to recover data that once must be recovered from a physical library structure, the need to report client inclinations of the recurrence of utilisation and fulfillment of resources as well as administrations can't be ignored. Hence, the need for this study to investigate some of the available data/information sources in private universities in southwestern Nigeria, the frequency and purpose of utilisation among postgraduates, among other things.

There is the need to report data use from the different clients' point of view factors which could assist in describing the most appropriate types of resources that can meet the needs of library clients other than information sources and services that can simply satisfy the internally accepted models of performance. Adeoye and Popoola (2011) featured the significance of viability, accessibility, availability and utilisation of library and data resources in their examination. They clarified that, for successful learning forms, students must approach vital data materials and resources. These resources may be in printed and electronic types. They noticed that the bookkeeper is in charge of giving the correct data to the opportune individual at the ideal time.

Igun (2003) reported that to an extent people appear to be aware of the resources which enhance the utilisation of Information Communication Technology gadgets in Nigerian university libraries, in spite of the major challenges libraries are facing such

as absence of satisfactory financing, absence of ability, electricity power interference, absence of upkeep and sustenance of ICT foundations, and so on. This observation is equally true of some private universities in Nigeria. However, there is the need to investigate the impact of multiple sources of information access on utilisation, hence this study. Sivathassan (2013) had reported that lecturers and students alike use electronic/digital resources available in libraries to find available information from across the globe for the motivations behind educating, learning and research.

Ani (2005) took this process of investigation a little farther than that by establishing a proposition between accessibility of electronic/digital resources and utilisation of same in terms of productivity of lecturers in overviewed colleges, and detailed a positive relationship, clarifying that expansion in access and utilisation of e-resources will prompt expanded profitability of scholastic staff. Strikingly however 81 .35% of the respondents in the investigation demonstrated inclination for the electronic resource/data instead of the primary college library in spite of the various difficulties influencing utilisation, the most critical ones being insufficient number of PCs, slow speed of web get to, poor power supply and absence of training on utilisation of resources. Until this point in time, these issues have militated against usage of e-resources and administrations in Nigerian universities, including private universities. Apart from these, this study investigated the impact of use of mobile learning devices for academic information on e-resource utilisation by postgraduates in private universities in Nigeria.

The study by Jagboro (2003) also affirmed that the frequency of utilisation of library electronic gadgets at Obafemi Awolowo University, Ile-Ife and University of Lagos, Nigeria significantly varied in the different institutions. Jaghoro's findings in particular revealed smaller percentages for different duration of usage, for example 8.9% for 4-5 hours as against 24.7% shown by previous studies. This is not without implications as students tend to spend less and less hours for using the library, even when the facilities are available due to various reasons. What could possibly be responsible for the unfortunate downward trend and dangerous challenges being experienced in university libraries with regards to the duration of usage may be affecting procurement and development of electronic/digital resources.

In a related study, Ani (2005) also reported the different kinds of efforts made by

service providers in the Nigerian academic institutions in order to integrate modern technologies with a view to improving information access, giving examples of various hindrances such as the problem of inconsistent Internet access, erratic power supply, poor infrastructure, insufficient human resources and unacceptable level of technological knowhow and literacy skills among others as major factors. By the same token, scholars are looking for how these various issues can be dealt with in such a way that the e-library initiatives can benefit the university libraries in Nigeria, most importantly in the area of resource sharing as a result of the multiplicity of electronic cum digital formats and platforms currently being proliferated, which unfortunately are still not interconnected. For Daniel (2014), attaining this will include issues of technical and content development in addition to employing the right calibers of information service provides and paraprofessionals with the right competence and qualifications along with proper working environments. Jacobs (2014) also added that there is need for university libraries in Nigeria to explore other methods of financing the library while they maintain adequate collaboration in order to discover further opportunities. They must equally ensure greater productivity so as to promote research and training to place their institutions on the path to socioeconomic development.

Talking about the benefits of electronic resource utilisation, Bassey and Simon (2015), like other previously cited studies, upheld that the benefits of e-resource utilisation are numerous including but not limited to academic and social networking promotion; and monitoring latest developments in any profession under consideration. Similarly, Kari (2004) stressed that more and more students now redeem large items of information for their research from electronic sources.

The additional preferred position of having speedier and different access to required data from an assortment of electronic/computerised groups - digital books. e-diaries, e-papers/magazines, just as accessible stages like web indexes, online databases, OPAC, and so on is additionally sufficiently shown through access to electronic resources. Bassey and Simon (2015) anyway cautioned that the inclination for utilisation of web indexes (24%) more than electronic databases (4%) which are explicitly bought in to by college organisations to help research and grant ought to be noted as having ramifications for the degree of data proficiency aptitudes of learner clients and preparing on access to and utilisation of online databases.

Jagboro (2003) attested that the significance of e-resources incorporate the capacity to give quicker and simpler access to up-to-date data by clients in different locations, for example, workplaces, homes and different working environments, inns and quarters; simple stockpiling and the probability of having a similar data resources among numerous clients consistently, sparing space with generally simple upkeep and simple linkage to ordering and abstracting databases. The web, for instance, gives the chance to get to a wide scope of points on various subjects. It additionally permits learners, staff and different scientists to recover data from assorted sources, for example, e-diaries, digital books, databases, papers and different sources utilising portable advances without much difficulties. Moreover, it offers the learners the chance to control their learning and causes them to have connections with data relating to their needs (Jones, Dumais, and Bruce, 2002). Following the colossal advantages credited to the utilisation of e-resources, they should be gathered, repackaged, put away, got to and dispersed utilising fitting methods and techniques. Kanyengo (2006) noticed that for compelling administration of advanced resources in Africa, endeavours ought to be around financing, making empowering strategy system and preparing of staff. Improvements in ICTs, as indicated by Jacobs (2013) are showing quick development in the accessibility of inter alia electronic/advanced data, subject safes and computerised substance.

With the advancing computerised library administrations, online access to data, robotisation of library activities, the foundation of library systems administration and asset sharing, the reception of ICTs and portable innovations could most certainly change the customary essence of scholastic libraries and add to the improvement in the arrangement of fast and quality administrations to students and researchers. Jackson, Sung, Grays, Thornton (2005) noted that the younger generations of library clients find electronic/digital resources' use very easy with the availability of electronic information gadgets. In fact, the use of such gadgets provides the most advantageous way of getting access to data/information sources. Quinn, (1997) appraised multi-level groups of users of information materials which included student-users, lecturers, and administrators of institutions. What make the challenges of provision of information services to the different groups of patrons complicated the more, according to Quinn (1997) is that the various components may vie for information services, and make contradictory demands on the resources.

Jackson, Sung, Grays, and Thornton, (2005) in their investigation on 'use and fulfilment of data resources and administrations' clients discovered that there was solid proof of an expanding propensity between college learners, graduate learners, and workforce/staff to remotely use data resources and administrations. They underlined further that the significance of data use and fulfilment studies is fundamental to main concern effect of library practicality. Consumer loyalty is significant as benefactors who once had constrained options in where to reclaim their client support vouchers, presently have various options - website visits, remote access, uber book shops, and plenty of online resources. The best way to satisfy student patrons' needs is to leverage on these innovations and create multiple access points using handheld gadgets which a greater part of Nigerian students are familiar with.

The customary job of structuring huge accumulations of data resources to satisfy supporters needs and orderly requirements of existence, low profitability and significant expense of staffing, resources and administrations among others, have noteworthy ramifications for the momentum period, epitomised by expanding significance and accessibility of data, with ICT as the main impetus and characterising parameter for data search, recovery and essential framework for research, educating and learning (Bassey and Odu 2015). In an examination by Oyewusi and Oyebade (2009) to decide the contrasts between the accessibility of data found through the Internet and the library for learners' scholastic work, (88.8%) of respondents showed that more data was accessible on the Internet while 44 (11.2%) oppose this idea. At the point when the respondents were approached to clarify further, a portion of the reactions of the respondents that concurred incorporated the accompanying: "Web gives more exceptional data than the library resources", "Data recovery is quicker on the Internet", "There are different sources to consult on the Internet", "I feel increasingly good and certain while consulting the Internet than when I am in the library on the grounds that different learners may have acquired what I went to the library to search for". A portion of the respondents that differ gave the accompanying reasons: "I don't need to line up in the digital bistro before doing my assignments", "The server might be down when you need the Internet most" among other submissions.

The new trend is obviously more evident as postgraduates and young adult learners now appreciate use of emergent information devices better than the time of accessing

and retrieving information through other means. Newer ICT tools in the form of mobile learning devices are now readily available to facilitate Internet information access. Sheng, Siau and Nah (2010) concluded that concerning versatile learning (i.e. mobile learning), instructive materials can be conveyed by means of SMS (Short Message Service) utilising cell phones; handheld gadgets can be associated through a remote system in the study hall to empower helpful learning. The conveyance of instructive materials through portable innovations can dispose of reality requirements in learning and give more opportunity to students. All this may account for the phenomenal increase in postgraduates' use mobile learning devices, hence the need to investigate how postgraduates' acceptance, adoption and usability of mobile learning devices contribute to sourcing information through them.

2.2 Acceptance of mobile learning devices among postgraduates

Clients' willingness is characterised by Dillon and Morris (1996) as the self-evident readiness inside a client wishing to utilisetechnology innovation for the assignments it is intended. This definition centres around arranged and expected employments of innovation which are probably going to be affected by the target attributes of innovation, just as communication with different clients (Davis, 1989; Venkatesh and Morris, 2000). Such willingness is generally expressed by many groups of students, including postgraduates in southwestern Nigeria for various reasons which often lead to ownership of mobile learning devices. For instance, Oyelere, Suhonen, Shonola, and Joy (2016) suggested that the reasonableness, ubiquity and handiness of cell phones could be a major factor responsible for increased ownership of such devices among Nigerian university students.

Related research findings also established that individuals are not constantly balanced in choosing and utilising technological advances, and their dispositions towards and utilisation of innovation are popularly affected by culture, standards, social settings, or striking others (Rice and Love 1987). In an investigation directed at the college of Nairobi, Kenya by Masika, Omondi, Natembeya, Mugane, Bosire, and Kibwage, (2015), involving 292 last year therapeutic learners, it was seen that learners who had a month-to-month salary above KES. 5000 (USD. 55) were bound to possess a keen gadget ($p = 0.047$). Learners who didn't claim a PC were more aversed to possess a smart technological gadget ($p < 0.001$). Reasons offered for not owning a smart

technological gadget were cost (65%), inclination (20%), misfortune or loss (15%). The most prevalent gadget makes possessed by learners were Samsung (46%), Tecno (12%) and Apple (10%). Different brands were Nokia (9%), Sony (8%), Huawei (7%), Alcatel (5%) and LG (5%). It was uncovered further that a large portion of the respondents possessed a smart technological gadget (88%). This was either a tablet or an advanced mobile phone (counting iPhones, and Blackberries). A comparative number of learners claimed workstations as well. Eighty percent (80%) of the respondents possessed both a PC and a brilliant gadget. In a similar study by Coutinho (2013) on how many of the students at Hunter College in New York own and can operate a mobile device which has Internet capability and how likely the students with mobile devices (smartphones) were to use the device for research and not just leisure it was discovered that the students of Hunter College are in fact using their mobile devices for educational purposes, and that more and more students have mobile devices.

In the same vein, there is a growing trend of ownership of mobile devices among higher education students especially postgraduates in southwestern Nigeria probably as a result of the new digital culture and 'digital native' crop of students in the universities. Oyelere, Suhonen, Shonola, and Joy (2016) affirmed that there has been a ceaseless flood in acknowledgement of m-learning among tertiary learners in Nigeria. In a review including 170 advanced education learners with recorded learners' versatile exercises and responsibility for gadgets, learners possessed: wireless 97.5%, iPod 60%, 52.5% Pen Drive, 31.8% MP3 Player, 24.1% Smart Phone – and noticed that 18.8% claimed a PDA.

Through versatile learning (i.e. mobile learning), individuals can download various dialects and other subjects' learning applications to their cell phones, and other cell phones by means of Apple App Store, Google Play, Windows Phone Store, and BlackBerry App World. As indicated by Said (2015) portable innovations are progressively grasped by a great many people by and large, and learners specifically obviously because of the accompanying five builds: their view of the simplicity of utilising cell phones (M=3.88) and in getting to data required (M=3.80); how they made adapting simple (M=3.70) and empowered the execution of various exercises in learning (M=3.24); and, at long last, their impression of the simplicity of helping out

different exercises in learning through cell phones (M=3.8).

Mobile learning devices can be regarded as those electronic appliances used for communication and educational purposes different from traditional teaching and learning tools such as PDA, tablets, iPads, palm tops, and mobile phones. Mobile learning devices are generally employed in mobile learning procedure, although mobile learning apparatuses include other non-mobile or handheld devices which this research was not interested in. Mobile learning or M-learning is defined as a form of electronic learning which precisely employs mobile learning devices to mesh with the all-pervasivecomputer-based technologies to provide learning materials and reinforcements (Muyinda, 2007).

Crompton (2013) explained that portable learning is considered as learning strategies held outside of the conventional study hall and through learning gadgets (PCs, tablets, iPods, palmtops, and cell phones) which make individuals proceed with their learning exercises. He noted in any case, that there is by and by no extreme meaning of versatile learning (i.e. mobile learning). Portable learning is the crossroads of versatile registering where individuals get data while remaining anyplace at whenever. This depicts what mobile learning implies in this specific situation. Portable learning advancements have solid pursuit abilities and rich communications which enable users to search for needed information all across the globe while remaining on the same spot. For successful studying, it produces very strong assistance. Versatile learning (i.e. mobile learning) is often connected to the usage of portable innovations especially the cell phone for educating and learning purposes (Cavus, Bicen and Akçil, 2008; Naismith, Lonsdale, Vavoula, and Sharples, 2004). In this study, it would be practically impossible to discuss mobile learning devices without reference to mobile learning.

Ownership of mobile learning devices is increasing worldwide. According to Deloitte Global Portable Consumer Survey 2013, Smartphones infiltration among the young people (matured 18-24) in the advanced nations was 72% (Deloitte, 2013) and rose up to 88.6% in 2015 (Marketing Charts, 2015). According to Lizzie (2015) insights from 2013 shows that, 51% of UK grown-ups now possess an advanced mobile phone and that responsibility for gadgets additionally expanded altogether in 2013; tablet possession dramatically increased in the previous year, and half of the owners state

that they presently couldn't live without their tablets. Colleges are developing to attempt to address the advancing innovative difficulties they face. He submitted therefore that, PDAs were possessed by 82 per cent of the learners examined, with females (84.7 per cent) bound to claim one than guys (77.7 per cent).

The upswing in possessing cellphones among the youthful ages of learners is the significant reason that has incited analysts to concoct the conceptualisation of how to utilise such gadgets for instructive creation (Igbal and Bhatti, 2015). As expressed by Gartner (2014), cell phone purchasing will hit 88% of global cell phone deals in 2018, contrasted with sixty-six per cent in 2014. As a result of these cell phones and their consolidation into the web, everybody especially the adolescent currently now has in their possession their very own reference books, vocabularies, most loved books and other instructive apparatuses, available right in their pockets, an idea which is regularly alluded to as portability. Numerous postgraduates in the Nigerian private universities are adolescents and youthful grown-up students who are keen on the acknowledgment of portable learning gadgets. For many postgraduates, the mobile learning device is a major information tool. Mobile learning devices facilitate quick access to educational contents such as definitions, illustrations and background information since they defy physical distances and thereby saving plenty of time. This may constitute a major factor in acceptance of mobile learning devices among postgraduates of private universities in southwestern Nigeria.

According to the International Telecommunication Union (ITU) (2016), more than 85 percent of Nigerians own mobile phones. Since education and social standing are strong determinants of mobile phone ownership, it can only be concluded that majority of higher education students in the country are likely to own mobile phones. It has also been established that ownership and acceptance of mobile learning devices among postgraduates and young adult learners have become very popular. In each field of our lives, correspondence advancements have turned out to be substantially more irreplaceable and humankind changes to keep pace with them (ITU, 2014). Numerous examinations (Attewell, 2005) have set up that portable advancements can possibly improve instructing and learning overall training divisions.

Quick headway of developing innovation has expanded the use of versatile specialized gadgets in the contemporary world. In the ongoing time, cell phones, for

example, advanced mobile phone, PDA and individual computerized collaborator (PDAs) are worked with capacities that permit different functionalities, which empower availability and some other web applications (Sek, Lau, Teoh, Law and Parumo, 2010). A portion of the elements of the wireless can be compared with that of PC (Cuing and Wang, 2008). Because of extra highlights of the cell phone and its capacity to do works simply like that of PC, the pace of its utilisation is developing quickly among all ages wherever on the planet. The predominance of cell phone possession and the popularity of its appropriation and use among the present age of learners have pulled in the consideration of teachers and scientists in data and correspondence innovation field. Most particularly, instructors everywhere throughout the world are misusing the gadget past simple using it for correspondence alone to its utilisation for educating and executing the educational program. This is on the grounds that it is seen as the most acceptable medium to show the present learners (Tai, 2012). However, since acceptance of mobile learning devices alone cannot determine use and application of such devices, it is necessary to investigate adoption of mobile learning devices among postgraduates in this study.

2.3 Adoption of mobile learning devices among postgraduates

After acceptance and ownership comes the adoption of mobile learning devices. Acceptance is certainly not synonymous with adoption of mobile learning devices because students may own mobile devices without using them for learning purposes, hence the need to investigate adoption in this study. According to Said (2015) notwithstanding high possession, longitudinal information demonstrates that utilisation of versatile innovation in learning isn't as far-reaching as the gadgets themselves. The ongoing study demonstrated that 50 per cent of learners revealed that they do homework every day from cell phones or tablets, which is a generally little rate contrasted with the 86 per cent proprietorship measurements. Additionally, learners are not as proficient at utilising portable innovation as the gadgets' fame recommends. To put it plainly, possession doesn't have an immediate relationship to capability. In any case, the reality remains that learners utilise portable learning gadgets for scholarly work and many of them own such devices.

At the adoption stage, mobile device users become fully aware of the technology and embrace it with the intension of utilising it forever and only in the application for

which it is particularly fit. Prashanth and Palani (2012) recognised the stages cell phone clients may go through before choosing to receive another item. They may move from various stages as no mindfulness organize, mindfulness arrange, intrigue organize, assessment organize, preliminary stage lastly selection organize. These stages are fundamentally the same as the purchasing choice procedures where purchasers practice their preferred privilege to pick results in the wake of being convinced. At the point when the item is an advancement, the reception procedure is really an extraordinary instance of purchasing basic leadership as purchasers set aside some effort to go through the various stages. Rogers and Shoemakers (1971) considered this the "development choice procedure." It ought to be seen that any advancement might be rejected at any phase of the appropriation procedure. This appropriation stage recommends that the new item advertiser should consider how to encourage purchaser progress through these stages to final adoption.

According to Said (2015) in recent times, mobile learning devices are progressively being used for training and instruction in most institutions of learning. As a matter of fact, mobile tech applications have been evolving very radically that experts have not had ample chance to keep up with how users understand mobile learning devices and telecommunication gadgets for managing their studies or how they feel such applications can best be used for the purposes of education. At higher educational institutions such as universities, these telecommunication gadgets are becoming everyday tools for teaching and related activities. This is why this study seeks to survey perceptions and prevalence of mobile learning devices in relation to information use by higher education students in private universities in southwestern Nigeria. As a result of the fact that students in most educational establishments are mostly likely to have mobile learning devices, they are reasonable enough to participate in the learning and learning activities going on without being supervised, it is important to investigate both acceptance and adoption of mobile learning devices as correlates of electronic/digital resources utilisation in the universities.

Said (2015) reported on the after effects of an overview of eighty-six (86) postgraduates at Faculty of Education of Universiti Putra Malaysia (UPM) about their usage of cell phones and advancements and their recognition on the utilisation of the innovations for learning. Results uncover that a large proportion of the respondents

utilise their cell phones, for example, PCs, cell phones and tablets were used for recording assignments, looking the web for study, getting to the college's LMS, understanding books and scholastic papers, and speaking with partners on informal organisations.

The outcomes further demonstrate a solid conviction among respondents on the job of versatile learning (i.e. mobile learning) advancements and gadgets to their scholastic execution and improvement in different manners. A similar view was also communicated by El Hariry (2015) who pronounced that most youths are energetic about having the latest cell phones just to gloat among their friends. They use them to make telephone calls, take photographs, tune in to melodies, watch recordings, or access the web for excitement. Based on this proof, there is extensive enthusiasm for using the accessibility of these advances to expand access to advanced education especially in Sub-Saharan Africa (Naismith, 2008).

This is on the grounds that portable discovering that uses cell phones is one of the methodologies that give extraordinary vows to expanded access to advanced education inside creative contrivances (Davison and Lazaros, 2015). Masika, Omondi, Natembeya, Mugane, Bosire, and Kibwage, (2015) announced that for all intents and purposes all respondents who claimed to have a brilliant gadget in the college of Nairobi utilise same for learning (n = 257/258). The major instructive highlights got to on shrewd gadgets were Internet browsers (87%), convenient reports (81%), versatile applications (72%), pictures (60%) and eBooks (59%). Less regularly got to materials were recordings (47%) and webcasts (17%). As contained in the investigation, brilliant gadget holders got to learning materials for a few purposes: customary examination (85%), reexamining for tests (74%), taking notes or pictures (62%) and getting to look into diaries (46%). Oyelere, Suhonen, Shonola, and Joy (2016) likewise presented that cell phones are prominently utilised among Nigerian college learners in view of reasonableness when contrasted with a cell phone, and furthermore in view of their handiness. The college learners utilise cell phones for instructive exercises, for example, SMS, playing instructive games, online networking, perusing digital books/pdf, finishing assignments and tests. About areas and spots where learners utilise their cell phones, they submitted further that the college grounds, home, and during travel, are particularly significant for learners for

getting to learning since learners spend considerable pieces of their everyday time in these spots. Anyway, a little level of learner respondents utilise the play area and workplace for learning. It should be noted that some of the postgraduates in the Nigerian private universities belong to the working class and may have little time for visiting the university libraries where electronic/digital resources are located.

Pažur(2014), in a study to get knowledge into clients' supposition on library resources/benefits on handheld cell phones, saw that the biggest number of respondents (58%) claim cell phone/tablet/phablet, and the most spoken to demonstrate is Samsung Galaxy. Considering the little screen cell phones highlights, top three day by day utilised capacities, notwithstanding other scholastic capacities, were: telephone calls (88%), messaging (72%) and checking of the email (63%). From the got outcomes, it very well may be inferred that little screen cell phones are, to a huge degree, utilised for various purposes including instructive, scholastic and enlightening purposes (perusing of digital books and e-diaries, training, information checking, looking through web and looking of convenient data), notwithstanding other non-scholarly purposes (messaging, perusing messages, telephone calls, taking pictures). Moreover, discoveries from studies directed by Kennedy et al. (2008) announced that cell phones enabled clients to lead 9 exercises in advanced education as the accompanying: a) to send pictures or motion pictures to partners, b) to utilise cell phone as MP3 player, c) to get to data or administrations on the web, d) to make video calls, e) to take computerized photographs or motion pictures, f) to send or get email, g) to utilise cell phone as an individual coordinator (for example journal, address book), h)to send or get SMS to partners, and I) to call the associates or others. M-learning gives a chance to the new age of individuals with better correspondence and exercises without considering the spot and time.

Katz, Hallam, Duvail, and Polsky (2017) certified that in general, most of the learners favouredutilising their own gadgets, consequently sparing a few minutes of class time in circulation and gathering of data. These reasons however are not enough justification for neglecting hard earned resources stocked in the library. Efforts should be intensified to ensure that most of the library resident electronic/digital resources are made accessible and maximally utilised through mobile learning resources and similar media for users' convenience. This is necessary because many students are

most likely to continue patronising mobile deliverable resources which they perceive as quick and easy. These perceived comparative advantages of mobile learning resources are considered useful to students. Kaliisa and Picard (2017) submitted that versatile learning (i.e. mobile learning) makes adapting increasingly pleasant, adaptable and intelligent since students are not rendered fixed by the confinements of PC innovation or the conventional study hall settings. Arguably one can conclude that student users of mobile learning devices see the technologies as usable for different purposes. This explains why this study will be investigating usability of mobile learning devices.

2.4 Usability of mobile learning device among postgraduates

Ease of use of portable learning gadgets in this examination alludes of the 'usableness' of the innovations in connection to learners' utilisation of them for scholastic purposes. Convenience, going by the International Standards Organization (ISO) definition received by the National Institute of Standards and Technology (NIST), (2004) it is "the degree to which an item can be utilised by indicated clients to accomplish determined objectives with adequacy, productivity and fulfilment in a predetermined set of utilisation. In any case, ISO (2001) kept up that ease of use is "the capacity of the product item to be comprehended, scholarly, utilised and appealing to the client, when utilised under determined conditions." Healthcare Information and Management System Society (HIMSS) (2015) characterizes ease of use as having nine properties: effortlessness, instinctive nature, consistency, absolution and criticism, powerful utilisation of language, proficient communications, viable data introduction, safeguarding of setting, and minimisation of psychological burden." Usability is a key zone of research in m-learning because of its significant impact on its prosperity (Chang, Lee, and Kim 2006).

It can impact a client's view of the whole learning background. Ease of use is a piece of a bigger control of the client-focused plan, which is the establishment of the general idea of client experience. A site or any item or administration can be characterized as genuinely usable 'when a client can do what the person needs to do the manner in which the person in question hopes to have the option to do it without block, delay or questions (Rubin, 2002). Chisnell, Davies and Summers (2013) reiterated that each time an individual has an incredible involvement with a site, a

web application, a device, or an assistance, this is on the grounds that a planning group settled on astounding choices about both structure and usage choices dependent on information about how individuals use plans. He contended further that ease-of-use testing can uncover convenience issues relating to the legitimate designing, show and working on a wide assortment of cell phones.

As indicated by Economides and Nikolaou (2008) ease of use criteria include: UI, introduction and media, route and physical dimension. According to them, user interface involves appropriate and effective layout, simple and easy to use menus, multiple languages, personalisation and special needs persons' consideration, among others. Presentation and media entail easy to read, write, draw, record, play, print etc. features and quality and fidelity of multimedia. Similarly, navigation refers to simple and easy structure/organisation, effective and easy organisation of files, tools and functions, return to home from everywhere, simple and consistent orientation everywhere, among others. They explained further that physical dimensions encompass the size, design, weight and aesthetics of the mobile device. Most of the literature on usability of mobile learning devices agrees on appropriate user interface design in relation to client innovative capacity, aptitudes and language capability. All these will amplify the degree of ease of use concerning versatile learning (i.e. mobile learning) gadgets.

The selection of cell phone as another learning device is developing exponentially all over the world. Its utilisation for versatile learning (i.e. mobile learning) is turning into another advancement in e-learning and separation training. As explained bySife, Lwoga and Sanga (2007), versatile learning (i.e. mobile learning) is a creative method for using handheld PC, Internet enabled cell phones for the conveyance of guidance and learning substance to learners. Keegan (2003) presented that there is an increment in the utilisation of remote advancements in instruction and that remote advances, for example, PDAs are changing and changing educational scene to such an extent that educating and learning can take place anyplace, all over and whenever accordingly making another development in the learning procedure known as versatile learning (i.e. mobile learning). Barker, Krull and Mallinson (2010) additionally brought up the worldview change in educating and learning the process with the utilisation of cell phones. In the words ofMotiwalla (2007), utilisation of cell phones for learning can't

be thought little of on the grounds that reviews on its utilisation uncover that learners see it as an integral instrument in learning. He argued further that use of mobile learning devices constantly enables continuous learning outside the four walls of the classroom. Al-Fahad (2009) pointed out that mobile learning devices enhance students' communication and enrich leaning experience as a result of the increasing capability of handheld mobile devices which enables miniaturisation.

The study enumerated the following advantages of mobile learning devices: augment physical space, leverage topological space, enable personalised or individualised connectivity and enable students to control or filter information flow, among others. The above-mentioned advantages and other perceived benefits of mobile learning devices may explain why many students perceive mobile devices as useful. In a study conducted in Malaysia, by Thurairaj, Hoon, Roy and Fong (2015), it was observed that students seen utilising cell phones as valuable for learning English, especially as far as getting to the data they need in English, speaking with companions and instructors in English, and utilising it whenever and anyplace they needed. The study conducted by Mamudu and Oyewo (2015) on use of mobile phones for academic purposes at Igbinedion University, Okada Nigeria revealed that students reported easy access to information materials as the greatest benefit of using mobile learning devices for academic purposes. Other benefits recorded include: accessibility everywhere, access to online information outside the class, quick search for academic information, among others.

Quality Improvement Agency (2008) kept up that most cell phones are helpful in the field of training. Here is a portion of the principle favourable circumstances recorded by them: students can cooperate with one another and with the specialist as opposed to holing up behind enormous screens; it is a lot simpler to oblige a few cell phones in a study hall than a few work stations. PDAs or tablets holding notes and digital books are lighter and less massive than packs brimming with documents, papers and course readings, or even PCs. Penmanship with the stylus pen is more natural than utilising console and mouse; it is conceivable to share assignments and work cooperatively; students and experts can email, cut, reorder content, pass the gadget around a gathering, or shaft the work to one another utilising the infrared capacity of a PDA or a remote system, for example, Bluetooth. Other outstanding preferences given

propose that cell phones can be utilised anyplace, whenever, including at home, on the train, in lodgings - this is important for work-based preparing. Moreover, versatile learning (i.e. mobile learning) gadgets draw in students - youngsters who may have lost enthusiasm for training - like cell phones, devices and games gadgets, for example, Nintendo DS or Playstation.

These benefits no doubt connote the usefulness of mobile learning devices to postgraduates. These actual benefits and other perceived usefulness derivable from use of mobile learning devices culminate in mobile device usability in the context of this study. However, a number of inhibiting factors which have also been reported in the literature include: small screen for text, limited area of coverage, frequent network problems, and high cost of Internet data bundles. Nevertheless, advancement and current innovations in technology have taken care of many of these factors. Even where these problems are still evident, postgraduates in southwestern Nigeria have always managed the situation by switching networks. Valk, Rashid, and Elder (2010) showed how cell phone-encouraged learning can give learners in creating nations expanded access to instructive materials and administrations, especially in provincial and remote locales. Advances in mobile technologies have empowered teachers to send instructional messages in adaptable manners. With new advancements including portable PCs, Pocket PCs, Apple iPhones, Android telephones, and tablets, educators and learners can discuss through voice and picture just as content. Utilising cell phones for instructive reasons for existing is turning into a typical desire for students (Lan and Huang, 2012).

According to Churchill and Hedberg (2008), handheld gadgets have the accompanying value in training: convenience which enables users to take them anywhere, everywhere; connectivity which allows for association with information gathering gadgets and system gadgets; social interactivity which supports collaboration among learners; and individuality which provides clues for learners to investigate issues and assist them to construct knowledge on their own. For mobile devices to be useful to postgraduates, it must have the capacity to meet students' different needs, interests, desires, learning styles and abilities at any given time or situation. There appears to be little empirical knowledge as to how Nigerian private university postgraduates' acceptance, adoption and usability of mobile learning

devices correlates with their utilisation of electronic/digital resources, hence the need for this study.

2.5 Acceptance of mobile learning devices and postgraduates' utilisation of electronic/digital resources

It is common to find mobile learning devices with students, especially among postgraduate majority of people who constitute the main population of the Nigerian young researchers. With the development of present-day innovation, the general public has been changed to 'versatile networks'. Portable learning advances have affected numerous parts of training and gave new techniques to educators to convey information and rouse learners to participate in different learning exercises (Siozos, Palaigeorgiou, Triantafyllakos and Despotakis, 2009).

Not just that, Donaldson-Matasci, Bergstrom, and Lachmann (2010) noted likewise that on account of the fast advancement of versatile innovation in advanced education, learners utilising cell phones with Internet gets to have extended specialized techniques, open doors for joint effort, access to customary learning and data resources. Beutner and Pechuel (2010) in their investigation were of the supposition that acknowledgement of m-learning as a future method for further teaching the workforce is shockingly high.

Attewell (2005), in talking about key discoveries of the m-learning venture directed in taking an interest European nations, expressed that versatile learning (i.e. mobile learning) bolsters both autonomous and community learning and improves: education and numeric aptitudes, connect with hesitant students by expanding casualness, connect the computerized gap by diminishing the hole between ICT proficiency and, cell phone education, remain centred for longer periods, distinguish regions in which students need help and backing, and raise self-assurance by raising confidence. The University of Tennessee Wireless Instructional Initiative (WII) has shown an expansion in learning proficiency by giving access to resources regardless of region and by advancing without a moment to spare learning and genuine pertinence obviously content (Little, 2006). Numerous private colleges in Southwestern Nigeria have grasped comparable advances in constrained variants.

Aqib and Asim (2012) detailed that the utilisation of portable learning gadgets is famous among new ages of students. That in their primer research they discovered

that learners were all the more ready to come to class, accomplished more schoolwork and utilise their iPod's more than PCs or personal computers. Additionally, learners expect a learning domain that obliges a portable way of life, coordinates the present computerized devices, adjusts to the individual learning style and energizes joint effort and collaboration. Each learner is progressively agreeable to learn addresses at home or working environment through I-unit cell phones like Samsung cosmic system, PDA's and some more. These gadgets give activated condition and have prompted the advancement of another field of research which is known as m-learning. They additionally asserted that the greater part of the learners in the college of Hail, Saudi Arabia are subject to cell phones and I-cases

In spite of the fact that ease of use isn't proportional to the idea of acknowledgement, most specialists expect that the more usable an innovation is, the more noteworthy the odds of its being acknowledged by clients (Dillon and Morris, 1996). Shackel (1991) and Nielsen (1993) fought that acknowledgement is the most elevated level idea and is a component of seen utility, ease of use, amiability, and expenses. Utility alludes to the match between client needs and item usefulness. Ease of use alludes to clients' inclination of the item usefulness by and by. Affability alludes to full of feeling decisions and expenses. Ease of use measurements includes adequacy, which is the aftereffect of association inside a specific speed and exactness or mistake, learnability which infers the relationship of preparing and recurrence of utilisation and execution.

The third measurement includes adaptability, alluding to the level of adjustment to some predetermined assignments and additional situations past things previously determined and frame of mind which demonstrates the clients’ worthy degree of human expense as far as tiredness, distress, disappointment, and individual exertion is concerned. This element of ease of use is expressly subject to client assessments. The frames of mind are commonly estimated in meetings or studies. Disposition measurement ought to be caught with the end goal that it very well may be promptly converted into significant quantitative explanations of the expenses referenced. An item acknowledgement model proposed by Shackel (1991) is contained in the chart underneath:

Figure 2.1: Product acceptance model dimensions and usability

Source: Shackel, (1991); Nielsen, (1993).

Framework agreeableness is isolated into social and commonsense measurements. Down to earth worthiness is affected by handiness, costs, similarity and dependability. Helpfulness is separated to utility and ease of use, where utility is whether the usefulness of the framework on a fundamental level can do what is required, and ease of use is the way well clients can utilise the usefulness.

Figure 2.2: Product acceptability dimensions and usability

Source: Nielsen, (1993).

This exposition clearly suggests that acceptance; adoption and usability of technology are not only interwoven but could also be treated as one. This and many other previous studies have treated the three variables as inseparable. This research derives its uniqueness in the fact that it considered the different constructs as separate entities because none of the three constructs can take the place of the other. This study has been able to establish that the concept of acceptance is different from that of adoption, and that adoption and usability are two separate constructs, even though a discussion of one naturally flows into the other. The issues are clearly interrelated but that interrelatedness does not give a license for lumping them together. It is normal that after acceptance of mobile learning devices postgraduates should show readiness for adoption of such devices which may influence their utilisation of available electronic/digital resources in the university.

2.6 Adoption of mobile learning devices and postgraduates' utilisation of electronic/digital resources

By common observation, the tendency to adopt and use mobile learning devices is rife among postgraduates and young adult learners globally. Madden, Lenhart, Duggan, Cortesi, and Gasser (2013) discovered that cell phone appropriation among American teenagers has expanded significantly and versatile access to the web is unavoidable. One out of four adolescents is "cell-generally" web clients, who state they, for the most part, go web based utilising their telephone. From recognisable patterns, the circumstance isn't diverse in Nigeria. An examination directed in Nigeria by (Utulu, 2012) uncovered that cell phones were utilised by learners for speaking with instructors responsible for the course to gather information (accounts), for sending messages to teachers, get to Online Public Access Catalog and offer to learn. For sure, a few investigations propose that versatile learning (i.e. mobile learning) applications can encourage learners' learning in different manners: by learning substance effectively as well as by interfacing with others whenever and anyplace, whenever it might suit them. Consequently, the improvement of m-learning as another technique for instruction has suggestions for the manner in which learners and guides in instructive organizations communicate (Huang, Lin, and Chuang 2007).

Discoveries of an ongoing report by Halder, Halder and Guha (2015) demonstrated that cell phones are useful for the learners for study purposes. Learners can utilise

them for trading helpful data with their cohorts about their examinations. Aftereffects of another examination Ferry, (2009) demonstrated that cutting edge cell phones can be utilised to enable learners to access electronic substance, remix it, share it, team up with others and make media-rich deliverable for the study hall educators just as a worldwide group of spectators. Results uncovered in an examination by Mtega, Bernard, Msungu, and Sanare (2012) referred to in Halder, Halder and Guha (2015) that cell phones have a capability of improving the educating and learning forms as the devices are modest contrasted with different ICTs which can be utilised for instructing and learning.

As indicated by the examination, positive reactions from reviews recommend that there is enthusiasm for and potential for instructive usage and utilisation of cell phones as learning devices in schools. The instructive preferences of utilising handheld gadgets over full-size PCs are alluring. A wide scope of gadgets, for example, PDAs, PDAs, PCs, yet in addition gadgets like pen-scanners are utilised for portable learning (Trifonova and Ronchetti, 2004). In a related report, it was seen that cell phone utilisation in the U.S. has detonated, hopping from only 18% in the second from last quarter of 2009 to 44% during the second from last quarter finishing off with October 2011 (Nielsen Mobile Media Report 2011). It noted further that use is overall age reaches, and youthful grown-ups remain well on the way to claim a cell phone: 53% of U.S. wireless clients are matured 18 to 24. As indicated by the investigation, a February 2012 study of learners at Ball State University in Indiana noticed a noteworthy development, with cell phone possession on their grounds dramatically increasing in three years - from 27% in 2009 to 69% in 2012.

Another novel examination by Bhandari, Neben, Chua, and Chang (2013) found that social measurements, for example, manliness versus feminist, nonappearance of individualistic point of view and financial reliance additionally have an impact in making obstructions that avert simple adjustment of cell phones especially in the underdeveloped nations like India or even Nigeria. Another investigation proposed that social contrasts in correspondence style and inclinations affected the appropriation paces of remote advances (Castells 2004). In the course of the most recent decade, the cell phone has infiltrated each part of our general public, introducing numerous changes to numerous regions, including advanced education

(Campbell and Russo, 2003). Versatile correspondence offers a ton of points of interest yet it likewise has negative angles and a few examinations have attempted to discover the negative effects of cell phones on the learners. In light of an inquiry regarding cell phone dependence, one out of three learners said that they felt dependent on their telephones. This feeling of compulsion might be identified with reliance and overwhelming use (Katz and Sugiyama, 2005). There is a shortage of information in this regard, in particular this kind of study in Nigeria. Hence, it is pertinent to undertake a study of this kind to better understand the preference of Nigerian postgraduates with respect to accessing library resources and other information materials for educational purposes.

In a study by Daejoong, Heasun, and Hyunjoo (2014), to decide the components that impact undergrads' selection of cell phones, results demonstrated that apparent fame, saw cost and ethnicity assumed a significant job as particular determinants between current adopters of cell phones and non-adopters. That is, adopters see cell phones as not just an advantageous gadget wherein to contribute cash yet additionally a representative gadget to flag their association and auspicious innovation appropriation. The investigation additionally uncovered that social communications by means of person-to-person communication administrations, procurement for way of life, data chasing and amusement by means of gaming were likewise purposes behind current appropriation of portable learning gadgets. Kocour (2014) announced that social impact, saw usability, saw helpfulness, work significance and innovation were the key elements influencing the reception of cell phones in worldwide midmarket expert assistance firms.

Dugas (2005) distinguished the distinctive Technology Adopter Category Index (TACI), which depicts various manners by which members can receive new innovation including cell phones as pursues: Index Adopter Category Description 1-I will in general hook onto new innovation when it is accessible to me. Record Adopter Category Description 2-My advantage lies more with the innovation itself than with its application to explicit issues; Index Adopter Category Description 3-I investigate new advancements for their capability to realize enhancements. Record Adopter Category Description 4-I will attempt new things, and am not opposed to infrequent disappointment. File Adopter Category Description 5-I receive a "sit back and watch"

frame of mind toward new innovation and need instances of near and dear victories before embracing. List Adopter Category Description 6-I need to see an incentive in an advancement before embracing it. File Adopter Category Description 7-I acknowledge new innovation later in the game, when the innovation has turned out to be built up among the greater part. Record Adopter Category Description 8-I am generally not keen on embracing new innovation. Except for the classification eight all the above depictions could prompt postgraduates' acknowledgment and appropriation of versatile learning (i.e. mobile learning) gadgets for various purposes.

Similarity is identified with the reasons why a few people embrace new developments. One of the most well-known models in reception of innovation is Rogers' Diffusion of Innovations (Sherry and Gibson, 2002). Rogers (2003) recognised five develops in his Diffusion of Innovations model, which formed the rate and probability of reception of cell phones. This model incorporated the develops of relative favorable position, similarity, intricacy, trialability and discernibleness. In a cross-outskirt investigation of learners from Nigeria and Republic of Benin, guided by Rogers' dispersion hypothesis of advancements, Tunmibi, Aregbesola and Asani (2015) detailed that the conditions which impact the college learners to embrace PDAs include: relative preferred position of PDAs, complexities of the telephone, testing before purchasing the telephone, recognition before purchasing the telephone, and similarity of PDA with their lifestyles control their selection of PDAs. The investigation additionally demonstrated that web perusing affects the appropriation of advanced cells. Thus likewise the statistic attributes, for example, age, sexual orientation, sex, study level, religion, ethnic gathering, and so on of the cell phone client. Numerous investigations have demonstrated that sex assumes a significant job in innovation selection (Morris and Venkatesh, 2000).

At the point when men choose to utilise an innovation, their choice is frequently emphatically impacted by the apparent handiness of the innovation in correlation with others, just as convenience. Wei and Zhang (2008) simply like Nwagwu and Odetumibi (2011) additionally found that age, sex, level of study impact innovation appropriation. Pew Internet (2014), revealed that cell phone selection varied extraordinarily crosswise over sex and age gatherings, and shockingly, with high dissemination among more established age gatherings. Dwindles (2007) demonstrated

that mental point of view in versatile correspondence innovation is commonly worried about individuals' observations, desires and frames of mind. Wei and Zhang (2008) ordered mental elements influencing the utilisation of cell phones into apparent qualities, saw ubiquity and saw need.

Elogie, Ikenwe, and Idubor, (2015) noticed that Smartphones have the capacity of giving moment data access to learners since they consolidate and coordinate various and differed mechanical capacities into a solitary gadget that is both adaptable and versatile. Utilising Rogers' advancement selection hypothesis to clarify the elements that impact the appropriation of cell phones among college learners in Nigeria's first state-claimed college, Ambrose Alli University Ekpoma, Elogie, Ikenwe, and Idubor, (2015) discovered that, relative favorable position and intricacy were the main mechanical qualities that clarified reception. In opposition to Rogers' hypothesis, they saw that trialability, discernibleness and similarity with way of life couldn't sufficiently foresee appropriation & socio-statistic qualities couldn't adequately anticipate learners' cell phones selection. Hence, a study of this nature is necessary in this context to determine what influences students' adoption of mobile learning devices and how much students use their handheld devices to source for information traditionally sourced from library sites and databases.

From the foregoing, it is clear that current researchers have investigated the way students have embraced handheld devices for sourcing information and how libraries have embraced mobile technology in library and information retrieval but little has been done about the utilisation of versatile learning (i.e. mobile learning) gadgets as relates to learners' utilisation of library resources and administrations in general. Mobile learning devices seem to be recognised as learning and information tools by majority of learners. According to Grey (2015) an expanding number of clients are connecting with their scholastic library from their cell phones to scan for insightful substance. Subsequently, the resources offered through the library site ought to be similarly open on all gadgets.

Database substance is a basic library asset, and seller items must develop to work adequately on a wide range of gadgets. The 2009 "Skyline Report" referred to in Kosturski and Skornia (2010) called versatile innovations "an open door for advanced education to arrive at its constituents in new and convincing manners." According to

them, the report suggested that scholarly libraries would see them as the perfect instruments for carrying hesitant specialists to the library, mostly for their benefit. Once postgraduates' information needs are met through these media then they perceive the devices as usable, which is why usability of mobile learning devices should be investigated in relation to utilisation of electronic/digital resources in this context.

2.7 Usability of mobile learning devices and postgraduates' utilisation of electronic/digital resources

Usability is characterized as the degree to which an item can be utilised by determined clients to accomplish indicated objectives with viability, effectiveness, and fulfilment in a predetermined setting of utilisationKoole (2009) opined that ease of use is identified with the straightforwardness of utilising versatile learning (i.e. mobile learning) gadgets for scholarly and information plans as for screen size, battery life, physical size, weight, memory, handling power, perfect applications and UI. Koole (2009) incorporated various different factors, for example, the stylish intrigue of the gadget, improved presentation, fewer advances required to play out an assignment, simplicity of route, customization alternatives and condition or atmosphere of where the student is found. Other than the convenience highlights of cell phones, Kuen (2006) gave an ease-of-use rules system to planning versatile learning (i.e. mobile learning) entrances, which concentrated on dissecting the student's utilisation abilities, human-portable cooperation and interface structure as fundamental classifications to create ease of use rules for structuring portable learning gateways containing portable learning substance and applications. Kuen (2006) suggested a lot of rules for the fashioners of versatile learning (i.e. mobile learning) entrances.

In any case, as the versatile learning (i.e. mobile learning) gadgets are turning multi-practical and more media-keen in plan and usefulness, the fundamental ease of use issues, for example, battery life, memory limit and screen size impediments, will lessen (Wu, Jim, Wu, Chen, Kao, Lin, and Huang, 2012). In Queensberry (2001), ease of use and client-focused plan are iterative. He contended that "ease of use" has turned into a catchphrase for items that work better for their clients, however, it is hard to bind exactly what individuals mean by it. He questioned: is 'ease of use' an outcome, programming that is usable; a procedure, likewise called client-focused plan, for

making usable programming; a lot of strategies, for example, logical perception and ease of use testing, used to accomplish that outcome; or a way of thinking, of planning to address client issues? As he would see it, these various implications can be portrayed in four key prerequisites, on which he based his accommodation:

Ease of use means considering how and why individuals utilise an item: Good specialized composition, similar to great collaboration configuration, concentrated on the client's objectives. The initial phase in making a usable item is understanding those objectives with regards to the client's condition, assignment or work process, and giving these requirements a chance to advise the plan.

Ease of use implies assessment: Usability depends on client criticism through assessment as opposed to just confiding in the experience and ability of the architect. Not at all like traditional programming acknowledgement testing, ease of use assessment includes observing genuine individuals utilise an item (or model), and utilising what is found out to improve the item.

Ease of use implies more than simply "convenience": The 5 Es – proficient, compelling, drawing in, mistake tolerant and simple to learn – portray the multi-faceted qualities of ease of use. Interfaces are assessed against the mix of these qualities which best depict the client's necessities for progress and fulfilment.

Ease of use implies client focused structure: Users are fulfilled when an interface is client-focused – when their objectives, mental models, errands and prerequisites are altogether met. The mix of investigation, plan and assessment all moved toward beginning from the client's perspective makes usable items.

These parameters are exceptionally significant and can be utilised to outline the entire thought of ease of use of portable learning gadgets in which case versatile learning (i.e. mobile learning) gadget clients accept that those gadgets have the greater part of the highlights that can meet their desire for utilising them. We are moving into a time when cell phones are for talking and messaging, yet additionally for getting to the web and all it brings to the table (Pew Research Center, 2014). Cell phones are utilised for various purposes, incorporating staying in contact with relatives, leading business, directing exploration and approaching a phone in case of a crisis. The

utilisation of a cell phone isn't restricted to talking alone; it is being utilised in making video, recording data and transmitting it to a telephone or a PC as was being finished by a PC, portable banking and instalment, observation and GPS administrations, ticket booking and so on, as indicated by them. Learners can examine their assignments or task works over telephones or other cell phones which generally can be long and exhausting. Seliaman and Turki (2012), in accordance with Technology Acceptance Model (TAM), contemplated Saudi college learners' utilisation of portable learning gadgets like advanced cells for perusing their course materials, scanning for data identified with their controls, sharing information, leading assignments. The outcomes demonstrated that learners viewed the helpfulness of portable learning gadgets as firmly identified with the components for utilising cell phones, which was valuable for getting to course materials, searching for data identified with their orders, sharing information, and finishing their schoolwork.

Cell phones, tablets and other cell phones are progressively getting to be diffuse and annihilating work area PCs in appeal, particularly with more youthful clients (Pelleg, Savenkov, and Agichtein, 2013). Numerous scientists like Peters, (2007) and Prensky, (2004) are of the view that the cell phone is one of the most influential portable learning mechanical assembly. As indicated by Prensky, the individuals who have cell phones are more in number than the individuals who utilise some other methods for the network. Pegrum, Oakley and Faulkner (2013) contended that a significant advantage of cell phones is that numerous youthful students today effectively possess these gadgets and convey them any place they go. In an examination did by Corbeil and Valdes (2007), results demonstrated that students concentrated the most on the cell phone as a method for portable learning. Cell phone, in its least difficult structure, gives voice diverting and message fitness.

Cell phone capacities can be utilised for voice correspondence in the instructing of unknown dialects (Chinnery, 2006). The most significant voice dialling preferences offered by cell phone is the capacity to connect and coordinate with friends (Fisher and Baird, 2014). Cell phones have developed in ongoing decades to contain numerous capacities, for example, Internet availability, sending sight and sound messages, data stockpiling, and showing sound and video documents, and different capacities. In the view ofAlqahtani and Mohammad (2015) Internet-empowered cell

phones could assist learners with accessing learning resources and online courses, anyplace and whenever. The cell phones that contain these properties are called Smart Phones. You can utilise this kind of telephones to improve the instructive condition with instructive exercises that are not given by cell phones, as indicated by them. A few models incorporate the capacity to peruse the Internet and to take part in exchanges all the while (Corbeil and Valdes, 2007). Research by Halder, Halder and Guha (2015) uncovered that concerning the frame of mind towards the ease of use of cell phones, under-graduate learners seeking after science stream don't vary altogether from the learners seeking after expressions stream. If there should be an occurrence of demeanour towards boundaries of utilising cell phones, there untruths no noteworthy contrast between learners of various scholastic controls. Once more, in the event of disposition towards idealness of utilising cell phones for an instructive reason, it could be seen that learners seeking after workmanship related courses don't vary essentially from the learners seeking after science-related courses. Generally, expressions of the human experience and science learners don't vary fundamentally in their demeanour towards utilising cell phone for an instructive reason. Obviously, there are snags and difficulties to portable learning and utilisation of versatile learning (i.e. mobile learning) gadgets.

Studies previously done have revealed quite a few challenges that establishments of higher learning learners may come to acknowledge in the reception of portable learning tech applications and the most significant ones of these obstructions and difficulties incorporate the constrained information and yield works in cell phones. Alhassan (2016) featured a gathering of deterrents that point of confinement the across the board appropriation of versatile getting the hang of, including the interruptions that cell phones can cause inside a showing study hall; absence of research backing with respect to their adequacy in the instructing class that could rouse instructors to incorporate them in their very own homerooms; the absence of productive models in m-learning for achieving the points of the present student; and obstruction of certain educators to instructive developments. Heath, Herman, Lugo, Reeves, Vetter, and Ward (2005) expressed that a considerable lot of the cell phone clients to learn think that it is hard to send messages they get to the printer.

The biggest hindrances from the point of view of Croop (2008), in the utilisation of cell phone for learning, are the restricted screen size in numerous cell phones, just as the trouble of perusing the screen in a light. There is trouble in the route of pages utilising advanced mobile phones because of the enormous page sizes, and, as they are not set up to be shown on screens of those little telephones (Fozdar and Kumar, 2007). Obstructions identified with the speed and capacity limit are a portion of the elements that adversely influence the utilisation of cell phones for versatile learning (i.e. mobile learning). The moderate gadgets and trouble in interfacing them to the Internet contrasted with workstations or personal computers is an undeniable deterrent. In any case, with the spread of third and fourth-age information transmission administrations, surfing the Internet utilising advanced mobile phones has turned out to be extraordinarily improved, tending to a portion of the issues above.

The advances in the highlights of versatile learning (i.e., mobile learning) gadgets, for example, sight and sound help, access to the Internet, increment of the limit, Bluetooth similarity and better goals have been in charge of the enormous scale sending of those gadgets for instructive purposes and the expansion of the sizes of the gadgets empowers learners to store a lot of interactive media (Aqib and Asim 2012). Some different impediments of utilising some portable learning innovations that were expressed in the writing are short battery life, the absence of a bound together activity arrangement of cell phones, a few interfaces of terrible plan to utilise, and the trouble of making some fundamental tasks, for example, reorder (Alhassan, 2016.). Moreover, there are a few obstructions identified with instructing and learning. Some different hindrances that avoid the utilisation of versatile learning (i.e. mobile learning) innovations identifying with instruction and learning are the absence of learner consideration in spelling when composing SMS messages, or composing abridged words, and the probability of learners' disarray as a result of the tremendous measure of data that they can get. Furthermore, the utilisation of versatile learning (i.e. mobile learning) advancements inappropriately may cause a lack in the learning procedure; along these lines, the compelling use of portable learning exercises requires dependence on an instructional structure which fits this sort of innovation (Fozdar and Kumar, 2007)

Imtinan, Chang, and Issa, (2014) revealed that various convenience related issues referenced by the learners in a core interest group study conducted among Pakistani university students looked very much like the things already revealed in other research reports, which include small screen size, brisk battery utilisation, little memory and capacity limit, issues of appending enormous records, powerlessness to complete errands requiring overwhelming handling, a few capacities making additional time and more strides, little keypads and frequently moderate portable web speed (Chen, Chen, Hwang, and Yang, 2010; Wei and Zhang, 2008). Note that these are likewise a portion of the regular ease of use issues found in versatile learning (i.e. mobile learning) writing as pointed out by analysts, for example, (Chen, et al., 2010; Churchill and Hedberg, 2008; and Daniel SuKuen, 2006). It will be pertinent to undertake similar studies of this nature in Nigeria in order to underscore the key issues in usability of mobile learning devices among postgraduates, hence the need for usability construct in this research.

2.8 Theoretical framework

A number of theories are related to utilsation of library electronic resources and services and acceptance, adoption and usability of mobile learning devices by postgraduate in Nigeria. However, there is no single hypothesis that can enough catch the relationship among the variables under study. Therefore, this study employed three relevant theories to anchor the study and guide the analysis and understanding of the linkages among the variables.

These include:

1. Unified Theory of Acceptance and Use of Technology
2. The Diffusion of Innovations Theory
3. Uses and Gratifications Theory

2.8.1 Unified theory of acceptance and use of technology

The Unified Theory of Acceptance and Use of Technology (UTAUT) was formulated by Venkatesh, Morris, Davis, Gordon, and Davis, (2003). Sundaravej (2005) attested that no far-reaching instrument to gauge the assortment of impression of data innovation advancements had existed until Venkatesh, Morris, Davis, and Davis (2003) endeavoured to review and compare the existing user acceptance models with an ultimate goal to develop a unified theory of technology acceptance by integrating

every major parallel aspect of user acceptance determinant from those models. The UTAUT intends to disclose client aims to utilise a data framework and resulting use conduct. The hypothesis holds that there are four key constructs: 1) execution anticipation, 2) exertion hope, 3) social impact, and 4) encouraging conditions.

The first three are immediate determinants of utilisation aim and conduct, and the fourth is an immediate determinant of client conduct. Post graduate students are most likely to accept and utilise electronic/digital resources based on certain expectations and societal conditions. Postgraduate utilisation of same would also depend to a large extent on the influence of others. Once their personal and academic expectations are met it follows that postgraduates will accept and utilise library -based electronic/digital resources in the institutions.

This theory was however limited to acceptance and utilisation of technological devices in this study because this alone could not adequately capture the other variables. This implies handiness and convenience which recommend the emotional likelihood that utilising the innovation would improve the manner in which a client could finish a given undertaking, in view of the hypotheses in social brain research, for example, the hypothesis of contemplated activity. Rogers (1962) certified apparent convenience is the term that speaks to how much an advancement is seen not to be hard to comprehend, learn or work. He further expressed that apparent usability is how much purchasers see another item or administration as superior to its substitutes. Likewise, Zeithaml, Parasuraman, Malhotra, (2002) stated that the degree to which an innovation is easy to understand or use could be considered as perceived ease of use.

This theory is very relevant to this study because, it indicates that, the acceptance, of mobile learning devices for information or utilisation of library-based information resources is dependent on the intention, availability, perceived usefulness and perceived ease of use of such devices or innovations. This perception determines how and where student's source for relevant information, access information, use information, communicate information and achieve success at last. Varieties of theories that have relevance to both the dependent variable of utilisation of electronic library resources and independent variables of acceptance, adoption and usability of mobile learning devices, have been reviewed. However, the nucleus of this research work is on utilisation of library electronic resources and mobile learning devices by

postgraduates of private universities in Southwestern Nigeria; hence the study is anchored on the unified theory of acceptance and use of technology. The theory is primarily concerned with technology acceptance and use which can influence library e-resources utilisation as well as use of other technological devices. In this theory, it can be explained that students who are not only computer literate but also technology savvy, with proper intention to use different forms of data/information sources can only do so by the quickest, easiest and most convenient means in order to meet diverse academic, social or educational needs rather than follow any old-fashioned, time-wasting protocol sometimes associated with library procedure.

2.8.2 The diffusion of innovation theory

Diffusion of Innovation (DOI) Theory, created by Rogers in 1962, is a sociology hypothesis. It originated in communication to explain how, after some time, a thought or item picks up force and diffuses (or spreads) through a particular populace or social framework. The final product of this dispersion is that individuals, as a major aspect of a social framework, acknowledge and receive another thought, conduct, or item. Nigerian postgraduates have progressively received different sorts of versatile learning (i.e. mobile learning) gadgets for various purposes. Appropriation implies that an individual accomplishes something uniquely in contrast to what they had recently done (i.e., buy or utilise another item, obtain and play out another conduct, and so forth.). The way to reception is that the individual must see the thought, conduct, or item as new or imaginative. It is through this that dissemination is conceivable. (Boston University School of Public Health, 2016)

The perceived attributes of an innovation include its relative advantage, complexity, compatibility, observability, and trialability. A few investigations affirm the apparent relevance of innovation to be a critical indicator for its reception (Chang, Lee, and Kim (2006); Daupagne and Driscoll, 2010; Jung, Chan-Olmsted, Park, and Kim 2012; Rogers, 2003). For instance, Daupagne and Driscoll (2010) found that alleged relative focal points, comparability, trialability, and recognisability were critical precognitions of the reception of top-quality TV in the U.S. Jung et al (2012) found that specific saw traits – relative preferred position, similarity, and trialability – were definitively connected with the aim to utilise electronic books in South Korea. Li's investigation in (2013) demonstrated that accepted usability was an eminent determinant of the clients'

goal to embrace picture-deciphering advanced TV in Taiwan. Different past investigations have discovered that individuals embrace innovations in light of the fact that the elements of such advancements fulfil their needs. Responsibility for various sorts of current data advancements by individual clients empowers analysts to anticipate innovation reception since people are probably going to embrace practically comparative advances because of the similarity of the advances' capacities with the purchasers' needs (Daupagne and Driscoll, 2010; Jung et al., 2012; and Rogers, 2003).

Lin (2010) analyzed the selection of satellite radio in the U.S. &, found that the responsibility for computerized media advancements was emphatically connected with the respondents' selection assessment, which thusly decidedly influenced their goal to embrace. Jung et al. (2012) found that the level of computerized media possession was a noteworthy indicator for the appropriation of digital books in South Korea. Yocco (2015) kept up that people don't consequently receive new items yet they do dependent on the thought of relative bit of leeway emerging from Improvements in one or huge numbers of the accompanying zones: better help, combination of different capacities into one device, diminished requirement for provisions and gear, strengthening of clients, improved interface, expanded adaptability, expanded life span, expanded efficiency, decreased client exertion, diminished natural effect, setting aside of cash, sparing of space or capacity, sparing of time. Every one of these properties is implanted in new portable learning gadgets utilised by postgraduates in Nigerian colleges. This may clarify why they are inclined to receive cell phones.

A cross-border study including Nigeria and the Republic of Benin was completed by Tunmibi, Aregbesola and Asani (2015) utilising the unintentional testing technique. College learners were picked as the objective example in the examination on the grounds that the probability of them utilising advanced mobile phone is high just as thinking about a procedure to encourage simple access to the respondents. The investigation utilised a poll-based review strategy, the same number of comparative examinations directed before had additionally utilised this technique for information gathering, for example, (Chang, Lee, and Kim (2006; Daupagne and Driscoll, 2010; Jung et al., 2012). The survey configuration was guided by Rogers' dissemination hypothesis. The aftereffect of this examination demonstrated that Perceived Mobility

Value affects Perceived Usefulness, which implies that with regard to embracing versatile learning (i.e. mobile learning) gadgets, the greater portability esteem learners get, the more the learners are happy to utilise the gadgets. For cutting edge clients in new innovation, they may see the versatility esteem as a critical determinant towards demeanours and acknowledgement. Perceived Output Quality has a significant positive influence on Perceived Usefulness.

As customers and clients of portable learning gadgets, learners may see Output Quality as a basic component. This shows when learners see the better aftereffect of utilising portable learning gadgets, they will see it progressively valuable, and they will have uplifting frames of mind towards it and embrace it. As indicated by the investigation, Perceived Enjoyment affects both Perceived Ease of Use and Attitude. As purchasers and students, when a portable learning framework gives greater delight, clients are all the more ready to utilise it. Along these lines, appropriation of versatile learning (i.e. mobile learning) gadgets in this setting can be grounded on the dissemination of advancement hypothesis. Thus, this examination was keen on discovering the most noteworthy components identifying with a selection of portable learning gadgets among postgraduates in southwestern Nigeria.

2.8.3 Uses and gratifications theory

As indicated by Papacharissi (2003) Uses and Gratifications Theory was created by Klapper (1960) as an elective point of view that could examine and comprehend media impacts because of progressively complex procedures. It is a mental correspondence viewpoint that inspects how people utilise broad communications and for what impacts. From the utilisation perspective, innovation use can be chosen by various key elements including "individuals' needs and thought processes to convey, the mental and social condition, the broad communications, utilitarian options in contrast to media use, correspondence conduct, and the results of such conduct" (Rubin, 2002). Katz, Blumler and Gurevitch (1974) maintained that the utilisation and satisfaction influence as focusing on the social and mental causes of requirements, which produce desire for the broad communications or different sources, could prompt various examples of media presentation bringing about need delights and different results. Past utilisation and delight explore by Kayahara and Wellman (2007) has gathered media satisfactions into two classifications: procedure and substance.

Procedure delights emerge from the presentation of the movement, for example, unstructured Web perusing or making content on one's profile while content satisfactions happen from getting data (Kayahara and Wellman, 2007). This can be reached out to the capacities and functionalities of portable learning gadgets which decide their handiness to postgraduates.

In an examination by Urista, Dong and Day (2009) utilising a grounded hypothesis approach and an utilisation and delight system, an exploratory investigation was led through center gatherings to look at the reasons that youthful grown-ups utilise person to person communication destinations, for example, MySpace and Facebook, among other ones, they concluded that enjoyment and satisfaction were the key factors that young adults do so. Once postgraduates' satisfaction is guaranteed, they would most likely find mobile devices usable and may prefer them to other technological devices. Urista, Dong and Day (2012) asserted that young adult learner were fond of being heavily dependent on the Internet for entertaining themselves and information use. As part of the consistent subject-matters arising out of focus group discussions, it has been suggested that individuals use social-networking sites to make selective, efficient, and immediate connection with others for their bridge-building interpersonal communication satisfaction and as a continuous way to get the admittance and support of other people. They explained further that in the past, people have used a blend of personal human interaction and information sources that reach a very large number of people such as television, radio, and movies to satisfy various information needs and other wants. In most cases, these delights have been delayed as a result of elements such as inaccessibility, unresponsiveness, programming and scheduling. In contrast, Social Networking Sites and related applications are disparate from these other forms of mass communication for the fact that they allow users to take an active part and thereby gratifying user needs.

In the new model, individuals can be instantly gratified by their use of Social Networking Sites through both mediated social contact and through selective and on-demand access to other media content provided as part of Social Networking Sites services. It can be deduced from the foregoing that young adult learners and, especially postgraduates could heavily depend on electronic devices and online resources with usability qualities to gratify their information and communication

desire. And the process of achieving this end is dependent on usable technological tools like mobile learning devices. Usability of mobile learning devices therefore can be grounded on this theory because young adults and postgraduates will readily approve of, accept and adopt technologies based on the gratification of their perceived needs and motives through the devices.

2.9 Conceptual model

The conceptual model for this study was personally developed by the researcher. The researcher conceptualised adapted a self-developed model that would be used to explain the relationship among: acceptance of mobile learning devices, adoption of mobile learning devices and usability of mobile learning devices in relation to utilisation of electronic/digital resources by postgraduates of private universities in Southwestern Nigeria. The conceptual model for this study was developed by the researcher after going through different literature and it was discovered that there is no existing model that could adequately represent the interrelationships among the variables for this study. Hence, the model as shown in Fig 2.3 below proposes relationships among acceptance of mobile learning devices, adoption of mobile learning devices, usability of mobile learning and utilisation of library-based electronic/digital resources among postgraduates of private universities in southwestern Nigeria.

The model shows the three independent variables, which are acceptance, adoption and usability of mobile learning devices with their attendant sub-components mentioned in the body of the research interacting together to influence the dependent variable: utilisation of university electronic/digital resources by postgraduates in private universities in Southwestern Nigeria. As charted in the conceptual model, acceptance of mobile learning devices, which includes attractiveness, likeability, mobility and portability can positively or negatively influence utilisation of electronic/digital resources in the library. Similarly, adoption of mobile learning devices which includes compatibility, sociability, affordability and triability can positively or negatively influence utilisation of electronic/digital resources in the library and in the same way, mobile learning device' usability factors which include flexibility, leanerability, usefulness and ease of use can positively or negatively influence utilisation of electronic/digital resources. It is therefore believed that acceptance, adoption and

usability of mobile learning devices could affect utilisation of library-based electronic/digital resources which include purpose and frequency of utilisation and types of e-resources being utilised either positively or otherwise. Hence the three directional arrows show the link between the dependent and independent variables of the research.

Students' disposition towards university electronic/digital resources and their rating of the resources can either negatively or positively determine their utilisation of the electronic/digital resources available. Computer literate students, with alternative information sources, who are the majority of postgraduates will most likely develop positive attitude towards accessing and utilising academic information available in the university with limited restriction if this could be achieved. Thus, it is believed that innovation, convenience and compatibility are determining factors toward utilisation of library-based electronic/digital resources by the postgraduates of private universities in Southwestern Nigeria.

Conceptual model

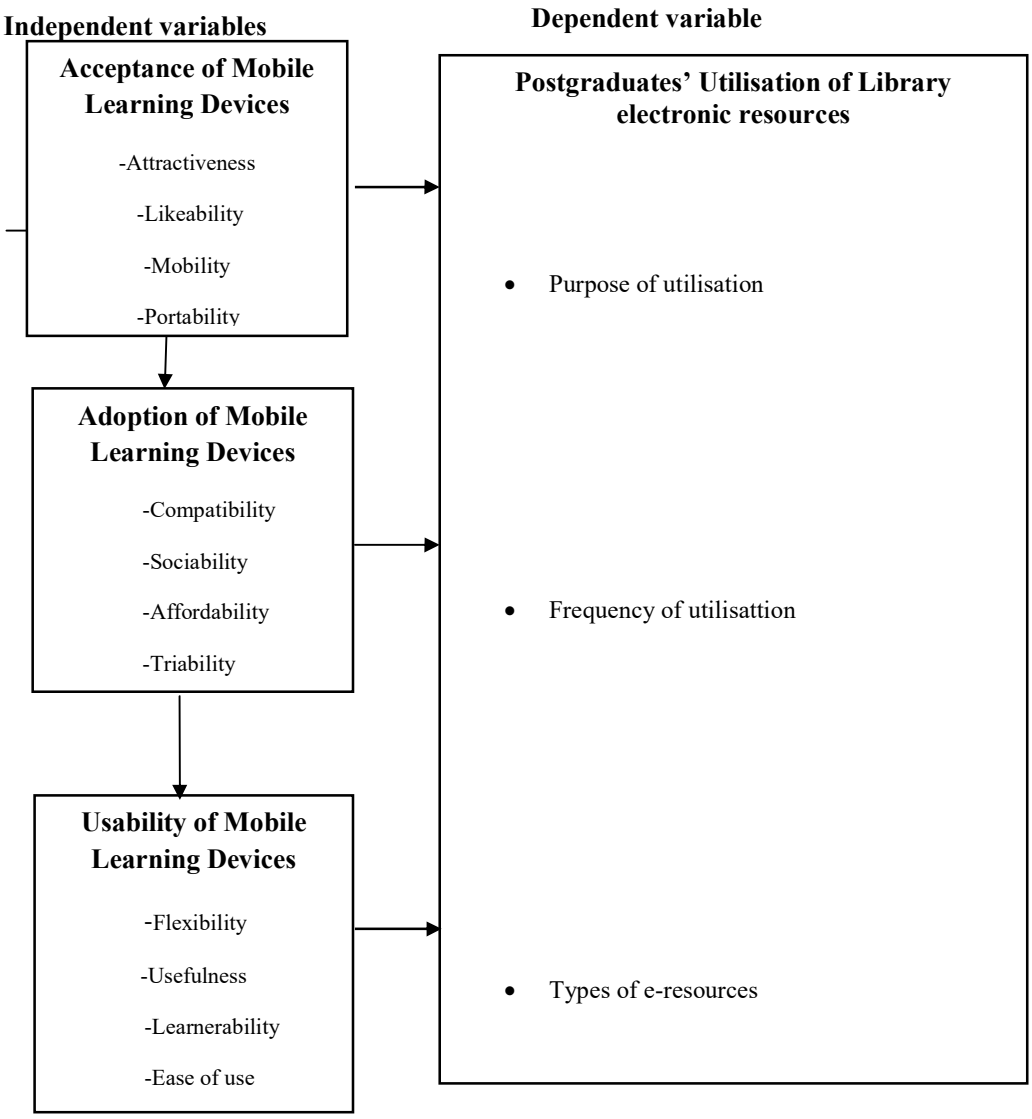

Figure 2.3 Conceptual model for the acceptance, adoption, usability of mobile learning devices and electronic resource utilisation by postgraduates.

Source: Self developed by the researcher

2.10 Appraisal of the literature reviewed

Literature reviewed revealed that researchers have approached the utilisation of library- based electronic/digital resources mostly from the perspectives of faulty or inadequate electronic systems. This study however reviewed literature pertaining to the impact of alternative technology on utilisation of library- based electronic/digital resources. The literature reviewed revealed that researchers have approached acceptance, adoption and usability of mobile learning devices mostly from the angle of technology acceptance but this research dwelt on these constructs as separate factors that can affect the utilisation of electronic/digital resources. Utilisation of university electronic/digital resources is central to the existence of students and universities which are meant to contribute positively to the progress and personal development of students. In the light of current realities, this assignment can only be achieved through the application of information and communication technologies which has been found relevant to the learning and research process in the university system. However, a quick review of the literature in the area of application of ICT particularly the use of mobile learning devices in relation to electronic/digital resources and services and their use by postgraduates in Nigerian private universities reveals that not much has been achieved in that direction as the implementation is still bedeviled by various issues. In addition, there appears to be insufficient literature and empirical studies on the influence of mobile learning devices and information constructs like access, storage, retrieval and utilisation of library and electronic/digital resources in Nigeria as it affects students of private universities.

Furthermore, literature reviewed has highlighted further that, all limitations affecting the adoption of modern ICT tools, especially mobile learning devices in relation to library resources and services by postgraduates in tertiary institutions and particularly in private universities in Southwestern Nigeria must be tackled so as to move the universities forward and make learning resources more readily available. There is every likelihood that, postgraduates with positive attitude to the usage of online data/information sources, who equally have access to information accessible mobile learning devices may prefer to access information using those devices.

On this note, the literature reviewed has revealed limited or no application of mobile learning devices for information access in Nigeria\n university libraries probably due

to poor orientation among librarians and other stake holders, lack of funds, inadequate facilities and other technical issues. However, there is sufficient foreign and global literature to support all the variables (acceptance, adoption, usability of mobile learning devices in relation to utilisation of library electronic resources by postgraduates in private universities).

There are some gaps in literature with respect to the acceptance, adoption and usability of mobile learning devices as correlates of utilisation of university electronic/digital resources by postgraduates in private universities in Nigeria. Obviously, gaps have been identified in knowledge with particular reference to the literature reviewed. Therefore, due to inadequate literature in the identified field of knowledge, the gaps so identified form the foundation on which this research work is structured. Thus, carrying out this study would provide information on the level of mobile learning devices' acceptance, adoption and usability and factors that could promote the utilisation of electronic university library resources in Nigerian private universities, in spite of this reality.

CHAPTER THREE
METHODOLOGY

In this chapter, the following are discussed: research design, population of the study, sampling techniques and sample size, research instrument, validation and reliability of instrument, data collection procedure and methods of data analysis.

3.1 Research design

This study adopted the survey research design of the correlational type. This design was adjudged adequate in studying behaviour whereby the researcher would be able to investigate the frequency of occurrences, the distribution and the relationships among the variety of variables in the study. The method was considered appropriate in obtaining reliable information about acceptance, adoption and usability of mobile learning devices in relation to the utilisation of electronic/digital resources by postgraduates in private universities in Southwestern Nigeria.

3.2 Population of the study

The target population for the study comprised the entire 1534 Master and Doctor of Philosophy (Ph.D.) degree students in all the 9 private universities accredited to run postgraduate programmes in Southwestern Nigeria. The National Universities Commission (N.U.C.) accredited 9 private universities to run postgraduate studies in southwestern Nigeria as at 2016. The nine universities are: (1) Redeemer's University, Ede Osun State (2) Pan Atlantic University, Lekki Lagos (3) Babcock University, Ilisan Ogun State (4) Lead City University, Ibadan Oyo State (5) Joseph Ayo Babalola, Ikeji-Arakeji Osun State (6) Covenant University, Ota Ogun state (7) Caleb University, Imota Lagos State (8) Bowen University, Iwo Osun State and (9) Afe Babalola University, Ado Ekiti State (see Table 3.1). The population also included respondents from faculties of science, social/management science and humanities/arts from all selected private universities with a total population of 1534 students. These disciplines constituted the core degree programmes common to all private universities in the Southwest and the majority of postgraduates are spread across these major disciplines.

3.3 Sampling techniques and sample size

The multi-stage sampling procedure was adopted in selecting the sample for the study. At the first stage, all the 9 accredited universities in southwestern Nigeria were purposively selected to capture the objectives of this study. At the second stage, 80% of the established faculties/schools/colleges available in all the 9 private universities were purposively selected for the study namely: Business and Social Sciences, Education, Education and Humanities, others include Engineering, Environmental Sciences, Leadership Development Studies, Media and Communication, Natural Sciences, Natural and Basic Medical Sciences, Science, and Science and Technology. At the third stage, total enumeration technique was adopted to select all the Ph.D. students in the 9 N.U.C. accredited private universities to run post graduate programmes in Southwestern Nigeria, while proportionate to size probability technique was used to select 60% of Master students. Sixty per cent sample size could afford the opportunity of not overstretching or duplicating the available resources and was less expensive. Since 60% of Master's degree students in this case was more than 60% of the entire population, it provided a good data quality with minimal measurement error.

Furthermore, 60% of Master students was considered appropriate because the more the population, the more meaningful and the more acceptable the results. Sixty percent of the total population of Master students is justified because according to Welman, Kruger and Mitchell (2005), the bigger the size of the sample, the better the exactness or accuracy of the finding. That is, the larger the population, the more meaningful and plausible the findings and the more suitable for generalisation.

It was appropriate to include all Ph.D. students because students in that category were expected to use more information for intensive research and they are relatively fewer in number compared to Master's degree students in the selected universities. Students in the common faculties across the institutions namely: Arts/Humanities, Science and Social/Management sciences were carefully chosen. The sample size for this study was, therefore 974, made up of 134 Ph.D. and 840 Master's degree student respondents (see Table 3.1). Hence, this sample was large enough for a wider generalisation of the findings. Table 3.1 contains the distribution of selected universities, total student population by faculty and sample population for the study.

Table 3.1 Sample of postgraduates in the selected universities

Faculty/School/College	Population		Sample Size 100% Ph.D	Sample Size 60% Master	Total Sample
Afe Babalola University					
	Master	Ph.D			
Social and Management Sciences	100	0	0	60	60
Sciences	35	0	0	21	21
Sub-Total	**135**	**0**	**0**	**81**	
Babcock University					
Education and Humanities	46	5	5	28	33
Management Sciences	440	43	43	264	307
Science and Technology	22	4	4	13	17
Social Sciences	131	9	9	79	88
Sub-Total	**639**	**61**	**61**	**384**	**445**
Bowen University					
Science and Science Education	10	2	2	6	8
Social and Management Sciences	38	17	17	23	40
Sub-Total	**48**	**19**	**19**	**29**	**48**
Caleb University					
Social and Management Sciences	78	0	0	47	47
Environmental Sciences	70	0	0	42	42
Sub-Total	**148**	**0**	**0**	**89**	**89**
Covenant University					
Business and Social Sciences	48	9	9	29	38
Engineering	9	1	1	5	6
Leadership Development Studies	9	4	4	5	9
Science and Technology	39	8	8	23	31
Sub-Total	**105**	**22**	**22**	**62**	**84**
Joseph Ayo Babalola University					
Humanities	6	0	0	4	4
Management Sciences	23	0	0	14	14
Social Science	7	0	0	4	4
Natural Sciences	4	0	0	2	2
Sub-Total	**40**	**0**	**0**	**24**	**24**
Lead City University					
Education	9	0	0	5	5
Social Management Science	103	0	0	62	62
Science	4	0	0	2	2

Sub-Total	**116**	**0**	**0**	**69**	**69**
Pan Atlantic University					
Media and Communication	83	8	8	50	58
Sub-Total	**83**	**8**	**8**	**50**	**58**
Redeemer's University					
Humanities	2	4	4	1	5
Management Sciences	68	5	5	41	46
Natural and Basic Medical Science	16	15	15	10	25
Sub-Total	**86**	**24**	**24**	**52**	**76**
TOTAL	**1400**	**134**	**134**	**840**	**974**
TOTAL NO Of RESPONDENTS	**974 Respondents**				

Source: Preliminary investigation from the field by the researcher, (2016)

3.4 Research instrument

The research instrument adopted for this study is the questionnaire with the title: **Acceptance, Adoption and Usability of Mobile Learning Devices and Postgraduates' Electronic Resource Utilisation (AAUMLDPERU)**. The questionnaire by Daramola (2016) was adapted by the investigator. The questionnaire was composed of 5 sections A- E (see Appendix 1).

Section A: Personal Data / Demographic Factors. This section contains respondents' personal information such as institution, faculty, department, gender and age were elicited from respondents.

Section B: Electronic Resource Utilisation Scale (ERUS) deals with the use of the university electronic/digital resources. The electronic information scale by Daramola (2016) was adapted in this study. The psychometric properties in the adapted scale included: purpose of using e-resources (for assignments, for research, for leisure, for news/information). Frequency of using e-resources (frequently used, rarely used, not at all) and for various types of e-resources utilised by respondents (E-books, E-journals, E-magazines, E-thesis) among others. This particular scale consists of 36 items on a modified 4-point scale. (SeeAppendix 1 Section B). The original scale modified included a Likert-type instrument which involved 12 items to gather data about learners' observations toward the usage of electronic data services. The scale was on 4 likert format of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD). The original reliability coefficient is 0.75.

Section C: Acceptance of Mobile Learning Devices Scale (AMLDS). It was an adapted and modified version of Alfarani's scale (2015). The psychometric properties in the adapted scale included: mobile devices using experience (to call and text, to download and play games, to take photos, to send pictures or videos, to access information for teaching and learning) among others. This scale is made up of 24 items measured on a modified 4-point Likert measure of Strongly Disagree (SD), Disagree (D), Agree (A) and Strongly Agree (SA) (see Appendix 1 Section C). In the original scale adapted, four develops were estimated, in view of 4-point Likert-scale of strongly agree to strongly disagree. The reliability coefficient of 0.79 was the original coefficient alpha.

Section D: Adoption of Mobile Learning Devices Scale (AMLDS). The section was designed based on the scales adapted from Mtebe and Raisamo (2014).The psychometric properties in the adapted scale included: the irrelevance of most of the material available on OER to our course content/outline; I don't trust the authenticity of internet-based materials; in my institution in particular, the available OER does not fit much to the curriculums (which are competence based), although they are helpful in instructional composition. This adapted scale comprises 35 items measured on a modified 4-point Likert scale of Strongly Disagree, Disagree, Agree and Strongly Agree (see Appendix 1 Section D). In the scale that was adapted, a 19-item instrument was used based on 4-point Likert-scale. The original coefficient alpha is 0.77.

Section E: Usability of Mobile Learning Devices Scale (UMLDS). This section of the questionnaire was designed based on the adapted and modified version of Ali, Alrasheedi, Ouda, and Capretz (2014) scale of usability to elicit information on the usability of mobile learning devices. The psychometric properties in the adapted scale included 5 usability characteristics, namely: ease of use, user satisfaction, attractiveness, learner ability and general case.However, this particular scale contains 24 items measured on a modified 4-point Likert scale of Strongly Disagree (SD), Disagree (D), Agree (A) and Strongly Agree (SA) (see Appendix 1 Section E). The 0.71 was the original coefficient alpha of the instrument.

3.5 Validation and reliability of research instrument

The instrument (**AAUMLDPERU)** was presented to the researcher's supervisor and other experts at the School Library and Media Technology Department, University of Ibadan, Ibadan, Nigeria to establish the face and content validity of the instrument. In line with their observations and suggestions, items in the instruments were modified. The questionnaire was also trial tested on 40 postgraduates at Ajayi Crowther University, Oyo who were not part of the sample for the main study. The data collected were analysed using internal consistency approach based on Cronbach coefficient Alpha. The Library Electronic Resource Utilisation Scale yielded a Cronbach Alpha value (α = 0.74); Acceptance of Mobile Learning Devices Scale (α=0.70); Adoption of Mobile Learning Devices Scale (α=0.72) and Usability of Mobile Learning Devices Scale (α=0, 71) which were considered adequate and appropriate for the study.

3.6 Data collection procedure

The researcher got letters of introduction from the Department, which was used to obtain permission from the Management of the 9 selected private universities. Thereafter, the researcher was authorised to collect relevant data for the study with the assistance of 9 research assistants who had been oriented about the way the data would be collected. They helped in the administration and collection of the copies of the questionnaire. The data collected lasted 8 weeks.

3.6.1 Questionnaire return rate

The number of questionnaire distributed, returned and analysed across the nine universities is presented in Table 3.2.

Table 3.2: Distribution of questionnaire and return rate

s/n	Selected Universities	No. of questionnaire	No of questionnaire returned andanalysed
1	Afe Babalola University	81	76
2	Babcock University	445	343
3	Bowen University	48	29
4	Caleb University	89	80
5	Covenant University	84	59
6	Joseph Ayo Babalola University	24	22
7	Lead City University	69	60
8	Pan Atlantic University	58	45
9	Redeemers' University	76	50
	Total	**974**	**764**

From Table 3.6.1, out of the 974 questionnaire administered to the respondents, 764 (78.43%) were properly filled and returned for the study. This was considered very adequate for the study. The high response rate was mostly due to the fact that the distribution and collection of the questionnaire was supervised by the researcher, assisted by the nine research assistants. Before the analysis, the questionnaire wasscrutinised to ensure proper completion.

3.7 Methods of data analysis

Descriptive statistics such as simple frequency counts, percentages, means and standard deviations were used to answer research questions 1-6, while multiple regression technique was used to analyse research questions 7 and 8. The hypotheses 1-3 for the study were tested using Pearson's product moment correlation coefficient at 0.05 level of significance.

CHAPTER FOUR
RESULTS AND DISCUSSION

This chapter presents the data analysis and discussion of findings based on the demographic information of the respondents, research questions answered and hypotheses tested in the study.

4.1 Demographic profile

Table 4.1 below presents the demographic profile for the study.

Table 4.1 Demographic profile of Postgraduates in private universities in Southwestern Nigeria

s/n	Variables	Institutions	Frequency	Percentage (based on the total no used for the study)
1	Institution	Babcock University	343	44.9
		Caleb University	80	10.5
		AfeBabalola University	76	9.9
		Lead City University	60	7.9
		Covenant University	59	7.7
		Redeemer's University	50	6.5
		Pan Atlantic University	45	5.9
		Bowen University	29	3.8
		Joseph Ayo Babalola University	22	2.9
		Total	**764**	**100.0**
2	Gender	Male	400	52.4
		Female	364	47.6
		Total	**764**	**100.0**
3	Age	25-30 years	295	38.6
		20-24 years	287	37.6
		31-35 years	111	14.5
		36 years and above	42	5.5
		Below 20 years	29	3.8
		Total	**764**	**100.0**
4	Level	Master	622	81.4
		Ph.D.	142	18.6
		Total	**764**	**100.0**

Table 4.1 represents the distribution of demographic characteristics of the respondents in the selected private universities used for the study. The majority of respondents were from Babcock University (44.9%). There were male (52.4%) and females (47.6%) respondents. This, therefore, implies that there were more male than female respondents in the selected private universities but the ratio between male and female students was small. The Master's degree students were (81.4%) while Ph.D. students were (18.6%). This means that Ph.D. students were less than a quarter of the entire population of this study. Majority of postgraduates were aged 25-30 years (38.6%), while the mean age of respondents was 4.39. This clearly shows that quite a number of postgraduate students in the selected universities were below 30 years of age.

4.2 Analysis based on research questions

This is the data analysis based on the research questions answered in the study:

Research question 1: What is the level of acceptance of mobile learning devices among postgraduates in private universities in southwestern Nigeria?

Table 4.2 shows the findings on the level of acceptance of mobile learning devices among postgraduates in private universities in southwestern Nigeria.

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Table 4.2 Level of acceptance of mobile learning devices by postgraduates in private universities in Southwestern Nigeria

s/n	Items	SD	D	A	SA	$\bar{x}$	S.D
	Attractiveness						
1	I usually find mobile learning devices eye catching	44 5.8%	87 11.4%	338 44.2%	295 38.6%	3.16	.84
2	I usually find mobile learning devices interesting and attractive to have	41 5.4%	188 24.6%	304 39.8%	231 30.2%	2.95	.87
3	I regard mobile learning devices as of high aesthetic value	67 8.8%	160 20.9%	308 403%	229 30.0%	2.91	.92
4	I find mobile learning devices dull	114 14.9%	165 21.6%	207 27.1%	278 36.4%	2.85	1.07
5	I do not care to have any mobile learning device because it is not captivating	118 15.4%	121 15.8%	356 46.6%	169 22.1%	2.75	.97
6	I find mobile learning devices boring to possess	106 13.9%	283 37.0%	280 36.6%	95 12.4%	2.48	.88
	Sub-Weighted mean = 2.85						
	Likeability						
7	I always like to have mobile learning devices with me	39 5.1%	110 14.4%	258 33.8%	357 46.7%	3.22	.88
8	I like different types of mobile learning devices	36 4.7%	159 20.8%	336 44.0%	233 30.5%	3.00	.84
9	I always like to use mobile learning devices for finding electronic information	55 7.2%	140 18.3%	333 43.6%	236 30.9%	2.98	.88
10	I always like to get academic information on mobile learning devices	64 8.4%	207 27.1%	280 36.6%	213 27.9%	2.84	.93
11	Nothing can make me like handheld devices	133 17.4%	140 18.3%	21 27.7%	279 36.5%	2.83	1.10

12	I dislike reading or sourcing for information on mobile learning devices	100 13.1%	166 21.7%	293 38.4%	205 26.8%	2.79	.98
	Sub-Weighted Mean = 2.94						
	Mobility						
13	Mobile learning devices enable me to search for and download electronic information anywhere anytime	36 4.7%	79 10.3%	326 42.7%	323 42.3%	3.23	.82
14	With mobile learning devices I am no longer attached to a physical place of learning or a library	39 5.1%	114 14.9%	265 34.7%	346 45.3%	3.20	.88
15	Mobile learning devices enable me to receive any kind of information anywhere anytime	48 6.3%	106 13.9%	320 41.9%	290 38.0%	3.12	.87
16	I find it easy to carry along mobile learning devices anywhere I go	59 7.7%	136 17.8%	266 34.8%	303 39.7%	3.06	.94
17	I don't feel comfortable taking mobile learning devices everywhere	83 10.9%	124 16.2%	302 39.5%	255 33.4%	2.95	.96
18	It is cumbersome to send or receive academic information through mobile learning devices	69 9.0%	146 19.1%	309 40.4%	240 31.4%	2.94	.93
	Sub-Weighted Mean = 3.08						
	Portability						
19	I would like to have any portable wireless handheld device	29 3.8%	89 11.6%	305 39.9%	341 44.6%	3.25	.81
20	I enjoy carrying mobile devices around	30 3.9%	92 12.0%	333 43.6%	309 40.4%	3.21	.80
21	I love mobile learning devices	37	81	335	311	3.20	.82

	because of lightweight	4.8%	10.6%	43.8%	40.7%		
22	I cannot think of using a heaving mobile learning device	45 5.9%	132 17.3%	297 38.9%	290 38.0%	3.09	.88
23	I love mobile learning devices that I can hold and operate in the hand	100 13.1%	259 33.9%	250 32.7%	155 20.3%	2.60	.95
24	It is never convenient for me to operate mobile learning devices on the palm	239 31.3%	221 28.9%	207 27.1%	97 12.7%	2.21	1.02
	Sub-Weighted Mean = 2.93						
	Grand Weighted Mean= 2.95; Criterion Mean= 2.50						

Table 4.2 reveals the findings based on the four key indicators of attractiveness, likeability, mobility and portability. In order of ranking, mobility of mobile learning devices ranked the highest as the factor that determines level of acceptance of mobile learning devices, ($\bar{x}$ =3.08) followed by Likeability ($\bar{x}$ =2.94) while Attractiveness ($\bar{x}$ =2.85) ranked the lowest. This indicates that the respondents preferred devices that are more mobile for searching for information anywhere. The weighted mean ($\bar{x}$ =2.95) was greater than the Criterion mean ($\bar{x}$ =2.50), thus the respondents had high level of acceptance of mobile learning devices in Southwestern Nigeria. It can be deduced, therefore, that postgraduates in Nigerian private universities in Southwestern Nigeria had a high level of acceptance of mobile learning devices.

Research question 2: What is the level of adoption of mobile learning devices among postgraduates in private universities in southwestern Nigeria?

The findings on the level of adoption of mobile learning devices among postgraduates in private universities in southwestern Nigeria are presented in Table 4.3.

Table 4.3 Level of adoption of mobile learning devices by postgraduates in private universities in southwestern Nigeria

	Compatibility	**SD**	**D**	**A**	**SA**	$\bar{x}$	**S.D**
1	Using mobile learning devices is completely compatible with my current situation as a research student	58 7.6%	85 11.1%	323 42.3%	298 39.0%	3.13	.89
2	Using mobile learning devices fits well with the way I source for information	77 10.1%	129 16.9%	257 33.6%	301 39.4%	3.02	.98
3	Use of mobile learning devices supports my reading habit	138 18.1%	226 29.6%	192 25.1%	208 27.2%	2.96	.99
4	Use of mobile learning devices fits my personal style	88 11.5%	136 17.8%	268 35.1%	274 35.9%	2.87	.99
5	Use of mobile learning devices does not suit my study life at all	106 13.9%	102 13.4%	365 47.8%	191 25.0%	2.84	.96
6	Utilisation of portable learning gadgets isn't perfect with my academic work	138 18.1%	226 29.6%	192 25.1%	208 27.2%	2.62	1.07
	Sub-Weighted Mean = 2.91						
	Sociability						
7	Use of mobile learning devices raises my self-esteem and self confidence	54 7.1%	165 21.6%	349 45.7%	196 25.7%	2.90	.86
8	Use of mobile learning devices enhances informal academic discussions	74 9.7%	178 23.3%	355 46.5%	157 20.5%	2.78	.88
9	Use of mobile learning devices permits me to interact well socially	98 12.8%	207 27.1%	259 33.9%	200 26.2%	2.73	.99
10	I have to use mobile learning devices because everybody around me including lecturers	92 12.0%	196 25.7%	332 43.5%	144 18.8%	2.69	.91

	expect me to use them						
11	Use of mobile learning devices does not allow informal conversations, which I enjoy, with fellow students	75 9.8%	250 32.7%	313 41.0%	126 16.5%	2.64	.87
12	Use of mobile learning devices does not allow me to interact very well with my colleagues	109 14.3%	253 33.1%	278 36.4%	124 16.2%	2.55	.93
	Sub-Weighted Mean = 2.72						
	Affordability						
13	In would like to have any wireless handheld device if I can afford it	53 6.9%	154 20.2%	364 47.6%	193 25.3%	2.91	.85
14	I have the resources to utilise portable learning gadgets	142 18.6%	238 31.2%	248 32.5%	136 17.8%	2.49	.99
15	I do not mind the cost of using mobile learning devices once I get what I need from them	166 21.7%	218 28.5%	260 34.0%	120 15.7%	2.44	1.00
16	I find the cost of using information on mobile learning devices cheaper that other sources	185 24.2%	227 29.7%	221 28.9%	131 17.1%	2.39	1.03
17	When I consider the cost of finding academic information on mobile learning devices, I go for other sources like the library instead	204 26.7%	256 33.5%	184 24.1%	120 15.7%	2.29	1.03
18	I love sourcing information on mobile learning devices but usually I cannot afford the cost	205 26.8%	265 34.7%	167 21.9%	127 16.6%	2.28	1.04
	Sub-Weighted Mean = 2.47						
	Triability						
19	With the use mobile learning	48	160	351	205	2.93	.85

	devices, I can satisfactorily try out various sources of academic information	6.3%	20.9%	45.9%	26.8%		
20	I do not find it easy to test run various applications on mobile learning devices	63 8.2%	150 19.6%	401 52.5%	150 19.6%	2.84	.83
21	With the utilisation of versatile learning gadgets, I can confidently try out various means of searching for information	81 10.6%	243 31.8%	266 24.8%	174 22.8%	2.70	.94
22	With the utilisation of portable learning gadgets, I am ready to experiment with searching for research information	70 9.2%	271 35.5%	264 34.6%	159 20.8%	2.67	.91
23	I never enjoy trying out new educational applications on mobile learning devices	114 14.9%	190 24.9%	345 45.2%	115 15.1%	2.60	.92
24	Use of mobile learning devices gives me great opportunity to try various educational applications	148 19.4%	229 30.0%	215 28.1%	172 22.5%	2.54	1.04
	Sub-Weighted Mean = 2.71						
	Grand Weighted Mean=2.70; Criterion Mean= 2.50						

Table 4.3 indicates the findings based on the four key indicators of compatibility, sociability, affordability, and triability. The finding revealed that compatibility of mobile learning devices ranked highest, ($\bar{x}$ =2.91) followed by sociability ($\bar{x}$ =2.72), while affordability ($\bar{x}$ =2.47) ranked the lowest. This implies that the respondents considered compatibility and, sociability as key factors that influenced their level of adoption of mobile learning devices. Since the weighted mean of 2.70 was greater than the criterion mean of 2.50, the respondents possessed high level of adoption of mobile learning devices. This connotes that the postgraduates in the selected private universities in Southwestern Nigeria had greatly adopted mobile learning devices for their academic and research activities.

Research question 3: What is the level of usability of mobile learning devices by postgraduates in private universities in southwestern Nigeria?

The findings on the level of usability of mobile learning devices among postgraduates in private universities in southwestern Nigeria are presented in Table 4.4.

Table 4.4 Level of usability of mobile learning devices by postgraduates in private universities in southwestern Nigeria

s/n	Items	SD	D	A	SA	$\bar{x}$	S.D
	Flexibility						
1	Mobile learning devices' use supports independent and collaborative learning experiences	61 8.0%	104 13.6%	424 55.5%	175 22.9%	2.93	.83
2	The utilisation of cell phones can expand adaptability of resources like D2L (Disire to Learn Software), slides, YouTube videos etc.	65 8.5%	184 24.1%	279 36.5%	236 30.9%	2.90	.94
3	Mobile learning resources support flexible device electronic/digital resources needed for research	77 10.1%	181 23.7%	312 40.8%	194 25.4%	2.82	.93
4	Mobile learning devices are flexible enough for me to perform multiple tasks together anywhere	112 14.7%	235 30.8%	263 34.4%	154 20.2%	2.60	.97
5	With mobile learning devices I can visit several learn the same time	138 18.1%	275 36.0%	188 24.6%	163 21.3%	2.49	1.02
6	Use of mobile learning devices cannot enhance access to electronic/digital resources	132 17.3%	316 41.4%	205 26.8%	111 14.5%	2.39	.94
	Sub-Weighted Mean = 2.69						
	Usefulness	**SD**	**D**	**A**	**SA**	$\bar{x}$	**S.D**
7	Utilising portable learning gadgets empowers me to perform learning undertakings all the more rapidly	60 7.9%	140 18.3%	338 44.2%	226 29.6%	2.96	.89
8	Using mobile learning devices helps me to access relevant information all the time	70 9.2%	241 31.5%	276 36.1%	177 23.2%	2.73	.92
9	The utilisation of versatile learning gadgets doesn't allow me to do research and imaginative work	126 16.5%	152 19.9%	311 40.7%	175 22.9%	2.70	1.00
10	Using mobile learning devices enhances my effectiveness in carrying out my academic	183 24.0%	182 23.8%	218 28.5%	181 23.7%	2.52	1.10

	work						
11	With mobile learning devices I usually cannot access relevant academic information as in a library	128 16.8%	262 34.3%	252 33.0%	122 16.0%	2.48	.95
12	Using mobile learning devices saves me a lot of more time than using other sources of information	216 28.3%	192 25.1%	210 27.5%	146 19.1%	2.37	1.09
	Sub-Weighted Mean = 2.63						
	Learnability						
13	I can utilise the portable learning gadget to scan for a data I need	112 14.7%	151 19.8%	324 42.4%	177 23.2%	2.74	.97
14	I understand the features of my mobile learning devices very well and can use them for sourcing information	133 17.4%	179 23.4%	265 34.7%	187 24.5%	2.66	1.03
15	I always need an experienced person around anytime I use mobile learning devices	201 26.3%	158 20.7%	273 35.7%	132 17.3%	2.44	1.06
16	I do not need the assistance of others to access information on mobile learning devices	245 32.1%	190 24.9%	190 24.9%	139 18.2%	2.29	1.10
17	Learning to operate mobile learning devices could be difficult	251 32.9%	181 23.7%	239 31.3%	93 12.2%	2.23	1.04
18	It is difficult to understand how to find electronic information sources on mobile learning devices	282 36.9%	231 30.2%	153 20.0%	98 12.8%	2.09	1.04
	Sub-Weighted Mean = 2.41						
	Ease of use	SD	D	A	SA	$\bar{x}$	S.D
19	It is anything but difficult to get versatile learning gadgets to do investigate in my field of study	79 10.3%	131 17.1%	307 40.2%	247 32.3%	2.95	.95
20	It is anything but difficult to understand books and computerized substance on portable learning gadgets	145 19.0%	148 19.4%	315 41.2%	156 20.4%	2.63	1.01
21	Utilising versatile learning gadgets for scholastic data doesn't require a ton of mental	144 18.8%	166 21.7%	340 44.5%	144 14.9%	2.55	.96

	exertion						
22	Utilising versatile learning gadgets makes it simple for me to get to the library and instructive materials	173 22.6%	189 24.7%	237 31.0%	165 21.6%	2.52	1.07
23	I don't think that it's simple to do look into on versatile learning gadgets	178 23.3%	265 34.7%	216 28.3%	105 13.7%	2.32	.98
24	Scanning for electronic data on portable learning gadgets is simpler than looking for comparable data in the library	244 31.9%	184 24.1%	198 25.9%	138 18.1%	2.30	1.10
25	Versatile learning gadgets are anything but difficult to use for getting to data	242 31.7%	211 27.6%	177 23.2%	134 17.5%	2.27	1.09
	Sub-Weighted Mean = 2.51						
	Grand Weighted Mean= 2.56 ; Criterion Mean= 2.50						

Table 4.4 shows the result of analysis of the level of usability of mobile learning devices based on 4 indices of flexibility, usefulness, learnability, and ease of use. Flexibility of mobile learning devices ranked highest, ($\bar{x}$ =2.69) followed by usefulness ($\bar{x}$ =2.63), while learnability ($\bar{x}$ =2.41) ranked the lowest. This indicates that the respondents considered flexibility a strong factor for usability of mobile learning devices. The Grand mean 2.56 was greater than the Criterion mean = 2.50 hence the respondents had high level of usability. It, therefore, implies that postgraduates of private universities in Southwestern Nigeria had high level of usability of mobile learning devices for their academic programmes.

Research question 4: For what purpose do postgraduates in private universities in southwestern Nigeria utilise library electronic resources?

Table 4.5 shows the results.

Table 4.5 Purpose of utilisation of electronic/digital resources by postgraduates in private universities in southwestern Nigeria

s/n	Purpose	Reading online	For examination	Seminar presentation	For research	$\bar{x}$	S.D
1	Reference materials	95 12.4%	151 19.8%	289 37.8%	229 30.0%	2.85	.99
2	E-books	144 18.8%	101 13.2%	269 35.2%	250 32.7%	2.82	1.09
3	E-journals	138 18.1%	133 17.4%	268 35.1%	225 29.5%	2.76	1.07
4	Electronic theses / Dissertation	193 25.3%	124 16.2%	217 28.4%	230 30.1%	2.63	1.16
5	E-databases related to my course e.g. Science Direct, EBSCOHOST, OARE, OPAC, JSTOR, BIOONE, HINARI, etc.	300 39.3%	161 21.1%	129 16.9%	174 22.8%	2.23	1.19
6	Online Dictionaries	316 41.4%	140 18.3%	153 20.0%	155 20.3%	2.19	1.18
7	Online Newspapers	331 43.3%	130 17.0%	142 18.6%	161 21.1%	2.17	1.20
8	Online Encyclopedias	332 43.5%	157 20.5%	102 13.4%	173 22.6%	2.15	1.21
9	CD-ROM/DVD Databases	330 43.2%	149 19.5%	158 20.7%	127 16.6%	2.11	1.14
	Weighted Mean = 2.43						

Table 4.5 reveals the findings under four key indicators which of research, seminar presentation, examination, and reading online. Reading online (31.7%) ranked highest followed by seminar presentation (25.1%), research purpose (25.0%), while 'examination' (18.1%) had the lowest percentage. Findings further revealed that online encyclopedias ($\bar{x}$ =2.15) and use of CD-ROM/DVD Databases ($\bar{x}$ =2.11) had the lowest mean. This implies that the major purpose of use of library electronic resources by postgraduates in the study was for reading online but not for utilising reliable library-licensed resources.

Research question 5: Which electronic/digital resources are most frequently utilised by postgraduates in private universities in Southwestern Nigeria?

In Table 4.6, the results for the most frequently utilised electronic/digital resources among postgraduates in private universities in southwestern Nigeria are shown.

Table 4.6 Frequency of utilisation of electronic/digital resources by postgraduates in private universities southwestern Nigeria

s/n	Items	Non-frequency	Low frequency	Moderate frequency	High frequency	$\bar{x}$	S.D
1	Multimedia	55 7.2%	15 15.1%	288 37.7%	306 40.1%	3.11	.91
2	Online magazines	53 6.9%	176 23.0%	212 27.7%	303 42.3%	3.05	.96
3	E-databases related to my course e.g. Science Direct, EBSCOHOST, OARE, OPAC, JSTOR, BIOONE, HINARI, etc.	94 12.3%	108 14.1%	273 35.7%	289 37.8%	2.99	1.01
4	Online Newspapers	66 8.6%	159 20.8%	273 35.7%	266 34.8%	2.97	.95
5	Online pictures/photographs	68 8.9%	168 22.0%	245 32.1%	283 37.0%	2.97	.97
6	Online Year books	103 13.5%	136 17.8%	242 31.7%	283 37.0%	2.92	1.04
7	Online Calendars	150 19.6%	178 23.3%	292 38.2%	144 18.8%	2.86	1.01
8	CD-ROM/DVD Databases	111 14.5%	171 22.4%	207 27.1%	275 36.0%	2.85	1.07
9	Online Encyclopedias	106 13.9%	146 19.1%	291 38.1%	221 28.9%	2.82	1.00
10	Almanacs Online	108 14.1%	192 25.1%	305 39.9%	159 20.8%	2.67	.96
11	Online Dictionaries	140 18.3%	201 26.3%	226 29.6%	197 25.8%	2.63	1.06
12	E-books	138 18.1%	272 35.6%	178 23.3%	176 23.0%	2.51	1.04
13	E-Journals	157 20.5%	243 31.8%	192 25.1%	172 22.5%	2.50	1.05
	Weighted Mean = 2.84						

Table 4.6 shows the findings based on four key indicators of non-frequency, low frequency, moderate frequency, and high frequency. The most frequently used resource by postgraduates is Multimedia (x =3.11) followed by Online magazines (x =3.05), E-databases related to my course e.g. Science Direct, EBSCOHOST, OARE, OPAC, JSTOR, BIOONE, HINARI, (x = 2.99), et cetera. Online Newspapers (x =2.97), Online pictures/photographs (x =2.97), while e-journals (x =2.50) ranked the lowest. The implication is that, Multimedia, Online magazines, Online Newspapers, and Online pictures/photographs were the most frequently used electronic data/information sources by postgraduates in private universities in Southwestern Nigeria.

Research question 6: What types of library electronic resources are commonly used by postgraduates in private universities in southwestern Nigeria?

Table 4.7 presents the results for the types of electronic resources commonly used among postgraduates in private universities in southwestern Nigeria.

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Table 4.7 Types of library electronic resources commonly utilised by postgraduates in private universities in southwestern Nigeria

S/N	Types of resources	Frequency	Percentage	Mean	Std Dev.
1	Electronic theses/dissertation	694	90.8	294	0.97
2	Online encyclopedias	653	85.5	2.90	1.05
3	Online pictures/photographs	669	87.6	2.87	0.98
4	Internet facilities	653	85.5	2.74	1.06
5	Online newspapers	649	85	2.72	1.01
6	E-journals	649	85	2.64	0.93
7	E-databases related to my course e.g. Science direct, ebscohost, OARE, OPAC, JSTOR, BIOONE	634	83	2.63	0.98
8	Reference materials	631	82.6	2.62	0.97

Table 4.7 reveals that electronic theses/dissertation ($\bar{x}$ =2.94); online encyclopedias ($\bar{x}$ =2.90); online pictures/photographs ($\bar{x}$ =2.87) ranked highest among the other indicators of types of e-resources being used by postgraduates in Southwestern Nigeria. Internet facilities ($\bar{x}$ =2.74); online newspapers ($\bar{x}$ =2.72) closely followed, while reference materials ($\bar{x}$ =2.62) ranked lowest.

Research question 7: What is the joint contribution of acceptance, adoption and usability of mobile learning devices to utilisation of electronic data/information sources among postgraduates of private universities in southwestern Nigeria?

In Table 4.8, the results of the joint contribution of acceptance, adoption, and usability of mobile learning devices to utilisation of electronic resources among postgraduates in private universities in southwestern Nigeria are presented.

Table 4.8 Regression Analysis showing the joint contribution of the independent variables (acceptance, adoption and usability of mobile learning devices) on utilisation of electronic/digital resources among postgraduates used for the study

R	R Square		Adjusted R Square	Std. Error of the Estimate	
.426	.181		.178	16.0289	
A N O V A					
Model	Sum of Squares	DF	Mean Square	F	Sig.	Remark
Regression	43173.837	3	14391.279	56.014	.000	Sig.
Residual	195262.29	760	256.924			
Total	238436.13	763				

Table 4.8 shows the joint contribution of the three independent variables (acceptance, adoption and usability of mobile learning devices) to the dependent variable (utilisation of library electronic resources) by postgraduates in private universities in Southwestern Nigeria. The findings showed a coefficient of multiple correlation (R = .42 and a multiple R^2 of .181. This means that 18.1% of the variance in electronic resource utilisation was accounted for by the predictor variables (acceptance, adoption and usability of mobile learning devices) when taken together. The significance of the composite contribution was tested at 0.05. The table also revealed that the analysis of variance (ANOVA) for the regression yielded F-ratio of [F (3,760) = 56.01; $p< 0.05$]. This implies that acceptance, adoption and usability of mobile learning devices had significant joint contribution on electronic resource utilisation by postgraduates in private universities in Southwestern Nigeria. It can also be deduced from the results that different factors excluded in this model may have accounted the rest of the difference.

Research question 8: What are the relative contributions of acceptance, adoption and usability of mobile learning devices to the utilisation of electronic data/information sources among postgraduates of private universities in southwestern Nigeria?

Table4.9 shows the results.

Table 4.9 Summary of Regression Analysis of the relative contribution of the independent variables (Acceptance, Adoption and usability of mobile learning devices) to the dependent variable (Utilisation of electronic/digital resources) among postgraduates in private universities in southwestern Nigeria

Model	Unstandardized Coefficient		Standardized Coefficient	T	Sig.
	B	Std. Error	Beta Contribution		
(Constant)	42.642	5.098		8.365	.000
Acceptance	.188	.063	.108	2.987	.003
Adoption	8.773E-02	.064	.057	1.363	.173
Usability	.452	.047	.369	9.595	.000

Table 4.9 reveals that acceptance of mobile learning device (β = .11, p <.05) and usability of mobile learning devices (β = .37, P <.05) had significant relative contributions to utilisation of electronic/digital resources by the respondents. On the other hand, adoption of mobile learning device (β = .06, P>.05) had no significant relative contribution to electronic/digital resources utilisation by the respondents.

Hence, acceptance of mobile learning device and usability of mobile learning device were significant. This means that each could significantly and independently predict utilisation of electronic/digital resources in the study.

4.3 Testing of hypotheses

Null Hypothesis 1: There is no significant relationship between acceptance of mobile learning devices and utilisation of library electronic resources by postgraduates in private universities in Southwestern Nigeria. To test this hypothesis, data collected were subjected to Pearson's Product Moment Correlation (PPMC). The results are presented in Table 4.10.

Table 4.10: PPMC showing the relationship between Acceptance of mobile learning devices and utilisation of electronic data/information sources among Postgraduates in private universities

Variable	Mean	Std. Dev.	N	R	p-value	Remark
Utilisation of electronic data/information	92.0798	17.6776	764	.150*	.000	Sig.
Acceptance of mobile learning devices	70.8390	10.1454				

* Sig at 0.05 level

Table 4.10 shows that there was a positive significant relationship between acceptance of mobile learning devices and utilisation of electronic/digital resources by postgraduates in private universities is southwestern Nigeria with the result (r = .15, N= 764, p (.000) <.05). Hence, acceptance of mobile learning devices had a positive influence on utilisation of electronic/digital resources by postgraduates in private universities in southwestern Nigeria. The hypothesis was, therefore, rejected.

Hypothesis 2: There is no significant relationship between adoption of mobile learning devices and utilisation of electronic/digital resources by postgraduates in private universities in Southwestern Nigeria. In testing the hypothesis, data collected were subjected to Pearson's Product Moment Correlation. Table 4.11 presents the results.

Table 4.11: PPMC showing the relationship between adoption of mobile learning devices and utilisation of electronic/digital resources among postgraduates in private universities

Variable	Mean	Std. Dev.	N	R	p-value	Remark
Utilisation of electronic/digital resources	92.0798	17.6776	764	.282*	.000	Sig.
Adoption of mobile learning devices	82.6270	11.4156				

* Sig at 0.05 level

Table 4.11 reveals that there was a positive significant relationship between adoption of mobile learning devices and utilisation of electronic/digital resources among Postgraduates in private universities in Southwestern Nigeria (r = .28, N= 764, p (.000) <.05). Hence, adoption of mobile learning devices had a positive influence on utilisation of library electronic resources by postgraduates in private universities in Southwestern Nigeria. Hence, the hypothesis was rejected.

Hypothesis 3: There is no significant relationship between usability of mobile learning devices and utilisation of library electronic resources by postgraduates in private universities in Southwestern Nigeria. Data collected were subjected to Pearson's Product Moment Correlation to test the hypothesis. In Table 4.12, results are shown.

Table 4.12: PPMC showing the relationship between usability of mobile learning devices and utilisation of electronic/digital resources among postgraduates in private universities

Variable	Mean	Std. Dev.	N	R	p-value	Remark
Utilisation of electronic/data resources.	92.0798	17.6776	764	.403**	.000	Sig.
Usability of mobile learning devices	63.8783	14.4179				

* Sig at 0.05 level

Table 4.12 shows that there was a positive significant relationship between usability of mobile learning devices and utilisation of electronic data/information sources by postgraduates in private universities in southwestern Nigeria ($r = .40$, $N= 764$, $p (.000)<.05$). Thus, usability of mobile learning devices had a positive influence on utilisation of electronic data/information sources by postgraduates in private universities in southwestern Nigeria. This hypothesis was, therefore, rejected.

4.4 Discussion of the findings

The discussion of the findings is based on the research questions answered and hypotheses tested in the study.

4.4.1 Level of acceptance of mobile learning devices by postgraduates in private universities in southwestern Nigeria

The findings revealed that acceptance of mobile learning devices among postgraduates in private universities in southwestern Nigeria was high. The mobility and likeability indicators of acceptance of mobile learning devices ranked highest. It could therefore be deduced that the level of acceptance of mobile learning devices was high among postgraduates. Postgraduates are generally mobile and may like to be at several places within a limited period of time, owing to the demands of office, family and research work. Likeability showed that majority of postgraduates were in love with the different mobile learning devices. By personal observation, it was easy to find a great percentage of respondents carrying different types of mobile devices. This connotes great willingness to own mobile learning devices by postgraduates in private universities in southwestern Nigeria.

This result is in consonance with the study by Ahmed and Kabir (2018) that there was a high degree of acceptance of mobile learning devices among students of Business Studies of a private university in Bagladesh. Postgraduates in this study accepted mobile learning devices for reasons ranging from mobility, likeability to attractiveness as revealed in the findings. In a study from Thailand by Jairak, Praneetpolgrang and Mekhabunckakj (2009) it was also reported that generally speaking, learners utilise cell phones at 95.1% and over 70% of learners showed that they utilise advanced cell and over half had past involvement with utilising web by means of portable devices. These findings are equally in tandem with those of Oyelere et al. (2016) that there has been a persistent flood in acknowledgement of versatile learning (i.e. mobile learning) among learners in tertiary institutions in Nigeria.

4.4.2 Level of adoption of mobile learning devices by postgraduates in private universities in southwestern Nigeria

As revealed by this study, respondents possessed a high level of adoption of mobile learning devices across the selected universities. It was revealed that compatibility

and sociability indicators had ranked highest. This implies that compatibility and sociability were major factors that influenced the level of adoption of mobile learning devices by postgraduates in private universities in southwestern Nigeria.

Furthermore, findings also showed that the postgraduates had the tendency to adopt mobile learning devices that are compatible with their social and academic needs. This is further expressed in the different way postgraduates employed their mobile devices. This affirms the finding of Said (2015) that cell phones are progressively been utilised for erudition at all echelons. Truth be told, versatile advancements have been evolving so quickly that scientists have not had satisfactory time to see how learners see cell phones and advances for learning just as how they might suspect these gadgets can best be utilised for learning. It is apparent in this investigation that most of the respondents had the tendency to adopt mobile learning devices as indicated by such indices as 'using mobile learning devices is completely compatible with my current situation as a research student', 'use of mobile learning devices raises my self-esteem and self-confidence' and 'with the use mobile learning devices I can satisfactorily try out various sources of academic information'. This further validated the result of a study conducted on postgraduates students in Malaysia by Said (2015) which revealed that greater part of postgraduates utilised their cell phones, for example, workstations, cell phones and tablets for recording assignments, looking the web for study, getting to the college's LMS, understanding books and scholastic papers, and speaking with partners on informal communities. However, a small percentage of respondents indicated that 'when I consider the cost of finding academic information on mobile learning devices, I go for other sources like the library instead'. This indicated that even the cost of using mobile learning devices for accessing information was not a problem for postgraduates in this study. This negates the concept of price value in the Unified Theory of Acceptance and Use of Technology 2.

4.4.3 Level of usability of mobile learning devices by postgraduates in private universities in southwestern Nigeria

Findings revealed that usability of mobile learning devices was rated high by the respondents. Flexibility and usefulness indices topped the usability scale of this study as revealed in the analysis. This showed that postgraduates preferred flexible sources

of information such as smartphones, phablets and tablets. Respondents strongly agreed that "Mobile learning devices' use supports independents collaborative learning experiences" and "The use of mobile devices can increase flexibility of resources like D2L(Desire to Learn Software), slides, YouTube and videos. This means that, mobile learning devices users believe that those devices have most of the features that can meet their expectation for using them. All this borders on needs gratification with multiplier effects on postgraduates' adoption of mobile learning devices. This corroborates the uses and gratifications theory as used in this research. Majority of respondents also agreed that "Using mobile learning devices saves me a lot more time than using other sources of information" This implies that in spite of the challenges of mobile learning device usability, respondents were still satisfied with sourcing information on those devices because they considered them time-saving and convenient.

4.4.4 Level of utilisation of electronic/digital resources by postgraduates in private universities in southwestern Nigeria

Findings showed that respondents demonstrated a low level of utilisation of electronic/digital resources available in the universities used for the study. The major purpose of utilisation was for 'reading online' followed by seminar presentation. It was further uncovered that the most regularly utilised electronic resources by respondents was in Multimedia followed by Online magazines and then e-databases related to my course such as Science Direct, EBSCOHOST, OARE, OPAC, JSTOR, BIOONE, HINARI, while e-journals were the least frequently used. Also, e-journals and reference materials ranked lowest among the types of resources being used by postgraduates in private universities in southwestern Nigeria. This implies that Multimedia, Online magazines, electronic theses/dissertations, online encyclopedias and online pictures and photographs were the commonly utilised electronic/digital resources by postgraduates. This connotes that the respondents in this study prefer access to online data/information sources rather than electronic databases such as Science Direct, EBSCOHOST, OARE, OPAC, JSTOR, BIOONE, HINARI and reference materials commonly found in the library stock. This corroborates the findings ofMawere and Sai (2018) that regardless of unglued endeavors by the college to profit e-resources, there is poor use and is in tandem with Ankrah, and Atuase, (2018) who reported in a study conducted in Ghana involving postgraduate students

that most postgraduate learners fairly wanted to get to data from Google researcher, and other online databases more habitually than the databases in the library. They further revealed that tragically e-resources were not utilised to their completest by postgraduate learners due to low exposure, insufficient preparing, and confinements of access. For example, passwords and usernames, and different restrictions, for example, poor web association, deficient PCs, just as power blackout and lacking looking through abilities which compelled learners to depend more on library experts for their data look. This result is not unexpected because on the one hand, most of these limitations are equally present in Nigeria and on the other hand, majority of postgraduates in this study were mobile-technology prone and conversant with the concept of convenience and time –saving which could influence their decision to choose which source of information at any given time. Such crop of students may prefer to leverage on the advantages of these devices in sourcing for information. In a study conducted at University of Calabar, Nigeria Edem and Egbe (2016) also reported a similar result that online databases were underutilised. In contrast, Said (2015) reported on the after effects of an overview of 86 postgraduates at Faculty of Education, Universiti Putra Malaysia (UPM) about usage of cell phones and advances and their observation on the utilisation of the innovations for learning. Results uncovered that a dominant part of the respondents utilised their cell phones, such as workstations, cell phones and tablets for recording assignments, scanning the web for study, getting to the college's LMS, understanding books and scholastic papers, and speaking with partners on informal communities. Making electronic/digital resources available to postgraduates on mobile learning devices with relative ease may greatly influenced student’s disposition towards utilisation of those reliable, library-licensed resources.

4.4.5 Purpose for which postgraduates in private universities in southwestern Nigeria utilise library electronic data/information sources

The present discoveries demonstrate that in rank order, the reason for which postgraduates in private universities in southwestern Nigeria utilise electronic/digital resources was mostly for reading online, followed by seminar presentation. This is similar to what Tiemo (2017) reported that a greater percentage of postgraduate students used electronic information resource databases to write their assignments. This was followed by other purposes for which postgraduate students reasonably used

EIR databases in order of popularity namely: preparing for seminars, preparing for examinations, writing of thesis, for group discussion, sharing of knowledge, update of their knowledge, for recreation and leisure and preparing for conferences.

4.4.6 Frequency of utilisation of electronic/digital resources by postgraduates in private universities in southwestern Nigeria

Findings revealed that multimedia and online magazines were the most frequently utilised resources, followed by online databases related to my course such as Science Direct, EBSCOHOST, OARE, OPAC, JSTOR, BIOONE, HINARI, et cetera, while e-Journals and e-books had the lowest. It is important to note that majority of the respondents indicated high frequency of utilising multimedia and online magazines as against library-licensed resources. This indicates that majority of postgraduates appreciated Internet-enabled facilities and sources of information with multimedia features such as audio, sound, animation and pictures.

This trend implies that majority of postgraduates in the study would rather prefer audiovisual contents to only written texts. This could also be explained in terms of young adults' interests in pictures and visual aids. Low frequency of e-journals and e-books utilisation may be because of the way that dominant part of the respondents where mobile phone freaks who may not be conversant with looking for such items of information on the phone. It could be inferred from the findings that library-licensed electronic/digital resources were not as frequently used as would have been expected. This supports the finding of Gilbert (2015), who conducted a study among postgraduate students in ModibboAdama University of Technology, Yola and found out that the recurrence of utilisation of electronic/advanced resources was just genuinely high, specifically for research, education and news which were frequently patronised online.

4.4.7 Relationship between acceptance of mobile learning devices and utilisation of library electronic resources by postgraduates in private universities in southwestern Nigeria

Findings showed that acceptance of mobile learning devices among postgraduates of private universities in southwestern Nigeria correlated positively with utilisation of electronic/digital resources. This means that acceptance of mobile learning devices

and utilisation of electronic/digital resources had a positive relationship. By inference, postgraduates accepted mobile learning devices as important sources of electronic/digital resources. Postgraduates in private universities in southwestern Nigeria possessed a high level of acceptance of mobile learning devices as a result of mobility and likeability factors of mobile devices.

The implication is that postgraduates found mobile learning devices attractive and convenient to use and take around. By mobility, it is implied that acceptance of mobile learning devices enhances retrieval and utilisation of electronic/digital resources by postgraduates from anywhere. This finding agrees with that of Elahi, and Islam, (2014) on learners' observation on executing versatile based library administrations at Dhaka University Library with the end that utilising cell phone will upgrade capacity to recover data from anyplace. Mobility in this sense could facilitate convenience in information sourcing and retrieval by postgraduates, to meet information and other social needs.

4.4.8 Relationship between adoption of mobile learning devices and utilisation of library electronic resources by postgraduates in private universities in southwestern Nigeria

Finding showed that adoption of mobile learning devices among postgraduates of private universities in southwestern Nigeria correlated positively with utilisation of electronic/digital resources. This connotes that adoption of mobile learning devices and utilisation of electronic/digital resources had a positive relationship. In other words, postgraduates of private universities in southwestern Nigeria would adopt mobile learning devices and use such for accessing and retrieving needed information as much as possible. This was evident in the high compatibility and sociability factors reported by the respondents. By compatibility is meant that for postgraduates' adoption of mobile learning devices naturally aid the use of library electronic resources probably because majority of students saw mobile learning devices as a useful tool containing library materials which they could carry with them anywhere anytime. Odu and Omini (2017) had reported that mobile phone apps generally had significant relationship with the utilisation of library services in the University of Calabar, Nigeria.

4.4.9 Relationship between usability of mobile learning devices and utilisation of library electronic resources by postgraduates in private universities in southwestern Nigeria

This study showed that usability of mobile learning devices among postgraduates of private universities in southwestern Nigeria correlated positively with utilisation of electronic data/information sources. This implies that usability of mobile learning devices and utilisation of electronic/digital resources has a positive relationship. That is, the more usable postgraduates find mobile learning devices, the more they use them for retrieving electronic data/information sources. New advances have made correspondence and access to data extremely advantageous for clients, both from the solace of their homes or workplaces and from any place they are while progressing with their cell phones or individual computerised partners (Elahi, and Islam, 2014).

Furthermore, a study on ease of use, Assessment of a Collection Portable Site was led in Taiwan by ChanLin, Lih-Juan and Wei-Hsiang Hung (2016). The report showed that the learners utilising versatile sites completed more search undertakings all the more rapidly, and were more effective in finishing search assignments than those utilising the PC site. The perceived advantages of mobile learning devices over personal computers and other physically restricted sources may be used to explain the wide acceptability and adoption of mobile learning devices by postgraduates in this study. Vrana, Gascic and Podkonjak (2017) made the recommendation that to achieve the usability goal of mobile learning devices for utilisation of electronic/digital resources, the user interfaces of digital collections must be fashioned in such a way to be effortlessly used, especially on mobile devices.

4.4.10 Joint contribution of the independent variables (acceptance, adoption and usability of mobile learning devices) to utilisation of electronic/digital resources among postgraduates in private universities in southwestern Nigeria

Findings revealed that the joint contribution of the three independent variables (acceptance, adoption and usability of mobile learning devices) to the prediction of the dependent variable that is, utilisation of library electronic resources by student respondents was significant. This infers the joint commitment of the independent factors (variables) to the needy variable was critical and that different factors

excluded in this model may have represented the rest of the difference. The implication of this is that acceptance, adoption and utilisation of mobile learning devices significantly influenced utilisation of electronic/digital resources by the respondents.

4.4.11 Relative contribution of acceptance, adoption and usability of mobile learning devices to the utilisation of electronic/digital resources among postgraduates in private universities in southwestern Nigeria

The relative contributions of all the independent variables (acceptance, adoption and usability of mobile learning devices) to the dependent variable (utilisation of electronic/digital resources), were significant except adoption which was not significant. This means that acceptance and usability could significantly and independently predict mobile learning device contributed individually and significantly to the utilisation of electronic/digital resources by the respondents. This result supports the findings of Masika, Omondi, Natembeya, Mugane, Bosire and Kibwage (2015) in a study conducted in Kenya who submitted that almost all learners who have a smart gadget utilised it for learning exercises, such as customary investigation, revising for tests, taking notes or pictures and getting to explore scholarly journals.

CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter focuses on the summary of the findings, conclusion, recommendations, contributions and suggestions for further studies

5.1 Summary of the findings

The study investigated acceptance, adoption and usability of mobile learning devices as correlates of library electronic resource utilisation by postgraduates in private universities in southwestern Nigeria. The findings from the study were summarized as follows:

Findings showed that postgraduates in the selected private universities in Southwestern Nigeria fairly utilised the available library electronic resources.

Findings also revealed that postgraduates preferred access to online information rather than electronic databases, such as, Science Direct, EBSCOHOST, OARE, OPAC, JSTOR, BIOONE, HINARI commonly found in the library stock in the selected universities.

Acceptance of mobile learning devices by the postgraduates was high.

Postgraduates were not only interested in mobile learning devices, but were also willing to acquire them.

There was high level of adoption of mobile learning devices by the postgraduates.

Postgraduates' adoption of mobile learning devices had strong influence on their use of those devices for sourcing academic related information.

The usability of mobile learning devices was rated high by postgraduates in private universities in southwestern Nigeria. They indicated that mobile learning devices were usable in spite of the limitations of such mobile tools.

Multimedia and online magazines were the most frequently utilised electronic/digital resources while e-books and e-journals remained the least frequently utilised by the postgraduates.

The utilisation of electronic/digital resources by postgraduates was mostly through reading online, while CD-ROM/DVD Databases were seldomly utilised.

Electronic theses/dissertation, online encyclopedias and online pictures/photographs

were the most preferred sorts of electronic resources by postgraduates in Southwestern Nigeria.

The findings established that acceptance, adoption and usability of mobile learning devices had significant joint contribution to library electronic resource utilisation by postgraduates in private universities in southwestern Nigeria.

Relatively, acceptance, usability and adoption of mobile learning device had significant relationship to library electronic resources utilisation among postgraduates in private universities in Southwestern Nigeria in that order of magnitude.

5.2 Conclusion

This study investigated acceptance, adoption and usability of mobile learning devices as correlates of utilisation of library-based electronic/digital resources by postgraduates in private universities in Southwestern Nigeria.

Based on the findings of this study, the following were deduced:

That library electronic resources available were fairly utilised by postgraduates in private universities in southwestern Nigeria.

Majority of the postgraduates involved in the study approved that mobility and flexibility qualities of mobile learning devices contributed significantly to accessibility of academic related information. Postgraduates of private universities in southwestern Nigeria used mobile learning devices to access academic information from the library-controlled data/information sources as much as possible. Acceptance, adoption and usability of mobile learning devices influenced significantly the utilisation of library electronic resources by postgraduates of private universities in southwestern Nigeria.

5.3 Recommendations

The following recommendations were made based on the findings of this study:

- Private university libraries should ensure that library electronic resources should not only be accessible through the traditional methods and the use of personal computers in the universities in southwestern Nigeria they should also be through mobile technology such as tablets, smartphones, notebooks, among others.

- Private university libraries must ensure mobile compatible and mobile friendly electronic/digital resources for the use of library clients, most especially postgraduates in the Nigerian universities.
- Private university administrators must ensure availability of mobile deliverable electronic data/information sources for the library users particularly the postgraduates for enhanced learning.
- Private university administration should provide adequate facilities for university libraries to enhance provision of current materials and state of the art electronic/digital resources.
- Academic librarians in private universities should intensify efforts in creating the awareness of latest electronic/digital resources which are newly available in the university libraries.
- Owners of private universities should adopt emerging technologies to ensure standard university libraries where modern technologies can be employed in service delivery.
- Private university libraries should conduct proper orientation for postgraduates on the use of the available electronic/digital resources for their academic activities and researches.
- Mobile technologies should be adopted and implemented in private university libraries in order to achieve the goals of meeting information needs of postgraduates in Nigeria.

5.4 Contributions of the study to knowledge

This study contributed to knowledge in the following ways:

Acceptance of mobile learning devices enhanced library electronic resource utilisation by postgraduates of private universities in southwestern Nigeria.

Adoption of mobile learning devices improved library electronic resource utilisation among postgraduates of private universities in southwestern Nigeria.

The library electronic resource utilisation by postgraduates of private universities in southwestern Nigeria was influenced through the usability of mobile learning devices.

The literature generated from this research and the conceptual model self-developed by the researcher had contributed significantly to the body of knowledge in the library and information profession.

The factors affecting utilisation of library electronic resources, if properly taken into consideration, would be of immense benefits to stakeholders the education sector.

5.5 Limitations of the study

The study had some limitations which however did not affect the validity and authenticity of the findings.

This study was limited to postgraduates in private universities in southwestern Nigeria, however, findings may be different in other geo-political zones in the country and among other categories of students.

The study was based on the survey research design. However, other methods could be combined with this study for more reliability and generalisation of findings of the study. Nevertheless, these limitations did not negatively affect the authenticity and validity of the findings in the study.

5.6 Suggestions for further research

Based on the limitations of this study, the following suggestions are made for further studies:

The study could be replicated in other zones within Nigeria.

The study could be extended to public universities in the country.

The study could also be carried out in other tertiary institutions such as Monotechnics, Polytechnics, and Colleges of Education in the country.

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APPENDIX 1

ACCEPTANCE, ADOPTION AND USABILITY OF MOBILE LEARNING DEVICES AND POSTGRADUATES' ELECTRONIC RESOURCE UTILISATION QUESTIONNAIRE (AAUMLDPERUQ)

Dear Respondent,

This questionnaire is to collect data on acceptance, adoption, and usability of mobile learning devices as correlates of postgraduates' electronic resource utilisation in private university libraries in southwestern Nigeria. Data collected will be used purely for the purpose of research towards the fulfillment of a higher degree. Please be assured of the strictest confidentiality and anonymity.

SECTION A: PERSONAL DATA OR DEMOGRAPHIC FACTORS.

1. Institution (optional):…….....
2. Faculty:……
3. Department:…….
4. Gender: Male [ ] Female [ ]
5 Age: Below 20 [ ] 20-24 [ ] 25-30 [ ] 31-35 [ ] 35 and Above [ ]
6 Level: (1) Ph.D.[ ] (2) Master [ ]

SECTION B: ELECTRONIC INFORMATION RESOURCE UTILISATION SCALE (ULERUS).

Kindly indicate the purpose of utilising the following e-resources:					
S/N	**PURPOSE**	**For research**	**Seminar presentation**	**For examinations**	**reading online**
I	E-books				
ii	E-journals				
ii	Reference materials				
iv	Electronic theses/ Dissertations				
V	Online News papers				
vi	Online Dictionaries				
vii	Online Encyclopedias				
viii	CD-ROM/DVD Databeses				
ix	E-databases related to my course e.g. Science Direct, EBSCOHOST, OARE, OPAC, JSTOR, BIOONE, HINARI, etc.				
Which of these types of e-resources do you utilise and how often					
S/N	**TYPES OF E-RESOURCES**	**DAILY**	**WEEKLY**	**MONTHLY**	**NEVER**
I	E-books				
ii	E-journals				
iii	Reference materials				
iv	Electronic theses/ Dissertations				
V	Internet facilities				
vi	Online News papers				
vii	Online Encyclopedias				
viii	Online Year books				
ix	CD-ROM/DVD Databeses				
X	E-databases related to my course e.g. Science Direct, EBSCOHOST, OARE, OPAC, JSTOR, BIOONE, HINARI, etc.				
xi	Multimedia				
xii	Online Pictures/photographs				
xiii	Online Calendars				

Please describe the regularity of your utilisation of the following e-resources?					
SN	**ITEMS**	**High frequency**	**Moderate frequency**	**Low frequency**	**Non-frequency**
I	Online News papers				
ii	Online Magazines				
iii	E-books				
iv	Online Dictionaries				
V	E-Journals				
vi	Online Encyclopedias				
vii	Online Calendars				
viii	Almanacs Online				
ix	Online Year books				
X	CD-ROM/DVD Databeses				
xi	E-databases related to my course e.g. Science Direct, EBSCOHOST, OARE, OPAC, JSTOR, BIOONE, HINARI, etc.				
xii	Multimedia				
xiii	Online Pictures/photographs				

SECTION C: ACCEPTANCE OF MOBILE LEARNING DEVICES SCALE (AMLDS).

Please, respond to the following items on user acceptance of mobile learning devices scale (UAMLDS) based on Strongly Agree, (SA), Agree (A), Disagree (D) and Strongly Disagree, (SD)

S/N	ITEM	SA	A	D	SD
Attractiveness					
1.	I usually find mobile learning devices interesting and attractive to have				
2.	I find mobile learning devices boring to possess				
3.	I usually find mobile learning devices eye-catching				
4.	I find mobile learning devices dull				
5.	I do not care to have any mobile learning device because it is not captivating				
6.	I regard mobile learning devices as of high aesthetic value				
Likeability					
7.	I like different types of mobile learning devices				
8.	I always like to have mobile learning devices with me				
9.	I always like to get academic information on mobile learning devices				
10.	I always like to use mobile learning devices for finding electronic information				
11.	I dislike reading or sourcing for information on mobile learning devices				
12.	Nothing can make me like handheld devices				
Mobility					
13	I discover it relaxed to carry along mobile learning gadgets anywhere I go				
14	I don't feel comfortable taking mobile learning devices everywhere				
15	Mobile learning devices enable me to receive any kind of information anywhere anytime				
16	It is cumbersome to send or receive academic information through mobile learning devices				
17	Mobile learning devices enable me to search for and download electronic information anywhere anytime				
18	With mobile learning devices I am no longer attached to a physical place of learning or a library				
Portability					
19	I would like to have any portable wireless handheld device				

20	I enjoy carrying mobile devices around				
21	I love mobile learning devices because of lightweight				
22	I cannot think of using a heavy mobile learning device				
23	I love mobile learning devices that I can hold and operate in the hand				
24	It is never convenient for me to operate mobile learning devices on the palm				

SECTION D: ADOPTION OF MOBILE LEARNING DEVICES SCALE (AMLDS).

Please respond to the following items on adoption of mobile learning devices scale (AMLDS) as based on Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD)

Which of these mobile learning devices do you at present use or plan to use in the next a quarter of a year:		
1	Cell phones	
2	Tablets	
3	Phablets	
4	E-readers	
5	Smart phones	
6	PDAs	

Compatibility					
7	Utilisation of portable learning gadgets accommodates my own style				
8	Utilisation of versatile learning (i.e. mobile learning) gadgets bolsters my understanding propensity				
9	Utilisation of portable learning gadgets isn't good with my scholarly work				
10	Using mobile learning devices fits well with the way I source for information				
11	Using mobile learning devices is completely companionable with my present state as an investigation scholar				
12	Usage of mobile learning gadgets does not suit my study life at all				
Sociability					
13	Use of mobile learning devices raises my confidence and fearlessness				
14	Use of mobile learning devices permits me to interact well socially				
15	Usage of mobile learning devices does not permit me to interact very well with my colleagues				
16	I have to use mobile learning devices because everybody around me including lecturers assume that I use them				
17	Usage of mobile learning devices enhances informal academic discussions				

18	Use of mobile learning devices does not allow informal conversations, which I enjoy, with fellow students				
Affordability					
19	I would like to have any wireless handheld device if I can afford it				
20	I have the resources to utilise portable learning gadgets				
21	I find the cost of using information on mobile learning devices cheaper than other sources				
22	I do not mind the cost of using mobile learning devices once I get what I need from them				
23	I love sourcing information on mobile learning devices but usually I cannot afford the cost				
24	When I consider the cost of finding academic information on mobile learning devices, I go for other sources like the library instead				
Triability					
25	Utilisation of portable learning gadgets gives me incredible opportunity to try various educational applications				
26	Utilisation of portable learning gadgets gives me incredible satisfactorily try out various sources of academic information				
27	Utilisation of portable learning gadgets gives me incredible confidently try out various means of searching for information				
28	I do not find it easy to test run various applications on mobile learning devices				
29	Utilisation of portable learning gadgets gives me incredible ability to experiment with searching for research information				
30	I never enjoy trying out new educational applications on mobile learning devices				

SECTION E: USABILITY OF MOBILE LEARNING DEVICES SCALE (UMLDS).

Please respond to the following items on usability of mobile learning devices scale (UMLDS) based on Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD)

S/N		SA	A	D	SD
Flexibility					
1	The utilisation of cell phones can build adapt access to resources (like D2L, slides, notes, recordings, etc.)				
2	Mobile learning devices are flexible enough for me to perform multiple tasks together anywhere				
3	With mobile learning devices I can visit severa sites at the same time				
4	Mobile learning resources support flexible de electronic/digital resources needed for research				
5	Use of mobile learning devices cannot enhance access to electronic/digital resources				
6	Mobile learning devices' use supports indepen collaborative learning experiences				
Usefulness					
7	Utilising portable learning gadgets causes me to get to applicable data constantly				
8	Utilising portable learning gadgets empowers me to perform learning undertakings all the more rapidly				
9	With mobile learning devices I usually cannot access relevant academic information as in a library				
10	By means of mobile learning devices enhances my efficiency in carrying out my academic effort				
11	By means of mobile learning devices saves me a lot of more time than using other sources of information				
12	The usage of mobile learning gadget does not allow me to do research and imaginative work				
Learnability					
13	I understand the features of my mobile learning devices very well and can use them for sourcing information				
14	I can utilise the portable learning gadget to scan for a data I need				
15	I always need an experienced person around anytime I use mobile learning devices				
16	I do not need the assistance of others to access				

	information on mobile learning devices				
17	Figuring out how to work versatile learning (i.e. mobile learning) gadgets could be troublesome				
18	It is difficult to understand how to find electronic information sources on mobile learning devices				
Ease of use					
19	Portable learning gadgets are exceptionally simple to use for getting to data				
20	Looking for electronic data on portable learning gadgets is simpler than scanning for comparable data in the library				
21	Utilising portable learning gadgets makes it simple for me to get to library and instructive materials				
22	It is anything but difficult to understand books and computerized substance on versatile learning (i.e. mobile learning) gadgets				
23	Utilising versatile learning (i.e. mobile learning) gadgets for scholarly data doesn't require a great deal of mental exertion.				
24	It is anything but difficult to get versatile learning (i.e. mobile learning) gadgets to do inquire about in my field of study				
25	I don't think that it’s simple to do look into on versatile learning (i.e. mobile learning) gadgets				

APPENDIX II

Table 3.1 Total population of private Universities in Southwestern Nigeria by State and year established

S/N	University	Location/State	Year Established
1	Babcock University	Ilishan-Remo, Ogun State	1999
2	Bells University of Technology	Ota, Ogun State	2005
3	Chrisland University	Owode, Ogun State	2015
4	Christopher University	Mowe, Ogun State	2015
5	Covenant University	Ota, Ogun State	2002
6	Crawford University	Igbese, Ogun State	2005
7	Crescent University	Abeokuta, Ogun State	2005
8	Hallmark University	Ijebu Itele, Ogun State	2015
9	McPherson University	Abeokuta Ogun State	2012
10	Mountain Top University	Makogi Oba Ogun State	2015
11	SouthWestern University	Okun-OwaOgun State	2012
12	Adeleke University	Ede, Osun State	2011
13	Bowen University	Iwo, Osun State	2001
14	Fountain University	Osogbo, Osun State	2007
15	Joseph Ayo Babalola University	Ikeji-Arakeji, Osun State	2006
16	Kings University	Odeomu, Osun State	2015
17	Oduduwa University	Ipetu, Ife Osun State	2009
18	Redeemer's University	Ede, Osun State	2005
19	The Achievers' University	Owo, Ondo State	2007
20	Elizade University	Ilara-Mokin, Ondo State	2012
21	Wesley University of Technology	Ondo, Ondo State	2007
22	Ajayi Crowther University	Oyo, Oyo State	2005
23	Lead City University	Ibadan, Oyo State	2005
24	Augustine University	Ilara-Epe, Lagos State	2015
25	Caleb University	Imota, Lagos State	2007
26	CETEP City University	Yaba Lagos, Lagos State	2005
27	Pan-Atlantic University	Lekki Lagos, Lagos State	2002
28	Afe Babalola University	Ado-Ekiti, Ekiti State	2009

Source: National Universities Commission website (2016)