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INFORMATION LITERACY SELF-EFFICACY IN THE USE OF ELECTRONIC INFORMATION RESOURCES BY LIBRARY AND INFORMATION SCIENCE POSTGRADUATE STUDENTS IN SOUTH-SOUTH NIGERIA

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DECLARATION

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ABSTRACT

This study was carried out to investigate information literacy self-efficacy (ILSE) in the use of Electronic Information Resources (EIRs) by Library and Information Science Postgraduate Students in South-South, Nigeria. Three universities accredited by the National University Commission to offer postgraduate programmes in Library and Information Science in South-South, Nigeria were studied. The universities are: Delta State University, Abraka; University of Uyo, Uyo and University of Calabar, Calabar.The objectives of this study were guided by the five research questions: What information literacy skills do postgraduate students have to use electronic information resources? What is the relationship between postgraduate students' information literacy self-efficacy and their use of electronic information resources? What are students' usage patterns of electronic information resources? What are the barriers related to information literacy that hinder postgraduate students from using electronic information resources? How can information literacy self-efficacy be enhanced amongst library and information science postgraduate students?

The study was informed by post-positivism research paradigm and applied Kuhlthau (2004)Information Search Process (ISP) model anchored on social constructivism approach.The mixed methods (quantitative and qualitative approach) were employed. The population for the study consisted of 115 postgraduate students admitted for the 2016/2017 academic year and 3 subject librarians at the three universities. A survey questionnaire was used to solicit quantitative data from the postgraduate students, while an interview was used to solicit qualitative data from the subject librarians. Quantitative and qualitative data collected were analysed using statistical package for social sciences (SPSS) and thematic content analysis (TCA) respectively. The SPSS was specifically used to generate frequency counts, percentage and descriptive statistics.The study adhered to the ethical standards of the University of KwaZulu-Natal.

The findings revealed that the use of EIRs is determined by the competency in information literacy. Findings further showed that tool literacy, critical literacy, social-structural literacy, emerging technology literacy and publishing literacy determine postgraduate students' use of EIRs. The study furtherrevealed that there is a strong relationship between information literacy self-efficacy skills and the use EIRs as information literacy self-efficacy skills have impacted on postgraduate

students' usage of Information and Communication Technology (ICT) components, especially those related to the use of EIRs such as the use of a computer and its software and applications. The usage patterns of EIRs were determined through the frequency and purpose of using EIRs. Findings indicated that e-journals, e-books, e-newspapers and e-reference sources were the most frequently used EIRs by the postgraduate students. Results also indicated that EIRs were used for different academic purposes. The study provides new insight into barriers faced by postgraduate students while using EIRs. Details of the findings revealed that postgraduate students were faced with information literacy related barriers such as information overload, difficulties in downloading, credibility of information and a lack of adequate knowledge of Information Technology (IT).Futhermore, the study revealed that a number of strategies such as the introduction of IL related courses, adequate orientation to the library and its resources, mastery experience (the use of personal past experience to a particular task), sharing experiencesrelating to information literacy, strategic training on information literacy self-efficacy and constructive feedback could be employed to enhance postgraduate ILSE skills.

The study concludes that the intricacy of the electronic atmosphere requires that postgraduate students possess ILSE skills to effectively and efficiently use EIRs. Therefore, the study recommends among others that universities introduce programmes such as IL certificate programmes, workshops, seminars and othersthat would increase information literacy of postgraduate students. Moeover, it is recommended that the Nigerian Library Association (NLA) should be involved in advocacy for IL as well as lobby for the incorporation of IL in the curriculum to promote information literacy skills. This study has implications for policy, practice and theory as policy makers and university management can apply a set of recommendations from this research study to formulate policies that would be beneficial for the enhancement of ILSE skills among undergraduate and postgraduate students. Similarly, the current study contributes to the body of knowledge from the perspective of postgraduate students' ILSE skills in using EIRs. Furthermore, the strength of the ISP model adopted for this study was re-affirmed as its constructs adequately addressed the entire research questions formulated for this study.

DEDICATION

This thesis is dedicated to the sweet memory of my late parents, Mr. Patrick Odede and Mrs. Agnes Odede for their unlimited love and unending careas well as being examples of hard work which has given me the strength to move on in life despite their absence.

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List of abbreviation and acronyms

ACRL:	Association of College and Research Libraries
ALA:	American Library Association
AVCNU:	Association of Vice Chancellors of Nigerian Universities
CD-ROM:	Compact Disc Read Only Memory
CILIP:	Chartered Institute of Library and Information Professionals
CPUT:	Cape Peninsula University of Technology
DELSU:	Delta State University
DVD:	Digital Versatile Disc
EIRs:	Electronic Information Resources
EIFL.NET:	Electronic Information for Libraries Network
EIS:	Electronic Information Sources
FUTO:	Federal University of Technology
HINARI:	Health Inter Network Access to Research Initiative
ICC:	International Conference Centre
ICT:	Information and Communication Technology
IFLA:	International Federation of Library Association
IL:	Information Literacy
ILCSHE:	Information Literacy Competency Standards for Higher Education
ILE:	Information Literacy Education
ILS:	Information Literacy Skills
ILSE:	Information Literacy Self-Efficacy
ILP:	Information Literacy Programme
IPS:	Information Problem Solving
ISP:	Information Search Process
IT:	Information Technology
JSTOR:	Journal Storage
LIASA:	Library and Information Association of South Africa
LIS:	Library and Information Science
LRCN:	Librarian Registration Council of Nigeria
MMR:	Mixed Methods Research

MARC:	Machine Readable Catalogue
MSc:	Master of Science
NERDC:	Nigerian Education Research Development Centre
NITDA:	National Information Technology Development Agency
NLA:	Nigerian Library Association
NPE:	National Policy on Education
NUC:	National Universities Commission
NULIB:	Nigerian University Libraries Consortium
OPAC:	Online Public Access Catalogue
PhD:	Doctor of Philosophy
SCONUL:	Society of College, National and University Libraries
SNS:	Social Networks Sites
SPSS:	Statistical Package for Social Sciences
TASUED:	Tai Solarin University of Education
TETFUND:	Nigerian Tertiary Education Trust Fund
TCA:	Thematic Content Analysis
UB:	University of Botswana
UCT:	University of Cape Town
UK:	United Kingdom
UNAM:	University of Namibia
UNISA:	University of South Africa
UKZN:	University of KwaZulu-Natal
UNIBEN:	University of Benin
UNICAL:	University of Calabar
UNISA:	University of South Africa
UNIUYO:	University of Uyo
UP:	University of Pretoria
USA:	United States of America
WWW:	World Wide Web

CHAPTER ONE
INTRODUCTION

1.1 Introduction

The concept of information literacy self-efficacy (ILSE) in using electronic information resources (EIRs) have been of increasing concern in the education sector for a number of years since students' capacity to find and retrieve electronic information successfully depends on computer literacy (competence) and self-efficacy (confidence). ILSE has become important since there is a tremendous change in the world of information characterized by the shift from printed information resources to EIRs. Information literacy (IL) and self-efficacy are two interrelated concepts that could potentially affect student's motivation to complete an academic task. "Psychologists and educationists are becoming more aware of the fact that an individual's self-efficacy, or his perception of his capability or ability, is intimately related to how he learns and behaves" (Tella, Tella, Aveni and Omoba, 2007:1).

1.2 Background to the study

The rapid technological advancement has drastically changed the perception and attitude of students especially in accessing information. There has been a significant change in the world of information as EIRs have become a major component of collections in most university libraries. This is because electronic information resources serve as a motivating factor to students as it provides them with the opportunity to transmit, acquire or download and disseminateinformation on a subject of interest. "Electronic information sources (EIS) provides students different opportunities from their predecessors" (Adeleke, D. S. and Emeahara, 2016). Owing to the shift from printed information resources to EIRs, university libraries are increasingly becoming automated to provide EIRs and services to users, including postgraduate students. Kay and Ahmadpour (2015:5) opined that as the number of EIS increases, students need to develop skills to seek access to, evaluate, manage, and effective and efficient use of information increases as well. Therefore, it is advantageous for postgraduate students to be computer literate as it will ease their search for EIRs. This is becauseonly postgraduate students with sufficient computer literacywould be able to access, retrieve and use the digitised or EIRs. The importance of computer literacy in accessing EIRs cannot be overemphasized since electronic resources are a manifestation of works that require the use ofa computer and other devices for access. EIRs may be accessed on

internet connected devices such as computers, tablets, smart phones, etc. Song (2012:574)ascertains "Users have widely adopted mobile devices, such as smart phones, tablet PCs, and e-readers as their primary tools to access electronic information". However, the computer is seen as the most important medium to access electronic information resources. This suggests that postgraduate students cannotaccess and use EIRs judiciously without adequate computer literacy skillsand the confidence to apply the acquired skills. According to Otokunefor(2005:125), "Computer literacy refers to the level of computer knowledge of an individual and the degree to which such knowledge can be used in problem solving". Abubakar and Adetimirin (2015:2) noted that "Computer literacy refers to the knowledge one has with using computer programmes and applications". For this study, it was seen as the ability of postgraduate students to be knowledgeable on how to use computers to access EIRs. One key influential factor in postgraduate students' usage of EIRs for research work is their level of computer literacy. Horton (2008:2) noted that "Computer literacy is one of the information literacy skills vitally essential in the 21st century". Therefore, computer literacy is an essential part of this study since having basic computer skills is an aspect of information literacy skills. "Scholars have pointed towards the variety of information literacy definitions and the complexity of the concept" (Mertes, 2014:15). However, the definition from the practical viewpoint of teaching librarians in academic institutions was adopted to guide this research work. Such definition includes Ballod (2007:290) who defines information literacy as "the ability to deal with any kind of information in a self-determined, competent, responsible, and goal-oriented way". In addition, Eisenberg (2008:39) defines it as "The set of skills and knowledge that allows us to find, evaluate, and use the information we need, as well as to filter out the information we do not need". In the *German Encyclopedia of Library and Information Science*, Homann (2011)defines information literacy as "A comprehensive set of dispositions for action, which include more or less complex abilities and knowledge for solving information-related problems or ambiguities of action". Information literacy skills would enable students to access, use and communicate information and are regarded as an indispensable competence for active participation in our contemporary world. This is because the information literate student hasimproved critical thinkingskillswhoeffectively ultilise information and become independent learners who use and communicate information appropriately. An information literate student is competent and able to learn independently.

> A number of information literacy standards or frameworks have been developed. For example, a framework was developed by the Welsh Information Literacy Project to create a common understanding and to provide a reference point from which information literacy can be integrated into other strategies as appropriate(Welsh Information Literacy Project, 2011:5).

A similar framework was developed by the Standing Conference of National and University Libraries (SCONUL) Task Force in 1999, on information skills in the United Kingdom (UK) and the "Australian and New Zealand Information Literacy Framework" which was developed in 2004, all of which have served as a guiding principle for implementing information literacy programmes (ILP)in various educational institutions. However, the current study adopted the "Association of College and Research Libraries' (ACRL) information literacy competency standards for higher education" (ILCSHE). Keith (2009:1) stated that the "ACRL framework lays out five standards which colleges and universities could adopt to shape and assess their information literacy programs". The standards ofthe information literate student are:

- Determines the nature and extent of the information needed.
- Accesses needed information effectively and efficiently.
- Evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.
- Individually or as a member of a group, uses information effectively to accomplish a specific purpose.
- Understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally(Keith, 2009:1)

The concept of IL presupposes that an information user is capable of using information appropriately and knows when he/she needs information as well as applies it to solve a specific task. Similarly, the University of Idaho Information Literacy Portal (2011) states clearly that information literacy is the ability to:

- identify what information is needed.
- understand how the information is organised.
- identify the best sources of information for a given need.
- locate those sources, evaluate the sources critically and share that information.

These skills are required more than ever before as a result of a continuousexplosion of information and information sources including the numerous methods of access. The growing ocean of information in all formats that students are surrounded with daily, make it very important that students are furnished with information literacy skills and the confidence to apply these skills. Since EIRs are usually accessed via the internet using computers that requires some level of skills to perform such a technological task, the confidence needed to apply the skills is of uppermost importance to the overall success of that task. The success in accessing EIRs is not just possessing information skills, but also requires the confidence in applying information skills effectively. This is because, people generally find it very difficult to adapt to new technology due to technophobia. This assertion was supported by Osiceanu(2015) stating that "The avoidance of the new technologies by some people, has led to the hypothesis of technophobia".Hence, students are encouraged to be confident and to persevere in accessing EIRs.

Information literacy and self-efficacy which involves information skills and confidence are two variables that have proven to be of relevance to the overall academic performance of students. Most studies on self-efficacy in academic settings around the world have shown that the variable has a direct correlation to academic performance (Adeyinka *et al.,* 2007; Çetin, 2008; İpek *et al.,* 2010; Ketelhut, 2006; Schunk, 2000; Zhang *et al.,* 2001). For instance, a study done in the United States by Louis and Mistele (2011) reported that despite the differences in the levels of self-efficacy by gender in young people taking science subjects, self-efficacy remains anexcellent predictor of the achievement scores. In the context of Singapore Junior College, Amil (2000)through investigating self-efficacy and self-regulated abilities of students taking Economics at 'A' level, established that there was a significant, positive correlation between self-efficacy with academic performance, and self-efficacy with self-regulated learning. To emphasise the importance of information literacy and self-efficacy in this information age, the University of Idaho Information Literacy Portal (2011:548) stated that

> Not all information is created equal: some are authoritative, current or reliable, but some are biased, out of date, misleading, and false.The amount of information available is going to keep increasing and the types of technology used to access, manipulate and create information will likewise expand.

Therefore, students should be equipped with information skills (information literacy) and be confident (self-efficacy) to be successful in this jet age characterized by all sort of unfiltered

information. The complex nature of EIRs which requires that one possesses computer and searching skills may pose a great challenge to its effective utilisation by postgraduate students if they lack the skills required for its usage. In other words, successful search and retrieval of electronic information could be dependent on one's level of information literacy skills. However, Kurbanoglu (2009) noted that "acquiring information literacy skills is not enough for success; individuals must be efficacious.In other words, one must develop strong self-efficacy beliefs in these skills". Bandura (2001:308) defined "Self-efficacy as a conception that one nurtures about his/her own personal power to achieve a given level of performance". Lee and Mendlinger (2011:244) defined self-efficacy as "An individual's belief that one has the ability to perform a particular behaviour". Self-efficacy is thebedrock for human motivation necessary for personal accomplishment. Kear (2000:4) noted that "A person with positive self-efficacy expects to succeed and will persevere in an activity until the task is completed". According to Kuhlman (2004),"A person with low perception of self-efficacy anticipates failure and is less likely to attempt or persist in challenging activities". Bandura (1997:79)noted that self-efficacy perceptions are constructed from four principal sources of information namely:

- enactive mastery experiences that serve as indicators of capability
- vicarious experiences that alter efficacy beliefs through transmission of competencies and comparison with the attainments of others
- verbal persuasion and allied types of social influences that one possesses certain capabilities
- physiological and affective states from which people partly judge their capableness, strength, and vulnerability to dysfunction (Bandura, 1997:79).

Developed self-efficacy perceptions and beliefs were mentioned by Demiralay and Karadeniz (2010:849) as prerequisite for effective and efficient use of information literacy skills. Therefore, ILSE is an important player in today's electronic information based society as it is a meaningful factor that can promote the use of EIRs through the competence and confidence of the user. The use of EIRs depends greatly on the students' individual conviction of competence and confidence in applying the needed computer skills(Tella *et al.*, 2007). Hence, ILSE is a basic requirement needed of any student in accessing information, especially in an electronic environment. Therefore, the combination of information literacy and self-efficacy will enable postgraduate students to

acquire information skills and the confidence that is necessary for effective and efficient use of EIRs. Folk (2016:8) in a study on academic self-efficacy, information literacy, and undergraduate course-related research revealed that "Students with higher levels of ILSE have a better understanding of the research process and how to select information resources". Postgraduate students must be confident and competent in this age of an information society that is constantly changing due to an increase in information and as technology is gradually becoming widespread, especially in accessing electronic information.

Haridasan and Khan (2009:118) defined EIRs as "resources in which information is stored electronically and which is accessible through electronic systems and networks". Sharma (2009:2) noted that "The types and forms of electronic resources in university libraries include e-journals, e-data archives, e-manuscripts, e-maps, e-books, e-theses, the World Wide Web, e- newspapers, e-research reports, and e-bibliographic databases". Similarly, electronic resources, according to Ku (2008) refer to "Those materials that require computer access, whether through microcomputer, mainframe, or other types of computers, and that may either be locally mounted or accessed remotely via the internet". Electronic information resources have been useful to university communities both in the developed and the developing nations of the world. The use of electronic information resources in educational institutions,especially universitiesis rapidly increasing due to the vital roles it plays in meeting the information needs of academics, researchers and students. Hence, Ansari and Zuberi (2010:2) noted that electronic resources are widely used in universities. Abubakar and Adetimirin (2015:2)stated that "Postgraduate students can locate and access their needed EIRs in the university libraries, even in Nigerian university libraries by providing access to electronic resources". Due to the nature of postgraduate studies, postgraduate students have become a significant propotion of library users that engaged in the utilisation of library's EIRs and services.This is because they depend heavily on these resources forresearch activities which constitute major components of postgraduate studies. The importance of electronic informationto postgraduate studies has forced postgraduate students to learn how to access and use a wide variety of resourcesjudiciously. Skillful use of electronic resources as a research and learning tool among postgraduate students is one such clear need that will enable them to be successful in their research task. Postgraduate students need to be information literate because electronic information, especially from internet sources, are often unregulated by editors, publishers or peer review.

Therefore, postgraduate students must be critically alert and evaluate each internet source they use for reliability and validity, especially during thesis or dissertation writing. Hence, the various IL constructs must take its rightful place in higher education to develop IL skills among students for lifelong pursuit of knowledge.

There are enormous bodies of literature related to self-efficacy in relation to other field of studies such as medicine; however, those mentioning self-efficacy in the context of information literacy are few in number. Some of the few studies include Tang and Tseng (2013),who conducted a study on distance learners' self-efficacy and IL skills in the USA. In addition, Baran and Ata (2011) carried out a study on university students' ILSE perceptions by using the decision tree method in Turkey. Both studies that were carried out across the continent revealed that students with higher self-efficacy for seeking information are more likely to have more confidence for online learning. Among the research carried out in the developed countries include the study by Tuncer and Balci (2013) on the effect of computer and ILSE on the achievement of information literacy. The study revealed that ILSE, computer self-efficacy and the achievement of information literacy affect each other. However, a few of the studies carried out in developing countries include Zinn (2013), a study on information literacy self-efficacy of disadvantaged teachers in South Africa. The study revealed that the information literacy education coursehasimproved the self-efficacy of the majority of participants in the study as the teachers' confidence in web search skills and research practice appears to have improved after the course intervention. In Nigeria, the studies include, Adetoro and Oyefuga (2010), a study on the relationship between perceived self-efficacy and information literacy among library and information science undergraduates in Nigerian universities of education. Its participants were drawn from library and information science undergraduates of Tai Solarin University of Education (TASUED), and a study oninformation literacy search skills of students in five selected private universities in Ogu byIjebu – Ode and Ilogho and Nkiko (2014). Both studies were carried out in the South West region of Nigeria, and their findings corroborated previous findings. This study is necessitated based on the few studies that exist on ILSEand in the use of EIRs despite the impact of self-efficacy regardless of discipline to the academic performance of students. Further literature reviewed revealed that no research has been carried out on this topic related topostgraduate students as well as the South-South region of Nigeria. Hence, this scholarly work is tofill the gap by adding to the body of knowledge.

1.3 Statement of the problem

The use of electronic information resources in tertiary education especially among postgraduate students have resulted in fundamental changes in learning as well as research, ushering a new focus for a paradigm shift. These EIRs are widelyaccepted information path to academics, teachers and researchers (Karunarathna, 2014:41). In recent years, EIRs have become a fundamental need of postgraduate students. Hence, they are designed and acquired by libraries in satisfying the information needs of its users, especially postgraduate students. In spite of all the numerous advantages associated with the use of EIRs, most students have deliberately restrained themselves from accessing these resources via the internet due to technophobia and information illiteracy. Technophobia which is a fear associated with the use of technology and the lack of appropriate information skills has hindered students generally from using EIRs. Idowu (2009) asserted that most university students in Nigeria avoid the use of EIRs because they lack necessary computer skills. Gakibayo, Odongo and Okello-Obura (2013:16) found that "Utilisation of EIRs was highly affected by lack of computer skills and IL skills". The deficiency in IL skills and the confidence in applying the skills have drastically affected the use of EIRs by postgraduate students. Adigun, Zakari and Andrew (2010), in a study among faculty members and postgraduate students in Ahmadu Belo University Zaira, Nigeria revealed that print information resources were used more than electronic resources despite the fact that EIRs were available at the university library. Ukachi (2013:97), also foundaccessibility and students variables as correlates in the use of EIRs in university libraries in South-Western Nigeria, and revealed that though the electronic resources do receive patronage, the utilisation rate is still low. Similarly,Egberongbe(2011) and Ozoemelem's(2009), studiesrevealed that many Nigerian university libraries are subscribing to electronic resources by spending thousands of US dollars; yet, many of them are underused and many more are unknown to the users.Singh, Ogbonnaya and Ohakwe (2011:16) attribute the underuse of EIRs to include but not limited to linguistic proficiency and information skills.Alison and Ruth(2012)stated that "The factors include humans and institutions, low bandwidth, limited resources and computer illiteracy". Since EIRs are usually accessed via the internet (computer) that requires some level of skill to perform such a technological task, the confidence needed to apply the skill is of paramount importance to the overall success of that task. Therefore, information literacy self-efficacy will help to eliminate such phobias and create the self-confidence

and competence among postgraduate students in using technology such as the computer and internet to access EIRs.

This study therefore examines postgraduate students' ILSE in the utilisation of EIRs. Since ILSE involves competencewith the confidence to search and locate the needed information. The study therefore covers universities offering postgraduate programes in library and information studies in South-South of Nigeria. The States in the region are; Akwa-Ibom State, Bayelsa State, Cross River State, Delta State, Edo State, and Rivers State.

1.4 Objectives of the study

The main objective of this study is to investigate self-efficacy in information literacy with regards to the use of EIRs among library and information science postgraduate students in South-South Nigeria. The study's objectives aim to:

1. Examine postgraduate students' information literacy self-efficacy skills.
2. Examine information literacy as a survival skill in the information age.
3. Investigate the students' use of electronic information resources.
4. Identify the barriers encountered by students in the use of electronic information resources.
5. Identify strategies that could enhance postgraduate students' information literacy self-efficacy.

1.5 Research questions

The current study is set out to address the following major research question: what is the extent to which ILSE contributes to the use of EIRs among library and information science postgraduate students in South-South, Nigeria. The study addressed the following specific research questions:

1. What information literacy skills do postgraduate students haveto use electronic information resources?
2. What is the link between postgraduate students' information literacy self-efficacy and their use of electronic information resources?
3. What are students' usage patterns of electronic information resources?

4. What are the barriers related to information literacy that hinder postgraduate students from using electronic information resources?
5. How can information literacy self-efficacy be enhanced amongst library and information science postgraduate students?

1.6 Theoretical framework

There have been deliberate efforts in advancing more suitable theories that can be explored by information professionals. Based on various learning theories series of IL, teaching and learning models have been propounded across the world which includes:

- TheBig6 information skills, developed by Eisenberg and Berkowitz in 1990
- The Seven Pillars of Information Literacy developed by SCONUL Advisory Committee in 1999
- The Pathways to Knowledge Modelby Pappas and Tepe in 2002
- The PLUS Modelby James Herring in 1996
- The Information Search Process (ISP) Model, developed by Kuhlthau in 1993

According to Bent and Stubbings(2011), "Amodel defines the core skills, competencies (abilities), attitudes and behaviours (understanding) at the heart of IL development in higher education". Salleh (2011:508) arguedthat the above models have contributed to the theoretical foundation of IL and the theories were being utilised to assist the planning and teaching of information literacy at every levels of education all over the world.

An information literacy model produces various steps that students have to follow during information problem solving. For the purpose of this study, the model which best explains the concepts of information literacy within the context of the research were consideredmost appropriate. Therefore, the study adopted the Kuhlthau's (2004)Information Search Process Model (ISP) in investigating the research problems. Kulthau´s ISP is among the first models of IL with emphasis on an instructional team that leads students toward independent learning through skills in using different sources of information(Kuhlthau, Maniotes and Caspari, 2007:3). Kuhlthau's (2004) model incorporates three areas: the physical (actual activities taken), the affective (emotions experienced during the search process), and the cognitive (thoughts regarding both

process and content). Kuhlthau (2004:92)developed a principle of uncertainty which usually starts the process of information seeking due to lack of information literacy skills. The model displays how users move into the research process and how their confidence increases as they proceed and it involves six stages; initiation, selection, exploration, formulation, collection and presentation. Kuhlthau (2004:185) noted that "The different stages of the ISP model reflect a pattern of thinking, feeling, and acting at each point of the process". Each of these stages stipulates a progressive growth to attain a 'sense of ownership', to show proficiency which comprisesof an essential component of IL. Full justification and application of the use of the ISP model in this study is discussed in Chapter Two (Theoretical Framework).

1.7 Significance of the study

This study investigates self-efficacy in IL with regard to the use of EIRs among LIS postgraduate students in South-South Nigeria. The study aimed to provide a more comprehensive and in-depth study in the context of identifying the contributions of information literacy self-efficacy in the use of EIRs. The study is expected to be of benefit to postgraduate students and library management. The outcome of this study would create awareness on the need to be information literate and to have self-confidence (self-efficacy) since there is a positive correlation between students' information literacy self-efficacy and their use of EIRs. This will lead to an increase in the utilisation of the libraries' EIRs by postgraduate students thereby leading to improved academic performance, research output and the ability to favourably compete with counterparts from developed parts of the world. The outcome of this study would reveal students' limitations in using the EIRs available in the libraries. This would enable library management to correct the problem areas, thereby enhancing students' use of the resources. Furthermore, the outcome of this study would present to the library management and librarians the practical information on the relationship between postgraduate students' ILSE and their use of EIRs, thereby providing them with strategies to adopt appropriate policies.

1.8 Scope and delimitation of the study

This study focused on ILSE in the use of EIRs. It addressed the contributions of IL and self-efficacy in the use of EIRs among postgraduate students. The study examined postgraduate

students' ILSE skills as it affects the usage pattern of EIRs and the barriers related to information literacy self-efficacy that hinder postgraduate students from using EIRs. Postgraduate students in the institutions under studycomprise of Masters and PhD students which are the only postgraduate programmes offered in Library and Information Science in the universities. The study covers three universities in the South-South region of Nigeria namely; Delta State University, Abraka (DELSU); University of Uyo, Uyo (UNIUYO) and University of Calabar, Calabar (UNICAL). The selection of these universities was due tothe fact that they were the only universities in the region accredited by the National Universities Commission (NUC) and the Librarians' Registration Council of Nigeria (LRCN) to offer Library and Information Programmes at postgraduate level.

Limiting the study to the South-South region of Nigeria is due to the researcher's familiarity with the region. Also, the researcher was not able to carry out the study in all universities in the entire six geo-political regions of Nigeria due to lack of resources and time.

1.9 Definition of key terms

This section outlined the operational definitions of the main terms used in this study. An operational definition refers to an actual method, tool, or technique which indicates how the concept was measured in the study. Remme, Adam, Becerra-Posada, Arcangues and Devlin(2010) noted that 'working definitions' or 'operational definitions' are interchangeably used to explain key terms applied in a study. Brief backgrounds on the key words have been provided under the background of the study (Section 1.2). The contextualisation of key terms was aimed to guide the present research. The key terms include information literacy, computer literacy, self-efficacy, electronic information resources, postgraduate and the South-South region of Nigeria. Therefore, the terms are systematically presented under this section for better comprehension of the research work.

1.9.1. Information literacy

There are quite a number of IL definitions due to the comprehensive nature of the term.However,the concept‘information literacy’ has been commonly used in the context of library practice. In the last decade, it has attracted increased attention in the education systems both in schools and higher education to describe library practices. Therefore, the definitions which give perspective on IL as essential skills were used for this research work. The most commonly cited IL definition is the one from the American Library Association (ALA) in 1998, which defines an information literate person as one who “recognizes when information is needed and be able to locate, evaluate, and use effectively the needed information”. According to the International Federation of Library Association(IFLA) (2006) noted that“Information literacy is commonly used to designate information skills that imply the capacity to identify when information is needed, and the competence and skill to locate, evaluate and use information effectively”. Limberg, Sundin and Talja (2012:96) defined information literacy asskillsin searching, selecting critically and using information to solve specific problems. The theoretical viewpoints of IL have mostly come from scholarly bodies, prominent of which is the ‘Association of College and Research Libraries’ (2000) definition of Information Literacy Competency Standards for Higher Education’. In this standard, an information literate person is defined as possessing the ability to:

- Determine when information is needed.
- Access the needed information effectively and efficiently.
- Incorporate selected information into one’s knowledge base.
- Use information effectively to accomplish a specific purpose.
- Understand the economic, legal and social issues surrounding the use of information and access and use information ethically and legally (ACRL, 2000).

Therefore, this study is guided by the Association of the College and Research Libraries’ (ACRL, 2000)Information Literacy Competency Standards for Higher Education (ILCSHE).

1.9.2 Computer literacy

Computer literacy is a term closely connected to information literacy, especially related to information and communication technologies that play vital roles in information management, generation of information and storage as well as retrieval and dissemination. According to Kubiatko (2007), "Computer literacy is a precondition in the development of IL as well as a component of IL". More recently, Information literacy constructs have adopted and basically subsumed computer literacy constructs as computersremain the most commonly medium in accessing EIRs(Fraillon and Ainley, 2013:7). According to Otokunefor (2005:127), computer literacy refers to the level of computer knowledge of a person and the level to which such knowledgeis apply in solving problem. Computer literacy can be defined as having anessential understanding of a computer and how it can be used as a resource(Kubiatko, 2007:32). "Computer literacy usually refers to the ability to use a few commercial applications and touch-type smoothly" (Csapo, 2002). It is the basic knowledge of the computer and the ability to apply this knowledge to use that constitutes a computer literate person.Being 'computer literate' connotes the capacity to use different computer applications such as Microsoft Word,Internet Explorer, Excel and others, as well as the internet to access a variety of EIRs. Horton (2008:2) noted that"Computer literacy is a component of IL skills vitally essential for the 21st Century".Computer literacy within the context of this study does not focus on the logical reasoning of programming (nor the syntax of programming languages) but rather the knowledge, abilities and skills, which the person (postgraduate student) needs in using the computer to access and manage electronic information.Therefore, the definition by Otokunefor (2005) was adopted operationally for this current study.

1.9.3 Self-efficacy

Generally, self-efficacy is seen as personal confidence to actualise a particular assignment. Self-efficacy is essentially important, and valuable when applicable to education such as the use of EIRs. Since its application to this study is based on the educational perspective, the definition that is most appropriate in terms of its application as it relates to the study is adopted. Therefore, this study uses Kinzie, Delcourt, and Powers (1994) definition as the acceptable and operational meaning of the concept of self-efficacy for the purpose of this research. Kinzie *et al.*(1994:747) defined self-efficacy as "An individual's confidence in his or her ability, which may impact the

performance of tasks". Self-efficacy reflects personal confidence in accomplishing a specific task and the effort to be consistent to produce a desired outcome. However, there are other similar definitions such as Bandura (1997), who defined self-efficacy as "An individual's judgment of the individual's capabilities to organize and execute courses of action required to attain designated types of performances". Bandura (2001) also seesself-efficacy as "A conception that one nurtures andpersonal power to achieve a given level of performance". Similarly, Lee and Mendlinger (2011:244) defined self-efficacy as an individual's belief that one has the ability to perform a particular behaviour. Self-efficacy definespersistency and show hows tough one could be in difficult situations with the intention to successfully complete such an activity. Hence, individuals possessingself-efficacy perception expect to succeed and will persevere in an activity to ensure successful completion. On the contrary, individuals with low self-efficacy perception anticipate failure and are less likely to persist doing challenging activities(Shrestha, 2008). "Self-efficacy is not a measure of a specific skill but the extent to which individuals believe they can perform by using their skills" (Eastin and LaRose, 2000:56). Thus, self-efficacy does not reflect the diversity of skills possessed but the confidence to apply those skills in a given situation.

> Self-efficacy is a key mechanism that accounts for the interactive relationship between internal forces and external stimuli that affect human behavior. Individuals who perceive themselves as highly self-efficacious tend to initiate a sufficient effort that may produce successful outcomes, such as being successful in accessing electronic information(Kim, Kimand Hwang, 2009).

1.9.4 Electronic information resources

For the purpose of this study, electronic information resources as defined by Liu (2006) which included both electronic-only resources and materials that were available either electronically or online is the most appropriate definition for this study. This would include Compact Disc Read Only Memory (CD-ROM), Online Public Access Catalogue (OPAC), Internet and Online databases which serve as rich sources of information, especially for students. Electronic information resources (EIRs) may be defined as:

> Information sources that are available and can be accessed electronically through such computer-networked facilities as online library catalogues, the internet and the World Wide Web, digital libraries and archives, government portals and websites, CD-ROM databases and online academic databases(Karunarathna, 2014:43).

Electronic resources are usually collections that are subscribed to or digitised in-house in most libraries.Abubakar and Adetimirin, (2015:3) stated, "Electronic resources have the potential for

enhancing students learning, as the resources provide students with vast quantities of information in an easily accessible non-sequential format".

1.9.5 Postgraduate

Postgraduate is defined as a course of study or an academic programme that occurs after an undergraduate degree has already been obtained. It is connected with further studies that someone does at a university after receiving their first degree. A postgraduate degree permits the further exploration of

> A subject to attain a high level of proficiency with an opportunity for independent study. Postgraduate degrees can be taught coursework or do research. Coursework master's usually take one year's full-time study to complete after which you get awarded a Master's degree (MA, MSc, MEng, etc.) based on your subject of study (Universal Study, 2017).

Masters or Doctorate programmes constituteresearch degress. It takes between two to four years to complete after which you are awarded a PhD orD. Phil for doctoral programmes depending on the university or faculty. However, research master's degrees could also be called an M.A. or M.Sc., similar to coursework masters, or with an appellation, e.g. M.Phil.

1.9.6 South-South region of Nigeria

The South-South region of Nigeria is made of six states namely; Akwa-Ibom, Bayelsa, Cross River, Delta, Edo and Rivers. The region is naturally located at

> The point where the Y tail of the river Niger joins the Atlantic Ocean through the Gulf of Guinea. It is a small stretch of land that provides the economic mainstay of the country through oil and gas (MyGuide, 2017).

In addition to oil and gas, the region equally contributes other key resources with potentially huge investment opportunities in tourism and agriculture.

1.10 Research design and methods

Research methodology is very important in any research as Durrheim (2006:35) noted that "Designing a study involves multiple decisions about the way in which the data will be collected and analysed to ensure that the final report answers the initial research question". This study employed the post-positivist research paradigm and then combined quantitative and qualitative methodologies. According to Teddlie and Tashakkori (2009:5), the post-positivism paradigm is a

revised form of positivism that addresses several of the more widely known criticisms of the quantitative orientation and yet maintains an emphasis on quantitative methods. The post-positivism paradigm can apply combinations of both quantitative and qualitative approaches in a study (Nieuwenhuis, 2010:65). A combination of quantitative and qualitative approaches provides more value to the outcomes of the study (Swanson and Holton, 1997:93). The study adopted the descriptive survey method because it enables the researcher to pose a series of questions to the respondents. The target population for this study was 115 postgraduate students currently admitted for the 2016/2017 academic year and three subject librarians in the various universities. Data was collected through a questionnaire from postgraduate students and interviews from subject librarians. In terms of data collection from the subject librarians, the researcher personally conducted interviews so he could ask relevant follow up questions. To prevent cases of misrepresentation of interview data, it was recorded with the informed consent of theparticipants. To enhance the reliability and validity of the research instrument, a pre-test was conducted on postgraduate students of LIS and a subject librarianat the Nnamdi Azikiwe University, Akwa, in the South-East region of Nigeria, before the actual administration of the instruments. In addition, the researcher adopted an series of items to assess information literacy as proposed by Shapiro and Hughes (1996) and Californian University Information Literacy fact sheet (2000).The qualitative and quantitative data collected was organised using content and framework analysis and numerical coding respectively. Then, it was analysed through the Statistical Package for the Social Sciences (SPSS) and thematic content analysis (TCA).The study used both tables and figures with the aim of making the research findings more understandable and easier to interpret. A more detailed explanation on the research methodology adopted was discussed in Chapter Four of this study.

1.11 Ethical considerations

The study received full approval by the Humanities and Social Sciences Research Ethics Committee. Therefore, the study complied with the University of KwaZulu-Natal (UKZN) research ethics policy. Furthermore, the gatekeeper's formal letters were obtained from the universities under study, namely; Delta State University in Abraka, University of Uyo and the University of Calabar. The respondents were asked to voluntarily participate in the research and were free to withdraw from the research at any time without any consequences as contained in the information letters. This is in line with Saunders, Thornhill and Lewis(2012), stating that the

general research design should not cause embarrassment, harm or any other negativity to the research population. The research purpose was explained to the target population prior to completing the questionnaire and participating in the interviews. A copy of the informed consent form was attached to the research instruments (See appendix 7 and 9). The information letters attached to each research instrument assist to comprehensively clarify the reason for the study with the aim of seeking voluntary informed consent from respondents (Fisher and Anushko, 2008:99). For confidentiality and privacy of the respondents, the research instruments (questionnaire and recorded interviews) were not made public as data collected in the course of this study would be stored in a locked cabinet in the supervisor's office for a period of five years. Then it will be destroyed.

1.12 Thesis structure

The current research is presented in seven chapters. Below are the summaries of each chapter.

Chapter 1: Introduction

Chapter One provided an introduction to the study, research problems and objectives, significance of the study, theoretical framework, methodology, scope and limitations of the study; definition of key terms and ethical considerations. It also provides the thesis structure.

Chapter 2: Theoretical framework

This chapter discussed the theoretical framework of the study. It covers IL models as well as justifying the adoption of the Information Search Process (ISP) model. It explains the application of the constructs to the research problems.

Chapter 3: Literature review

Chapter Three provided a review of related literature to the study by reviewing studies previously done in relation to ILSE in the use of EIRs. It focused on postgraduate students' information skills and the confidence in applying the skills in their use of EIRs, as well as postgraduate students' usage pattern of EIRs. It also reviews how ILSE could be enhanced amongst library and information science postgraduate students as well as the barriers related to ILSE that hinder them from using electronic information resources.

Chapter 4: Research methodology

This chapter focused on the research methodology including the research paradigm, research methods, research design, study population, data collection methods, validity and reliability of the instrument, data analysis and ethical issues.

Chapter 5: Data analysis and presentation of findings

InChapter Fivedata analysed was presented. These included data from questionnaires administered to postgraduate students and data collected from interviews via the subject librarians in each university.

Chapter 6: Discussion of findings

Chapter Six discussed the findings of the research as presented in Chapter Five using extant literature and theory that informed the study.

Chapter 7: Summary and conclusions

This final chapter presents the summary of findings, conclusions, recommendations and suggestions for further study. The conclusion in this chapter is based on the summary of findings and then leads to the formulation of relevant recommendations with suggestions for further studies.

1.13 Summary of the chapter

Chapter Oneprovides a background understanding of this research work. It establishes research objectives, questions underpinning the study and it briefly described the research methodology guiding the study. The research applied the twoprocedural approaches in social science investigation; qualitative interviews and quantitative self-administered survey questionnaires. The chapter briefly indicates the population of the study, data collection process and data analysis techniques. The data collection methods include administered questionnaires and interviews. SPSS was used to analyse the quantitative data from the questionnaire, while thematic content analysis was employed to analyse the qualitative data. This chapter also focused on the implications of the study, the scope and limitations. The key terms are defined for the purpose of this study and the configuration of the thesis is then outlined. The next chapter focused on the theoretical framework.

CHAPTER TWO

THEORETICAL FRAMEWORK

2.1 Introduction

According to Babbie (2011),the theoretical framework of any research relates to the philosophical basics on which the research takes place and the relationship between the theoretical aspects and practical components of the investigation undertaken. It influences how researchers design studies and how they collect and analyse the data. Welman, Kruger, and Mitchell (2005:21) defined a theory as "Astatement or a collection of statements that specify the relationships between variables with a view to explaining phenomena such as human behavior". Similarly, Babbie (2007:43) noted

that “Theories are systematic sets of interrelated statements intended to explain some aspects of social life”. Babbie (2011:33) further indicated that “Theories make sense of observed patterns in ways that can suggest other possibilities”. Cresswell (2009:55) argues that theories and theoretical frameworks have a place in quantitative, qualitative and mixed methods research.

According to Mertens (2003),

> Theories are used in quantitative studies deductively with the aim of testing or verifying a theory rather than developing it. A researcher usually tests the validity of the generalisation of a theory by collecting data to test it, and reflects on its confirmation or disconfirmation by the results. Consequently, the theory becomes a framework for the entire study as well as an organising model for the research questions or hypothesis and for the data collection procedure. In mixed methods studies, theory may be used deductively in quantitative studies, or inductively, in an emerging qualitative theory or pattern. In mixed methods research, a theory emerges as a theoretical lens or perspective to guide the study (Mertens, 2003).

To the extent that a theory clarifies how and why variables are linked, it finds place not just in quantitative and mixed methods studies, but in qualitative studies as well, where the use of theory is gaining momentum (Creswell, 2009:69).

Theories are often used to guide any research as they provide the foundation and structure that the research is anchoredin. Neuman (2011:85) noted that theoretical framework refers to a “general theoretical system with assumptions, concepts and specific social theories”. In other words, a theoretical framework is a set of interconnected concepts that determines what to measure and what statistical relationships to look for. A theoretical framework provides a well-supported rationale to conduct a study as well and to help the reader to understand the research perspective. According to Simon (2011)

> A well-constructed theoretical framework assures the reader that the type of investigation proposed is not based on personal instincts or guesses, but rather on informed established theory and empirical facts obtained from credible studies.

Case (2012:134)further emphasises that:

> Although both models and theories are simplified representations of reality and descriptions of relationships between concepts, models usually precede formal theories from which they are different in the sense that they are more specific because they expose more particularities, more concrete because they tend to make use of visual displays such as diagrams, and more closely related to reality to which they can be adapted more easily.

To corroborate this view, Bates (2005:3)believed that “Models are most useful at the description and prediction stages of understanding a phenomenon”. This is because they illustrate to us in a non-linear way the connections between inter-related concepts. They assist in the development of theory but, more often than not, there is no clear distinction between a theory and a model of the same phenomenon (Bates, 2005:3). Hence, they could be derived from each other(Luyten and Blatt, 2011). However, theory is a set of statements with explanations yet a model is an illustration of a theory.

For the purpose of this study, the model which best explains the principle of information literacy within the context of this research is Kuhlthau’s (2004)Information Search Process (ISP) model. Therefore, the study adopted the Kuhlthau’s (2004)ISPmodel in investigating the research problems. The justification for the ISP model is because the constructs are relevant to the intentions of this study as it focuses on students' feelings in searching for information throughout the process, while at the same time employing the constructivist principles of building on prior learning (Milam, 2004:21). Consequently, the application of the model was anchored on the social constructivist approach.

2.2. Social constructivism

The educational sector has undergone a paradigm shift on the learning processes and the circumstances that is paramountin advancing the different aspects of learning. The technological advances in educational institutions are causing a departure from traditional pedagogies to alternative theories of learning such as behaviorism, objectivism and constructivism (Kundi and Nawaz, 2010:30). The exploration of the different paradigms of information literacy research, that is cognitive, constructivist or behaviourist theories have generated much interest among educational policy makers and practitioners as to what learning really entails and how such approaches can be integrated into educational programmes (Bruce, 2000:92). Kay and Ahmadpour (2015:9) noted that three prominent learning theories namely; constructivism, social constructivism, and Bloom's taxonomy have a profound impact on the way information literacy is interpreted today. The constructivism framework has significantly influenced the concept of information literacy in at least four ways. Firstly, many information literacy theorists believe individuals are active builders of meaning and should be independent and self-sufficient(Tuominen, Savolainen, and Talja, 2005). Secondly, constructivism has moved information literacy beyond accounting for the external behaviours of information seekers to actually understanding the individual's own points of view about their information-seeking behaviours (Sundin, 2008). Thirdly, the constructivist perspective shifted the concept of information literacy away from passive knowledge transfer toward knowledge construction and reflection (Špiranec and Zorica, 2010). This revised perspective speaks to Savolainen's (2009) description of information users as active sense makers of their environment; not parts of a passive processing system (Savolainen, 2009). Finally, constructivists maintain that individuals are 'engaged' if they are searching for relevant personal goals (Jeffrey, Hegarty, Kelly, Penman, Coburn and McDonald, 2011). According to social constructivism, while the individual mind is important in constructing meaning, social contexts, interactions, and alternative perspectives are critical as well (Savolainen, 2009). In regards to social constructivism, information literacy has been viewed to be a social process (Davis and Sumara, 2002). In this perspective, instead of an individual-based sense making, a social-based sense making process takes precedence and the focus shifts to conversations, situations, and practices (O'Farrill, 2010) that will promote information literacy. However, Kay and Ahmadpour (2015:18) noted that social constructivists` perspectives on information literacy were not as dominant as those of constructivists. There is

hardly a model of information literacy that considers how individuals interact with one another (Tuominen *et al.,* 2005). This trend, however, started to change with the emergence of Web 2.0 technology, which transformed the landscape in which individuals selected and produced information (Farkas, 2012). Since collaboration and sharing information has become much easier, online communities of practice have formed and some researchers have begun to investigate collaborative practice in information literacy (Abdi, Partridge and Bruce, 2013). Information literacy also began to be associated with the notion of co-construction (Lloyd, 2010). With this new understanding, information is viewed from the perspective of collaboration, social interaction, and dialogue. Moreover, Bloom's taxonomy has greatly affected information literacy as a set of educational objectives presented in a learning process hierarchy. It organises the educational goals into three categories: cognitive, affective, and psychomotor. However, the cognitive dimension receives the most attention in information literacy. Bloom's taxonomy has been used regularly as a basis to compare information literacy skills (Andreae and Anderson, 2012; Keene, Colvin and Sissons, 2010; Kessinger, 2013). Kessinger (2013), for example, uses the six steps of Bloom's taxonomy to devise a research support framework to enhanceundergraduate students' information literacy skills. Spring (2010) compares Bloom's taxonomy and the seven pillars model of "Society of College, National and University Libraries (SCONUL) in the United Kingdom" (UK) to provide an evidence-based approach in teaching and understanding information literacy. It is within the context of these new learning theories that information literacy is evolving and moving beyond a set of static, generic skills and knowledge.

Information literacy theories are closely related to learning theories given that possessing IL skills is through a learning process. "Cognitive constructivism, and social constructivism or sociocultural approaches often draw on the constructivist paradigm" (Wang, 2010). Lawal (2012:48) refers to social constructivism as an approach to individual learning methods that addresses collaborative and social dimensions to learning. Therefore, social constructivism is rootedin precise assumptions concerningrealism, understanding, and learning. It is one of the three main schools of thought in the constructivist theory of education. Swan (2005:4) observed that social constructivism is perhaps the most common version of constructivism. Hence, it is a widely accepted theory that has been applied in different ways in various contexts (Taber, 2011:40). Social constructivism is considered appropriate for this current study because it is centered onthe role that social interaction

plays in creating knowledge. This is directly related to today's concept of information literacy which is often"seen as a social practice determined by culture and the context in which it is set"(Abdallah, 2013:96).

Several studies have shown that factors like linguistic proficiency and computer and information literacy have an effect on the use of electronic information resources(Goodluck, and George, 2014). Student's information literacy skills would surely enhance their use of EIRs, hence, certain aspects of information literacy are being taught to students through general education in first level and major level courses. Moreover, there is wide recognition of librarians' involvement in information literacy education (Andretta, 2006; Stubbings and Franklin, 2006), particularly the role of academic librarians whom employ different approaches like seminars and the integrationof IL in various teaching courses in the curricular(Korobili, Stella, Malliari, Aphrodite and Christodoulou, 2008; Li, 2006; Malliari and Nitsos, 2008). These processes of acquiring information literacy are closely associated with social constructivism that are seen as an approach to individual learning methods that addresses collaborative and social dimensions to learning. It is influenced by the work of Vygotsky (1978) and according to Creswell (2007:20-21)"Social constructivismemphasises the importance of culture and context in understanding what occurs in society and in constructing knowledge based on this understanding". Pórarinsdóttir and Pálsdóttir (2015:1) statedthat social constructivism is today seen as the main theoretical base for information literacy. A number of studies in information literacy have adopted the social constructivism approach. The studies include:

(i) Lwehabura (2007), who conducted a study on the status and practice of information literacy for teaching and learning in four Tanzanian Universities;

(ii) Lawal (2012), a contextual study of the information literacy of aspirant barristers in Nigeriaand

(iii)Zinn (2012), who did a study on 'Information literacy in the class room: Assessing the competency of Western Cape teachers in information literacy education'.

A critical aspect of social constructivism is the relationship that focuses on learning as essentially a social activity, which is constructed through communication, collaborative activity, and interactions with others. As an approach, its application to information literacy has continued to

be significant, especially in skills development that could enable students to access all forms of information resources. Kuhlthau (2004:11) opined that engaging students in inquiry that embeds information literacy in a valid learning could be more useful for preparing them to relate their knowledge to the information tasks ahead. This information tasks may include the ability to use EIRs that could impact on their academic performance.

Social constructivism, with its emphasis on authentic learning and more cognitively complex outcomes, becomes an excellent match; its applicability to this study is relevant in explaining the understanding of information literacy as a concept that is mainly concerned with developing skills at the educational level (O'Farrill, 2008:156). Social constructivism has significantly influenced the concept of information literacy beyond accounting for the external behaviours of information seekers to actually understanding the individual's own points of view about their information-seeking behaviours (Sundin, 2008). Therefore, its application to this study which is set out to investigate the contribution of information literacy self-efficacy in the use of EIRs is appropriate. The ISP model which is an example of this perspective of information literacy (Sundin, 2008; Tuominen *et al.,* 2005) that emphasises knowledge construction becomes important in this study. Hence, it was adopted for the current study.

2.3. The Information Search Process (ISP) Model

Kuhlthau's ISP is one of the first models of information literacy with an emphasis on an instructional team that leads students toward independent learning through skills in the use of a variety of information sources (Kuhlthau *et al.,* 2007:3). It is one of the most outstanding models for understanding and examining in entirety the information seekingprocess. Kuhlthau (2004) stated that "The model is located within the constructivist paradigm and addresses complex tasks that require information seeking and interpretation over an extended period of time". Furthermore, accoding to(Mctavish, 2007) the modelpresents information seeking as a process of construction accompanied with uncertainty that decreases as theunderstanding increases. The model emphasises an instructional team that:

> Gradually leads students toward learning independently where the ultimate goal is to have students who would know how to expand their knowledge and expertise through possessing skills in the use of a variety of information sources employed both inside and outside the school(Kuhlthau *et al.,* 2007:3).

The ISP model describes the various experiences that the information seeker goes through from the begining until the end. Kuhlthau (2010) describes the experiences as "A series of thoughts, actions and feelings accompanying the information seeker". Though the process is mitigated by feelings, thoughts, and actions, it is thought to apply equally to individual and group work and has been tailored to different disciplines requiring different epistemologies and methodologies (Hayden, Graham, Rutherford, Chow, and Cloutier, 2008:114). Kuhlthau (2004:90)researched and identified the feelings students are likely to experience along with strategies as well as their thoughts and actions that can lead them through a productive search. "The model describes the information search process from the perspective of the user and is derived from an intensive study of a group of high school seniors" (Kuhlthau, 2004:51). In her research, Kuhlthau (2004:92) also developed "a principle of uncertainty, where uncertainty due to lack of understanding or limited construction, initiates the process of information seeking". According to Porarinsdottir and Palsdottir (2015:2):

> The model shows how users approach the research process and how their confidence (self-efficacy) increases as they proceed and it involves six stages:
> (i) Task initiation – uncertainty,
> (ii) Topic selection – optimism,
> (iii) Pre-focus exploration – confusion/frustration/doubt,
> (iv) Focus formation – clarity,
> (v) Information collection – sense of direction/confidence,
> (vi) Search closure/presentation – satisfaction or disappointment

"The first stage initiation is described as when a person becomes aware of lack of knowledge or understanding. At this point the task is merely to recognise the need for information" (Kuhlthau, 1991:364). This first stage is when a student is given a project or questions and realises he or she must now find information to complete it. The user recognises an information need to solve a specific task and then, possiblysearch wider topics and usually encounter a feeling of uncertainty and sometimes even depression at this stage. At this stage, the information seeker lacks not just confidence, but also the competence to search for the specific information that could help resolve the specific information task.

After the initiation, the next stage is the selection stage. During the selection stage, "The task is to identify and select the general topic to be investigated" (Kuhlthau, 1991:364). The course of choosing a particular topic that is broad is usually accompanied by feelings of confusion and

sometimes anxiety which is characterised by a lack of self-efficacy. At this stage, the student will need to consider and decide exactly what he or she will be researching for. The thoughts during this stage are still vague, the feelings optimistic, and the actions are unfocused. Deliberate efforts such assearching, reading or discussing possible topics with other people could possibly be a way forward. Selection is followed by 'exploration', which is also characterised by feelings of confusion, uncertainty, and doubt (Kuhlthau, 1991:364). This stage is where the student must begin to take more active steps toward finding the information in question. During the exploration stage, the user and the system must communicate in orderfor the user to find the information he or she needs, since the task at this stage is to examine all possible information with the intention of finding a solution. This stage is usually referred to as the 'Actions' which involve the ability to locate wide-rangininformation on a topic to become informed in order to relate new information to what is already known(Kuhlthau, 1991:364). During this time, the user becomes informed about his or her topic and relates that information to what he or she already knows. However, the information seeker still lacks the self-confidence at this stage. It is not until the 'formulation stage' is reached that the feelings of uncertainty diminish and confidence increases (Kuhlthau, 1991:365). At this point, the user develops a plan to move forward and find ways to engage with the topic. This stage is usually referred to as the turning point. 'Collection' is the next stage, where the users and the information systems function most effectively and efficiently (Kuhlthau, 1991:364). Relevant information is gathered and a focused search is developed. In the final 'presentation stage'the feeling of relief comes to the users. However,according to Kuhlthau(1991:365)"A sense of satisfaction follows if the search has gone well and disappointment if the search is not successful". Kuhlthau (1991:366) found that the negative feelings associated with the beginning of the search process began to change as the user began to find a clearer focus.

Kuhlthau's (2004) model incorporates "three realms of experience; the physical (actual actions taken), the affective (feelings experienced during the search process), and the cognitive (thoughts concerning both process and content)". The physical deals with actions such as ability to find information, while the cognitive (intellectual) and the affective (emotional) deals with the ability to comprehend information and the ability to be comfortable with the presentation of the information respectively. According to Luo, Nahl and Chea(2011:2) "The model is significant due to empirical evidence of the fundamental role of emotion in information problem solving, thus

retaining relevance throughout the continuous development of information technologies and diverse research contexts”

Students’ information seeking behaviour is inspired or stimulated by cognitive and affective factors, which dynamically change over time. Kuhlthau (2007:3) noted that affective as well as cognitive aspects of the information search process are major factors that could be responsible for students’ success in the information seeking process. According to Luo, Nahl and Chea(2011:2) “Affect is a fundamental aspect of human beings; including mood and emotion, which have an impact on perception, cognition, social judgment, and behavior”. Kuhlthau (2007:34)noted that affective aspects such as uncertainty and confusion can influence significant judgments just like cognitive aspects, such as personal knowledge and information content. Kuhlthau's focus on the affective component of information literacy is unique as it highlighted underdeveloped affective skills as barriers in a students' information seeking process (Cahoy, 2013). This is because the affective component is also associated with self-efficacy of an individual in achieving a given task such as the use of EIRs among postgraduate students. In a broader term, it involves emotional abilities including beliefs, convictions, interest, self-confidence and others that students must acquire in order to successfully navigate the research process. To corroborate this view, Schroeder and Cahoy (2010:129)were of the opinion that the affective domain encompasses a person’s attitudes, interests, motivation, emotionand self-efficacy, including values that are important in the learning process. The affective domain over the years have been an important aspect of the instructional process as it does not only addressstudents’ motivation but also their involvement in the entire learning process, their experience of self-actualization and discovery and their feelings in context of the library environment. In examining the affective aspects of the model, Kuhlthau (1993) and Kuhlthau, Heinström and Todd (2008) tracked nine feelings through their data collection which areconfidence, disappointment, relief, frustration, confusion, optimism, uncertainty, satisfaction, and anxiety. Therefore, Kuhlthau's (1993) model adds an affective and cognitive dimension to our understanding of information literacy.

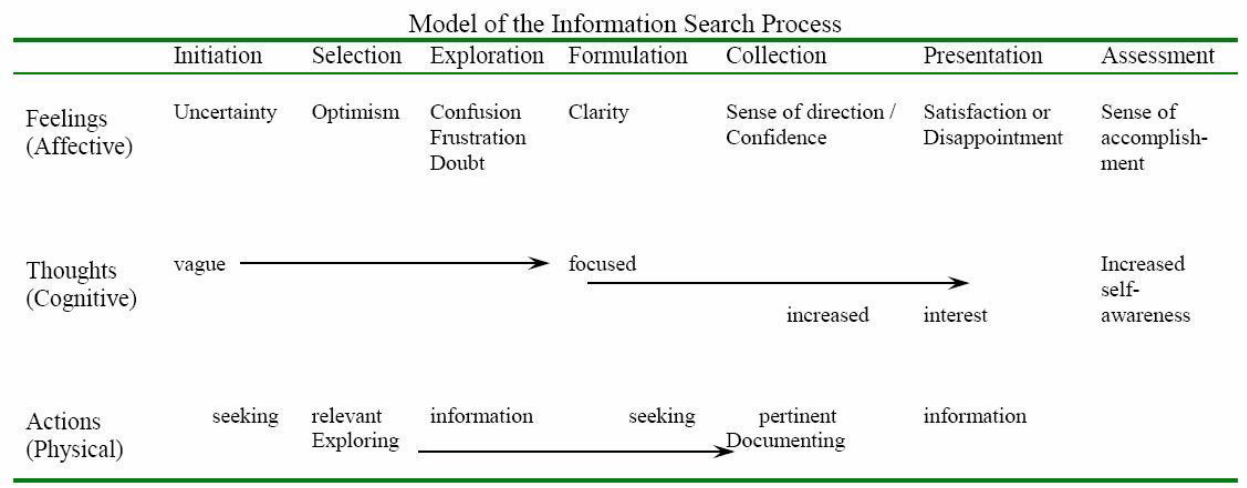

Figure 2.1:Model of the Information Search Process (Kuhlthau, 2004:82)

"The different stages of the ISP model reflect a pattern of thinking, feeling, and acting at each point of the process"(Kuhlthau, 2004:185). According to Lawal (2012):

> Each of the stages indicates a progressive development that would lead the user in attaining a sense of ownership in the area of expertise which constitutes an important component of information literacy and lifelong learning as well as the primary tasks to be accomplished which provide an opportunity to test how theoretical knowledge can be transferred to practical situations through the process

The constructs of the ISP model adequately addressed all the research questions formulated for this study as well as directly related to the research topic (See Table 2.1). The first three stages of the ISP model are characterised by the lack of ILSE which result to the feeling of uncertainty and ambiguity but gradually develops into competence, confidence and relief in the last three stages where the student is optimistic and sure that he/she can respond to the task given. The fourth stage (formulation) of the model is usually regarded as a turning point where the user develops a plan to move forward and find ways to engage with the task. The user'suncertainty diminishes at this stage and confidence increases as the user approaches the other stages which the research work focuses on. In other words, the competence and confidence of the student increases for effective and efficient communication with information systems.

The fact that students were being studied while performing a task they were given at school makes the results stronger and more natural than if they were in an artificial research setting. Another reason for the choice of this model is the fact that Kuhlthau used students from different

achievement levels and ages in her research. She chose participants who were in middle school and high school as well as those early in their university careers. Hence, the model is applicable to a large population of students and young people. An additional strength of this model is the fact that it takes into account the natural feelings a student is going through while seeking information. By focusing on the affective (emotional) and cognitive processes, it leads one naturally into the physical actions a student will take. The continuous verification of the model throughout studies conducted by different researchers shows the strength of the model (Navin, 2013:8). Shenton and Hay-Gibson (2012:46) noted that ISP as an information-seeking model has the potential to teach students about information literacy itself. Using the model at the beginning in teaching information literacy could assist students understand their own search process and become more successful in searching. Kuhlthau's model has been applied in several studies (Lwehabura, 2007; Lawal, 2012; Idoniboye-Obu, 2013) to explore in more detail how students actively search for information so that the process can be informed by infusing information literacy skills throughout (Huston, Kristand Burkhart, 2011:3). "Kuhlthau's ISP model is recognised as one of the most frequently studied and cited models of information-seeking behavior in the field of library and information science"(Luo *et al.,* 2011:2).

2.3.1 Application of the selected model to the study

The application of the model to the context of this study is valuable in addressing the research questions inTable 2.1 below which helps to present the picture that reflects the research correlation or relationship between the theoretical framework of the study and the five research questions.

Table 2.1: Mapping research questions to theoretical construct.

S/N	Research questions	ISP Construct
1	What information literacy skills do postgraduate students have to use electronic information resources?	Initiation stage Selection stage
2	What is the link between postgraduate students' information literacy self-efficacy and their use of electronic information resources?	Exploration stage Formulation stage

3	What are students' usage patterns of electronic information resources?	Collection stage Presentation stage
4	What are the barriers related to information literacy that hinder postgraduate students from using electronic information resources?	Collection stage
5	How can information literacy self-efficacy be enhanced amongst library and information science postgraduate students?	Collection stage Presentation stage

It is important to note that one key feature of the **initiation stage**is that of uncertainty. The concept of 'uncertainty' is fundamental to the theory of cognitive science and constructivism learning which make up Kuhlthau's ISP model. The feelings of uncertainty and apprehension are very common during the Initiation stage, especially as the person becomes aware of a lack of knowledge and understanding. Consequently, the main task at this point is merely to recognise a need for information but uncertain on how to actualize the need. According to Kuhlthau (2004:25-27), "The uncertainty principle is a cognitive state that commonly causes affective symptoms of anxiety and lack of confidence (self-efficacy), especially at the initiation stage". The students at this stage are conscious of their information needs but lack the competence and confidence to commence search strategies, especially in an electronic environment. Feelings of uncertainty are also experienced at the **selection stage**which often leads to optimism. "The challenge at this stage is to identify the right approach to the needed information which will require consulting with mediators and preliminary research at the library" (Kuhlthau, 1991:366). At this stage, the students search widely for a general topic without a clear focus or direction. As students gain general knowledge on the topic or problem, the initial uncertainty often gives way to a sense of optimism which leads to the readiness and willingness to begin the search process. They consult all forms of information resources including EIRs with the intention of gathering general information on that specific information task. These first two stages of the ISP model, (Initiation and Selection) as applied to the context of the research questions of this study help to reveal the information literacy skills and competencies of postgraduate students in their use of EIRs. The research findings from the analysis

of data obtained from questionnaires administered to the postgraduate students and the interview as related to these stages of research addressed the first research question.

The **exploration stage** is described by Thomas (2004) as the stage in which students begin to seek information on a topic of which they know little. This is the stage where a subject will experience 'the dip'. This dip results when a researcher's confidence begins to drop due to inconsistencies encountered, incompatibility with preconceived ideas, and self-doubt as to whether the task can be completed (Thomas, 2004). The task at this stage requires an investigationintoa broadertopic for a wider understanding of the concept. The inability to express exactly the nature of information that is needed can make communication awkward and also create more uncertainty and the situation could be discouraging causing a sense of dissatisfaction and frustration with the system. This view was supported by Kuhlthau (2007:10) stating that:

> The exploration stage is a difficult stage because uncertainty commonly increases, rather than gradually decreases, during this time. Students generally could "experience anxiety and frustration as they encounter information from many different perspectives, much of which may not be compatible with their specific constructs and personal knowledge.

Some information seekers might abandon the search at this stage if not motivated. The librarian's assistance to guide the seeker to the relevant information at this stage is important, especially in a digital environment where students are surrounded by a wide range of digital information at the click of a button.

> The lack of librarian's assistance could result in students relying insufficientlyon constructed search strategies and searching for information via search engines such as Google, rather than the high quality and expensive information sources to which the university library subscribes" (Information Literacy Strategy, 2014:3).

In this context, the application of the exploration stage is used to investigate research question two which is on the linkbetween postgraduate students' information literacy self-efficacy and their use of EIRs.

The **formulation stage** is the turning point of the ISP model, when feelings of uncertainty diminish and confidence increases. This stage usually witnesses a change in feelings as a resultof increased confidence as well as sense of clarity. The information search process becomes more focused and personalised with the seeker's level of confidence increasing. Thomas (2004:32)noted that the

ability to use information obtained in the exploration stage to draw some preliminary conclusions and create personal understandings that enables students to formulate a personal point of view about the topic that might lead to a specific search. Therefore, it is of paramount importance for students to learn to manage the exploration and formulation stages of information searching (i.e. the third and fourth stages) using information technology such as the computer to source electronic information. This is due to"advances in information technology have made the exploration and formulation stages more difficult for students to work through on their own and more critical for them to learn to manage"(Kuhlthau *et al.,* 2007:18). Information literacy self-efficacy could therefore, be consideredalike to the stages of the ISP model and is actualised with the elimination of uncertainty and developing competence, confidence, interests, attitudes and values (Kuhlthau, 2004:178). The seeker at this stage develops some level of confidence based on the general search exploited during the previous stage and consolidates on it with the intention of searching for the most appropriate information for that specific task. This construct is useful in investigating the second research question which is about the relationship between postgraduate students' ILSE and their use of electronic information resources.

The **collection stage** refers to the process of interaction that exists between the user and the information systems. During this stage:

> The interaction between the user and the information system intends to function most effectively and efficiently as the seeker is able to collect pertinent information and experiences a sense of direction and clarity(Kim, 2006).

The application of this stage is useful in investigating the third and fifth research question. The general information at this stage is no longer relevant. The information seeker can ascertain the need for information thereby undertaking a comprehensive search of available resourceswith a clearer sense of direction. Individual confidence continues to enlarge as uncertainty reduces, with interest in the project. This is very important in the context of this research work as it relates to the student's ability to be competent and confident in searching for information via electronic mediums. The user's interaction with information systems such as databases, the internet, librarians, experts, friends and so forth at this stage, is usually not free from barriers. Therefore, the application of this stage of the ISP model to the fourth research question helped to reveal the related information literacy self-efficacy barriers hindering postgraduate students' use of EIRs.

In the **presentation stage,** the feelings of relief are common with a sense of satisfaction if the search is successful or disappointment if the search is unsuccessful. According toKuhlthau(2004:49), "This stage represents the point of closure in the search process where further information is no longer encountered; however, the user then organises strategies for presenting acquired information".The search is usually successful if the seeker employs the right strategies, hence, the application of this construct to the third and fifth research questions are also important.

2.3.2 Limitations of the ISP model

The adoption of the ISP model is based on its numerous advantages over other information literacy models. According to Sundin (2008:28):

> Kuhlthau's work has had a major influence on IL research, especially with respect to issues of pedagogy and curriculum development.This is evident in the various ways in which it has been employed as a useful conceptual framework for developing programmes of user-centred information services and systems in higher education institutions.

However, the ISP model has its own weaknesses. For example, the model has been criticised for not considering gender differences as one area that could determined the confidence of the user during the search process. Burdick (1996) in a study in the United States of America (USA) found that there was a gender difference in both the affective and cognitive reactions as boys and girls moved through the process. It was revealed that girls are more likely to show increased levels confidence as they begin their works,but suspicious and indecisive towards the end while boys have a propensity to become more confident as they complete their projects. However, the researcher regarded this criticism insignificant since the study is not gender sensitive. Moreover, in the creation of the model, Navin (2013:8) noted that while Kuhlthau went out of her way to work with participants across the achievement spectrum as well as students of differing ages, there were some factors and groups not considered in her research. For example, the initial studies were conducted among secondary school students (Hyldegård, 2006:276) thereby excluding students in higher institutions. A further weakness in the model is noted with respect to the structure of the process itself. According to Melton (2003:model comparison), the steps seem to indicate that they can either be achieved simultaneously or at different times and placing an individual in any of the stages, besides the initiation or presentation stage, does not sufficiently describe the user's current state. Also, the possibility that any of the stages may be reverted to or entirely skipped throughout

the process is not expressed clearly in the model. Similarly, an analysis of findings from some of Kuhlthau's studies has highlighted some inconsistencies regarding the affective dimension assigned to the early stages of the model. According to Melton (2003), feelings of anxiety in the information seeking process could be overcome since the participants were already trained in the information seeking process and are thus expected to have developed a level of tolerance to the stages of the process. Moreover, Melton (2003), argues that if the model is to be taken literally, the assignment of emotions to various stages is somewhat arbitrary and tends to ignore users' individuality of feelings, and if applied generally, loses meaning because it may be difficult to determine the users' exact feelings at any given point in the process.

Despite the criticism, the ISP model remains a useful prescriptive model to help guide students through the search process, especially within the context of this research. The model has had important implications for students who are in the process of constructing meaning from a variety of sources of information including electronic resources as thoughts become clearer during interaction with systems. They are able to construct meaning from multiple sources of information, especially those that links information behavior to information impact as a result of the sequential holistic experience captured from the search process.

2.4. Information literacy models in the education sector

The concept of information literacy has spread across different disciplines around the world mainly through information professionals, librarians and other educators. According to Tise (2004:6) "Information literacy is a prerequisite for participative citizenship, social inclusion, the creation of new knowledge, personal empowerment and learning for life". According to Solmaz, (2017:940)

> The relationship between information literacy and learning is highly acknowledged, especially in higher education where it is perceived as a trend towards having the potential to be self-dependent in research-based and online learning approaches that require a balance of digital capabilities for effective information seeking and critical, ethical as well as creative use of information.

For developing countries like Nigeria, information literacy is a major concern to people in various places, including work places and institutions of learning as students at various levels need to become information literate. Therefore, there have been deliberate efforts in advancing more suitable theoretical frameworks that can be explored by information professionals and educators. According to Todd (2000:164), a more holistic theoretical framework for information

literacyarticulated in the educational context will provide a greater focus on the user and provide insight into people's information behavior. Based on various learning theories, different IL teaching and learning models have been developed and are used by educators and information literacy practitioners across the world. Examples of such models are:

(i) Big6 information skills, developed by Eisenberg and Berkowitz in 1990
(ii) The Seven Pillars of Information Literacy (SCONUL, 1999)
(iii) Pathway to knowledge developed by Pappas and Tepe in 1997
(iv) The PLUS model by J.E. Herring
(v) Seven faces of information literacy

2.4.1 Big6 Information Skills Model

According to MacDonald and Darrow (2003:1), "The Big6 Skills model is one of the most well-known models in information literacy and is being taught to students as a guide for their research". It was developed by Eisenberg and Berkowitzin1990. The Big6 model is important in decision making, especially when faced with an information problem. The Big6 Skills are comprised of a unified set of information and technology skills which form a process. The model is relevant to this study due to the inclusion of technological skills that are a basic requirement in accessing EIRs. The process encompasses how people learn to recognise their specific information needs and how to progress through the various stages to effectively and efficiently solve their information problems. The Big6 model consists of six logical steps or stages:

(i) **Task Definition**: At this stage, the student needs to define the problem from an information point of view. The students must be conscious of the need to search for information in fulfilling a specific task.
(ii) **Information Seeking Strategies**: Once the student has clearly defined the information problem, then, he or she must decide which and what information source is most appropriate to solve the task.
(iii) **Locating and Access**: After students determined their priorities for information seeking, they must locate information from a variety of resources including electronic resources and access specific information.

(iv) **Use of information**: After finding potentially useful resources, students must engage (read, view, listen and others) the information to determine its relevance and then extract the relevant information. Once students have found the needed information, they can employ skills to use the information.

(v) **Synthesis**: Is the application of all information related to the defined task? It involves restructuring and repackaging the information into a new different form.

(vi) **Evaluation**: Evaluation is the examination and assessment of the information problem solving process. It determines whether the information found met the defined task.

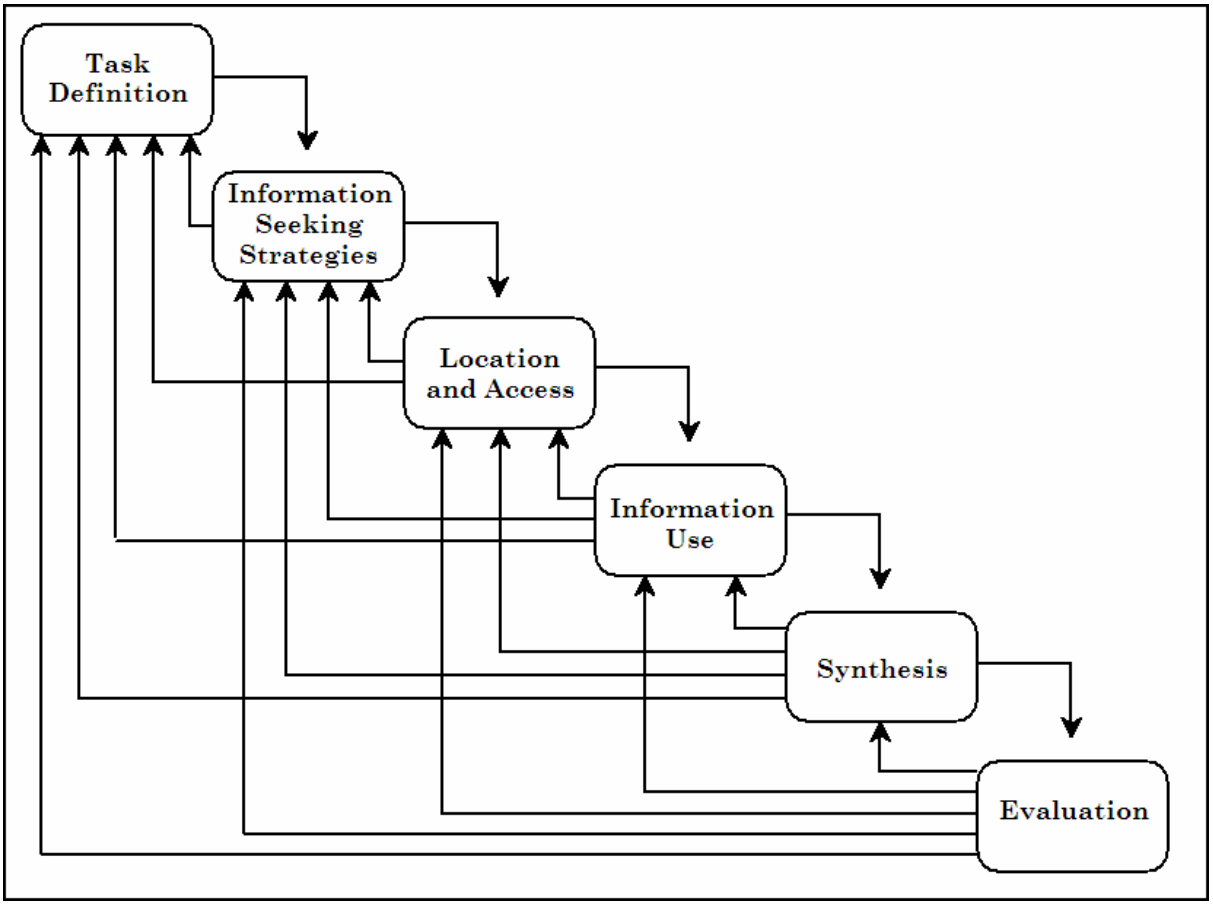

Figure 2.2: The Big6 as a feedback process (Eisenberg, 2008:42)

The Big6 information problem-solving requires the completion of each stage at some point in time.

> People work through these Big6 stages, consciously or not, when they seek or apply information to solve a problem or make a decision and the structure appears to enhance levels of engagement in students, especially when they are working on a specific task(Wolf *et al.*, 2003).

However, the stages do not necessarily need to be completed in any particular order or in any set amount of time but all the stages must be completed for overall success. Eisenberg (2008:41) noted that:

> A particular stage can be repeated or revisited a number of times. Sometimes a stage is completed with little effort, while at other times a stage is difficult and time consuming. The Big6 approach is systematic and it differs in a significant way as it provides a broad based and logical skills set that can be used as the structure for developing a curriculum or the framework for a set of distinct problem-solving skills.

The model is flexible and it incorporates technology such as the computer for accessing EIRs and adjusts to ever changing technological developments. The Big6 skills have been used in different studies. According to Story-Huffman (2009:8), "using Big6 at the college has transcended cultural and physical boundaries to provide a knowledge base to help students become information literate". Eisenberg (2008:41) stated that

> Learning more about the Big6 as a process and as an approach should make it easier and more useful for any instructors and students. For instructors, the Big6 provides a definitive set of skills that students must master in order to be successful in any learning context. Teachers can integrate instructional modules or lessons about the Big6 into subject area content and assignments. For students, the Big6 provides a guide to dealing with assignments and tasks as well as a model to fall back on when they are stuck.

In terms of student research, these six steps are used to encourage "metacognition" which is perceived as 'awareness' by students of their mental states and processes(Eisenberg, 2003:21). Hence, the Big6 is seen as a problem-solving model that can be applied to many situations.

> While the Big6 approach has a great deal of power, it also has serious weaknesses. Paramount among these is the fact that users often lack well-formed statements of information needs, as well as the model's reliance on problem-solving rhetoric. Often, the need for information and its use are situated in circumstances that are not well-defined(Doty, 2003).

Another weakness of the Big6 model could be seen from its failure to delve into legal or ethical issues which is paramountin any research. It fails to consider any form of ethical features and does not contain a collaborative element (Walton, 2009:25). Moreover, Eisenberg (2004)recognised that "There are a number of challenges to effectively applying the Big6 skills, not the least of which is information overload which can overwhelm students". The various weaknesses and limitations of the Big6 model as well as the inability of its constructs to adequately address the research questions formulated for this study are responsible for its non-adoption by the researcher for this study.

2.4.2 The Seven Pillars of Information Literacy model

The Society of College, National and University Libraries (SCONUL) developed the Seven Pillars of Information Literacy model in 1999. The model is designed practically to assistin developing ideas amongst information practitioners. The Seven Pillars model reflects a behavioural framework of information literacy and aims to provide a practical working model of information literacy that is useful for programmes in higher education. The model came into existence when it was presented by the Working Group on Information Literacy of SCONUL in the UK and Ireland in 1999 but was revised and expanded in 2004(SCONUL Working Group on Information Literacy, 2011:3). The Seven Pillars model is arguably the most influential model in the UK, with many universities such as Newcastle University, University of Bristol, and Lancaster University directly citing the framework in their information literacy strategies.

> The model has been testedin several settings. For instance, the Open University information skills programme named Making Sense of Information in the Connected Age (MOSAIC) has used the Seven Pillars model as a foundation for their information skills module. Since its formation, the "model has been widely accepted by librarians and teachers across the world as a means to assisting deliver information skills to their learners(SCONUL Working Group on Information Literacy, 2011:2).

Furthermore Mitchell (2007) stated that:

> The Seven Pillars model defines two aspects of information skills, the realm of study skills in which students employ tools for information acquisition and conceptual skills in which a student is aware of how information is produced and used.

The Seven Pillars model includes the following primary skills:

(i) The ability to recognize a need for information
(ii) The ability to distinguish ways in which the information 'gap' may be addressed
(iii) The ability to construct strategies for locating information
(iv) The ability to locate and access information
(v) The ability to compare and evaluate information obtained from different sources
(vi) The ability to organize, apply, and communicate information to others in ways appropriate
(vii) The ability to synthesise and build upon existing information, contributing to the creation of new knowledge(SCONUL Advisory Committee on Information Literacy, 1999).

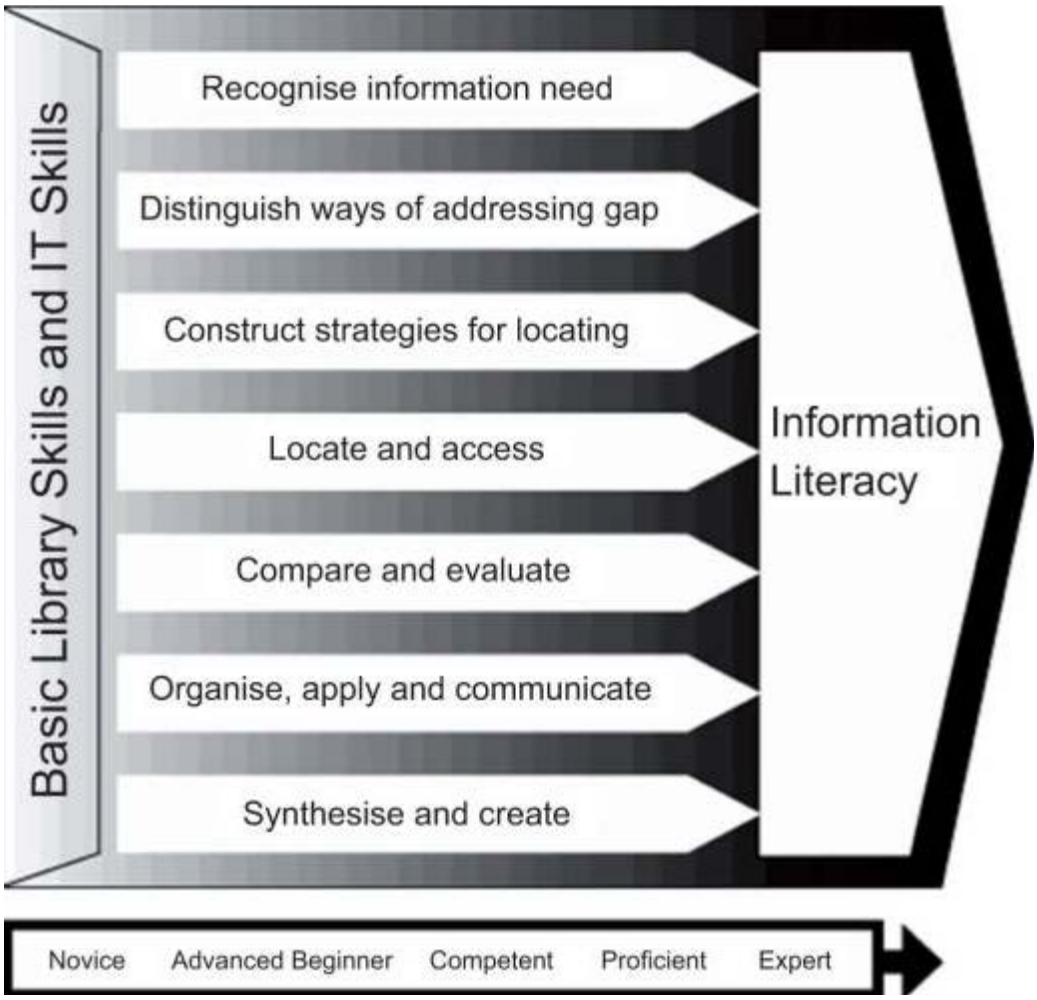

Figure 2.3: Seven Pillars model (SCONUL, 2003)

The 'pillars' show an iterative process that is responsive to the information users as they progress through competency to expertise by practicing the skills. Individual pillar is a reflection of different process relating to information skills and behavioural attitude. Therefore, students whodemonstrate attributes as stipulated in the pillar is considered information literate. Once these skills have been mastered the student is then able to progress from 'novice' to 'expert' through the acquisition of seven skills or competencies, portrayed diagrammatically as the seven pillars (Lewis, 2008:17). Many of the core skills (recognise the information need, identify a problem-solving strategy, locate and access, compare and evaluate information) match the skills discussed in the Big6 model and relate to the basic requirements of an information literate person. Unlike the Big6 model which according to Mitchel (2007), "does not explicitly discuss the impact that the internet has on information literacy concepts, the SCONUL model includes information technology skills as a core part of being information literate".Given the changing information

landscape, SCONUL revised its model in 2011 and provided a new model, also with seven pillars, as a generic core model of information literacy for higher education(Kim and Choi, 2014).

The Seven Pillars model views library and IT skills such as the skills in accessing EIRs as essential in the conceptualization of IL. The model also views five classes of expertise which indicate a non-binary approach to identifying and possessing IL skills. "Within each of the seven pillars, an individual can progress from novice to expert or, if he does not keep up with the requirements of a constantly changing information environment, also regresses" (Mertes, 2014). Although all seven skills are equally fundamental to information literacy, there is the recognition that students' progress will be restricted by their level or experience (Lewis, 2008:17). However, the model is not without some weaknesses and limitations. The clarity of the seven components' (pillars) interaction tosupport IL skills has been a major concern as the model fails to holistically define IL asa process. In this instance, Walton (2009) observes that the "reflective process is regarded as an exclusive expert skill rather than part of the learning (and therefore, IL) process itself which contradicts notions found within theories of critical thinking". "SCONUL places a false distinction between technical and IL skills that is difficult to sustain in practice. She noted that even when students use basic systems, such as an online library catalogue, students must be able to think critically" (Andretta,2005). Furthermore, Andretta (2005) regarded this model as "Too linear to reflect fully the learner's experience because it is based on a sequential progression from a foundation in library and IT skills through the development of competencies culminating in the creation of new knowledge at the highest level of the learning ladder". Also, the Seven Pillar model does not:

> Reflect more clearly the range of different terminologies and concepts that we now understand as information literacy which is used broadly; covering concepts such as digital literacy, computer literacy, information handling, information skills, data curation and data management, to name just a few(Bent and Stubbings, 2011:48).

This study needed to adopt a theory that reflects the holistic nature of IL as perceived in this 21stcentury, and a theory that will adequately address the research questions of which the seven pillars model fall short of, hence it was not adopted for this study.

2.4.3 Pathways to Knowledge model

The Pathways to Knowledge model was developed by Pappas andTepe in 2002. It is a model on information seeking and the research process with an emphasis on constructivism and inquiry-

based learning that is designed for both students and adults (Zimmerman, Pappas and Tepe, 2002). "As a model of process, it covers many of the aspects that are applicable to information literacy and cultural heritage awareness in the context of lifelong learning" (Baker, 2014:38). The Pathways to Knowledge model is intended for information literacy training in a framework presupposing online searching and it is designed with the potential to assist students find, use and at the same time evaluate information which is the core essence of information literacy. The model "does not necessarily require students to complete one step before moving to the next stage and it incorporates continuous reflection on the information retrieved and most importantly on the research process itself" (Pappas and Tepe, 2002:3). "It provided detailed descriptions of the principles of learning, content standards, the tenets of democracy, technology and the knowledge and behaviour required"(Pappas and Tepe, 1995). The model is designed tomotivate students to constantly explore and reconsiderusing information through a positive attitude. The model consists of six steps:

(i) **Appreciation:** At this stage, students explore a topic for information seeking through sensing, viewing, listening, reading and enjoyment.

(ii) **Pre-search:** Students at this stage explore what they already know and what they want to know about the topic and establish a focus; develop an overview, and explore relationships.

(iii) **Search:** This stage is when students seek appropriate sources, plan and implement a search strategy, identify information providers, select information resources and tools and seek relevant information.

(iv) **Interpretation:** At this stage students assess useful information and reflect on research results to develop personal meaning and interpret information.

(v) **Communication:** Students at this stage organise and apply their research in an appropriate format.

(vi) **Evaluation:** This stage involves thinking about product and process through evaluation. Ideally this occurs at each stage.

Each of the six stages of the pathways model includes a variety of general and specific strategies which enable searchers to carry out the function of that particular stage. According to Pappas and Tepe (2002:4)

> The Appreciation and Evaluation stages transcend all the others. Appreciation is not necessarily a stage that must occur at the beginning of information seeking but rather continues throughout the process. Evaluation must occur within each stage and not just at the end of the process.

Furthermore, Pappas and Tepe emphasised that:

> Appreciation, the first stage, fosters curiosity and imagination which can be a prelude to adiscovery phase in an information seeking activity. As learners proceed through the stages of information seeking, their appreciation grows and matures throughout the process(2002:4).

Information seeking has its genesis in the appreciation of the arts, media, literature, and nature which foster curiosity and imagination, so appreciation is an essential component of information literacy. School library media specialists who are committed to the promotion of literature, reading, and lifelong learning cite this affirmation of appreciation as one of the model's strengths. The second stage, 'pre-search', enables learners to engage in exploratory searching and to make connections between their prior knowledge and their topic with procedures to reduce their focus(Pappas and Tepe, 2002:6). In this stage, students think, plan, and plot their course or task. Eisenberg (2008:41) noted that "Planning is a step that students do not always take naturally more often; they jump right into the middle and begin doing their assignments. The key is getting them to understand its importance". The third stage "search", is where learners seek and identify appropriate information sources, including electronic information sources. During this stage, researchers or students identify appropriate information providers, resources and tools, then plan and implement a search strategy to find information relevant to their research question or information need(Pappas and Tepe, 2002:8). Searchers are open to using print and electronic tools and resources and cooperative searching and interacting with experts such as librarians. For many years, the skills in this stage; the identification and location of information tools and resources were the primary focus of library instructions to enhance users' access to a variety of information resources including EIRs. This information gathering phase of the process is relevant to this study as the researchers are open to not only print resources but also to EIRs. While still acknowledging the importance of information skills, this model further defines this stage for the learner by identifying different types of search strategies such as browsing and hierarchical searching which constitutes the information literacy of the researchers or student. Information requires 'interpretation'in the fourth stage.

> The interpretation stage engages searchers in the process of analyzing, synthesizing and evaluating information to determine its relevancy and usefulness to their research question or information

> needs. Throughout this stage, searchers reflect on the information they have gathered and construct personal meaning(Pappas and Tepe, 2002:16).

This recursive reflection emphasised by Pappas and Tepe allows the students to gain a broader understanding that information literacy is an active means of participationin our information world rather than a mere set of skills:

> The fifth stage of communication allows searchers to organise, apply, and present new knowledge relevant to their research questions or information needs. They choose a format that appropriately reflects the new knowledge they need to convey, then plan and create their product(Pappas and Tepe, 2002:19).

This communication can be visual, oral, and/or multimedia in nature. The pathways model also emphasises the ethical use of information and respect for intellectual property which is paramount in today's information literacy. 'Evaluation' (self and peer) is listed as the final stage, but is ongoing in this nonlinear information process.

> This allows searchers to use their evaluation of the process to make revisions that enable them to develop their own unique information seeking process. It is through this continuous evaluation and revision process that searchers develop the ability to become independent searchers(Pappas and Tepe, 2002:21).

As learners reflect on their experience, formative evaluation takes place at every stage and allows them to move back and forth through the process and refocus, reassess, and revise. Formative evaluation should include not only self-checking, but provide opportunities for feedback from peers and teachers. It is during this constantassessment and reviewprocedure that searchers expand their searching skills to become independent searchers or students. Also, summative evaluation which involves learners' reflection on the entire process and their evaluation on the products or the results of the communication of their new knowledge are important in this stage.

This model according to Milam (2004:22) is based on constructivist methods and an inquiry based approach that:

> [a]cknowledges that students work and learn best when building on previous knowledge. This model also encourages students to become adept at constructing knowledge using a number of sources and creating a variety of end products.

The pathway to knowledge model is comprehensive and addresses all three areas of the information literacy process namely; the affective domain and searcher's thinking; the usual information searching strategies; and multiple, general and specific strategies. These three key areas of the information literacy process are relevant to the intentions of this research, especially

the affective domain that places emphasis on the beliefs and emotional state of the searcher. However, the model has been criticised for its complexity, particularly with early learners. Seland (2014:45) opined that the Pathways to Knowledge model is based on methods for inquiry learning, hence, its emphasis on the process rather than its content. Also, Baker (2014:38) noted that "This model was devised specifically for learning in schools, with instructions for teachers and learners that are not appropriate for a lifelong and informal learning environment". This study focuses on the concepts of IL and self-efficacy as a decisive determinant which is vital in lifelong learning, hence there is the need to adopt a model that is closely related to the concept of this study and not the pathways to knowledge model devised exclusively for schools using instructions that are unsuitable for a lifelong learning environment such as the universities.

2.4.4The PLUS model

The PLUS information literacy skills model was developed in Scotland and was first published in 1996 by James Herring, who is an authority in information literacy based at Queen Margaret University College, Edinburgh. The model seeks to incorporate the key elements of:

> [e]xisting theories from education and information literacy models that had been developed previously, including the Big6 and integrated and combined crucial elements that he grouped under the following four, not strictly linear, interrelated steps(Herring, 1996, 1999), namely: Purpose, Location, Use and Self-evaluation (Herring, Tarter and Naylor, 2002).

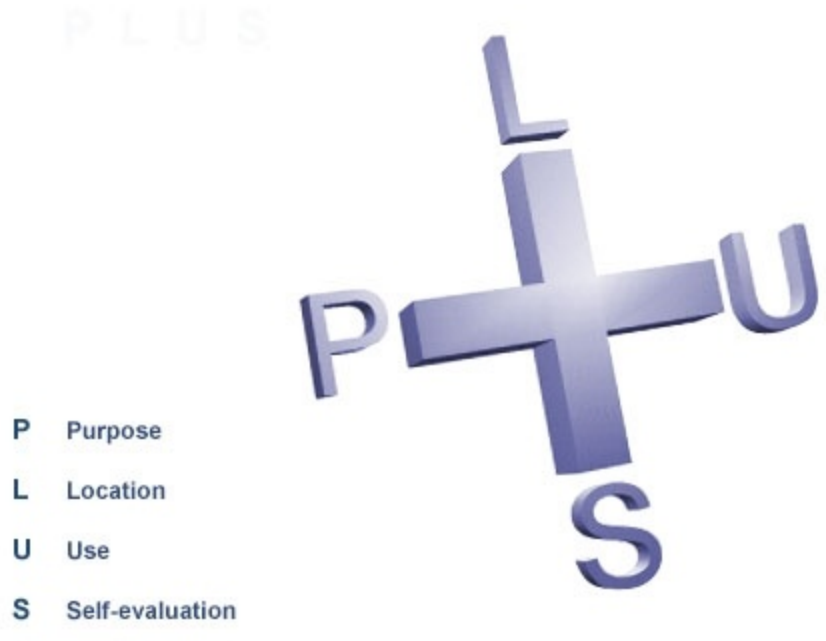

Figure 2.4: The PLUS Model (Learning and Teaching Scotland, n.d.)

According to Herring (2010), the popular "PLUS is an acronym that both students and teachers will find easy to remember. It breaks information skills into four main parts" as shown above.

Purpose: The first step is mainly identification of the purpose of a research task that encompasses, for example, the identification of prior knowledge, the development of questions or key words, reflections about potential sources, brainstorming or a combination of all.

Location: In the second step, the user finds resources that are relevant to the purpose; it includes the ability to use libraries, the internet to access electronic resources, and human sources such as librarians. Also, it involves "selecting suitable information media as well as locating information using library catalogues, indexes, databases, CD-ROMs or search engines" (Herring, 2010).

Use: The third step is "the centre piece of the process and involves, for example, engagement with resources through reading, viewing and listening in order to identify relevant information; the ability to understand information and to combine it with prior knowledge; the purposeful selection of information; evaluation of information in terms of currency, authorship, and bias; note taking; synthesizing; communicating or presenting in written or oral format" (Herring, 2010).

Self-Evaluation: The fourth step requires students to reflect on their achievements and performance, and to consider their own learning as a prospect for improvement. It should not only take place at the end but also constantly during the process(Herring, 2010).

Herring (2010:299)who emphasised information literacy for the school context stated that the PLUS model is more than a set of skills or a routine processbut is a critical and reflective ability to exploit the current information environment including the online environment that houses a wide range of information resources, and to adapt to new information environments; and as a practice.

He further noted that:

> [h]is definition unlike others includes the notion of transfer of information skills from one learning environment to another, for example, across subjects and grade levels or from school to higher education or the workplace(Herring, 2010:30).

The application of the PLUS model has been investigated empirically in the context of education (Herring, Tarter and Naylor, 2002; Herring, 2006) and used by various studies. Like the Big6 model, it has also been criticised for lack of well-formed statements of information needs, especially in the description of ideal paths as well as the neglect of early phases and affective dimension that is of relevance to this current study. The researcher considers the constructs of this model inadequate to address the research problems.

2.4.5 Seven Faces of Information Literacy model

The 'Seven Faces of Information Literacy model' was developed by Bruce in 1997. Bruce (1997:14) uses 'faces' as a synonym for 'conceptions' and explains that:

> Conceptions of information literacy may be defined as qualitatively different relations between individuals and some aspect of their information environment which could not be predetermined. Varying conceptions are also often described as different ways of seeing, experiencing or understanding a phenomenon.

The seven faces of information literacy with seven ways or faces through which an individual sees and experiences information use. In themodel, these seven stages are:

(i) **Information technology conception:**IL focuses on the use of information technology. Experience acquired is based on an individual's ability to access, retrieve and communicate information using information technology.

(ii) **Information source conception:** This concept pegs IL under the ability to find information from located resources. Information literacy is thus seen in terms of

knowledge and ability to access and use information resources including electronic resources.

(iii) **Information process conception:** Within this concept, IL focuses on the process. These processes are the strategies used in tackling and executing an information task in which there is a lackinformation on the research topic.

(iv) **Information control conception:** The focus of this concept is the ability of an individual to control information through various filing systems; the brain or human memory as well as computers to be able to store and retrieve information.

(v) **Knowledge construction conception:** Under this concept, knowledge is seen as building up a personal knowledgebase in a new area of interest. An individual uses information critically by analysing and evaluating it for constructing a knowledge base. Information becomes an object of reflection that appears to individual users.

(vi) **Knowledge extension conception:** Here, information literacy is seen as working with knowledge and personal perspective adopted in such a way that novel insights are gained. Users gain intuition and creative insight in using information. The main emphasis is the ability to use information as a tool for solving a problem.

(vii) **The wisdom conception:** At this stage, information literacy is seen as using information wisely for the benefit of others. To use information wisely involves the adoption of personal values that include judgment, critical decisions and doing research. It also involves consciousness of the need for the ethical use of information. Bruce therefore, sees the acquisition of information literacy skills as a mastery of process and learning tools(Bruce, 2002).

Bruce(2002) emphasised that"Each of these faces of information existed within the context of technology. The Seven Faces model emphasised the relationship between technology and information, in addition to defining core literacies"and it is represented in seven different faces.

As a widely used and a regularly cited model, Bruce's (1997)noted that:

> The Seven Faces of Information Literacy represented a relational model in which the information literate person experiences IL in a range of ways, and is able to use experiences to engage or work with information as required and considers her relational model as an alternative to the skill-driven behavioral models, which were predominant in the late 1990s.

The Seven Faces model considerably differs as it is mandatory to follow the structure compared to other models likethe Big6 and Seven Pillars models. According to Mitchell (2007:16), the faces use a faceted structure rather than a linear or iterative structure in describing elements of literacy and instead focus on broad concepts without predicting the exact relationships between the faces.Regardless of these differences, the Seven Faces model does include many of the same ideas such as the importance of finding and understanding sources, being able to define the structure and scope of an information problem, being able to synthesise and create knowledge(Bruce, 2002). According to Mitchell (2007:16-17):

> The modeldiffers as the information process is being embedded in a technological and used in a context that is inseparable from the information itself. Also, the Seven Faces model more explicitly than other models uses cognitive states (knowledge, wisdom, and understanding) to describe IL.

While this model tendsnot tofocus on social contexts very much as it does in apersonalperception, its positioning of information within a technological context reinforces the initiative that anevolution to digital formats is having a considerable impact on how information is used in a technologically advanced society which is highly related to this research. However, the inability of the model to adequately address the research problems is the reason the researcher did notuse it in this study.

2.5 Summary of the chapter

This chapter focuses on the theoretical framework of this study. The concept of a theoretical framework and its importance to research were examined in this chapter. Kuhlthau's (2004)Information Search Process model was considered to be most appropriate for this study. It is one of the most commonly used information literacy models in the educational context. The ISP model focuses on students' feelings throughout the research process while at the same time applying constructivist principles of building on prior learning. It shows how users advanceresearch practice, how their self-confidence increases as they progress and it involves six stages; initiation, selection, exploration, formulation, collection and presentation. The model was

specifically used as the theoretical framework due to its relevance to the study. The ISP model was anchored on the social constructivism approach due to its emphasis on authentic and deep learning that will enable students to acquire the necessary skills in accessing EIRs. Other information literacy models that were discussed include the Big6, the Seven Pillars model, the Pathways to Knowledge model, the PLUS model, and the Seven Faces of Information Literacy. These are also widely used models that cover various aspects of information literacy related to this study and their strength and weaknesses were also examined. The next chapter focused on the literature review that underpins the study.

CHAPTER THREE
LITERATURE REVIEW

3.1 Introduction

This chapter focuses on a review of related literature for this study. A literature review is aimed at "gaining a general familiarity with the current research conducted in a subject area" (Gravetterand Forzano, 2009:588). It enables the researcher to establish a relationship between what has been researched and the current study. This view was supported by Boote and Beile (2005:3) who stated that the review of related literature intends to situate the study within existing research. A good literature review can extract new ideas from others' work by synthesising and summarising previous sources. Nengomasha (2009:51) stated that "reviewing relevant literature enables a researcher to develop a clear understanding of the research topic; establish what has already been researched on the topic and identify gaps, which the researcher's own study can fill". A review of literature assists researchers to familiarize themselveswitha particular selected research problem and may also provide guidelinesto select anappropriate research methodology. It is also helpful in finding out the research gaps in the existing literature

The literature review in this chapter is aimed at creating relationship between this study and existing research related to information literacy self-efficacy (ILSE) in the use of EIRs by postgraduate students. The literature reviewed is from various countries around the world, from developed to developing countries. The review of literature mostly gathered information from the case studies where similar studies had been carried out. Related theoretical and empirical literature reviewed in this study are sourced from books, journals, conference proceedings, online databases, abstracting and indexing journals as well as published and unpublished bibliographies. This current study assessed the contribution of ILSE in the use of electronic information resources (EIRs). The literature reviewed is organised around the research questions formulated for this study.

3.2. Nigeria: Geographical location and general overview

Nigeria geographically lies on the coast of West Africa, close to the northeastern corner of the Gulf of Guinea. It is between the western part of Benin and Eastern Cameroon. In the north are Chad and Niger. The country has 36 states and they are classified into "six geo-political zones of North-East, North-West, North-Central, South-East, South-West and South-South for political purposes"(Dina, Akintayo and Ekundayo2005:Introduction). Abuja is the Federal Capital of

Nigeria. The country has more thanfive hundred different ethnic groups, many different languages, and declared its independence from the United Kingdom (UK) on October 1, 1960. As of 2016, the estimated population of the country was over 178.5 million(World Population Review, 2016) which makesit the most populous country on the African continent. Moreover, the World Population Review (2016) noted that the United Nations projections have placed the population of Nigeria to be 186 million. According to Oshewolo and Maren (2015:8), Nigeria is a secular state as recognised by the Nigerian constitution. "The provisions of section 10 of the Nigerian 1999 Constitution as amended proscribe any state or federal government from adopting a state religion. It may thus be asserted that no government can explicitly or impliedly take steps or by conduct declare a religion as a state religion in Nigeria" (Nwauche, 2008). However, there are two dominant religious groups in Nigeria, Islam and Christianity (Ebhomienlen and Ukpebor, 2013:167).

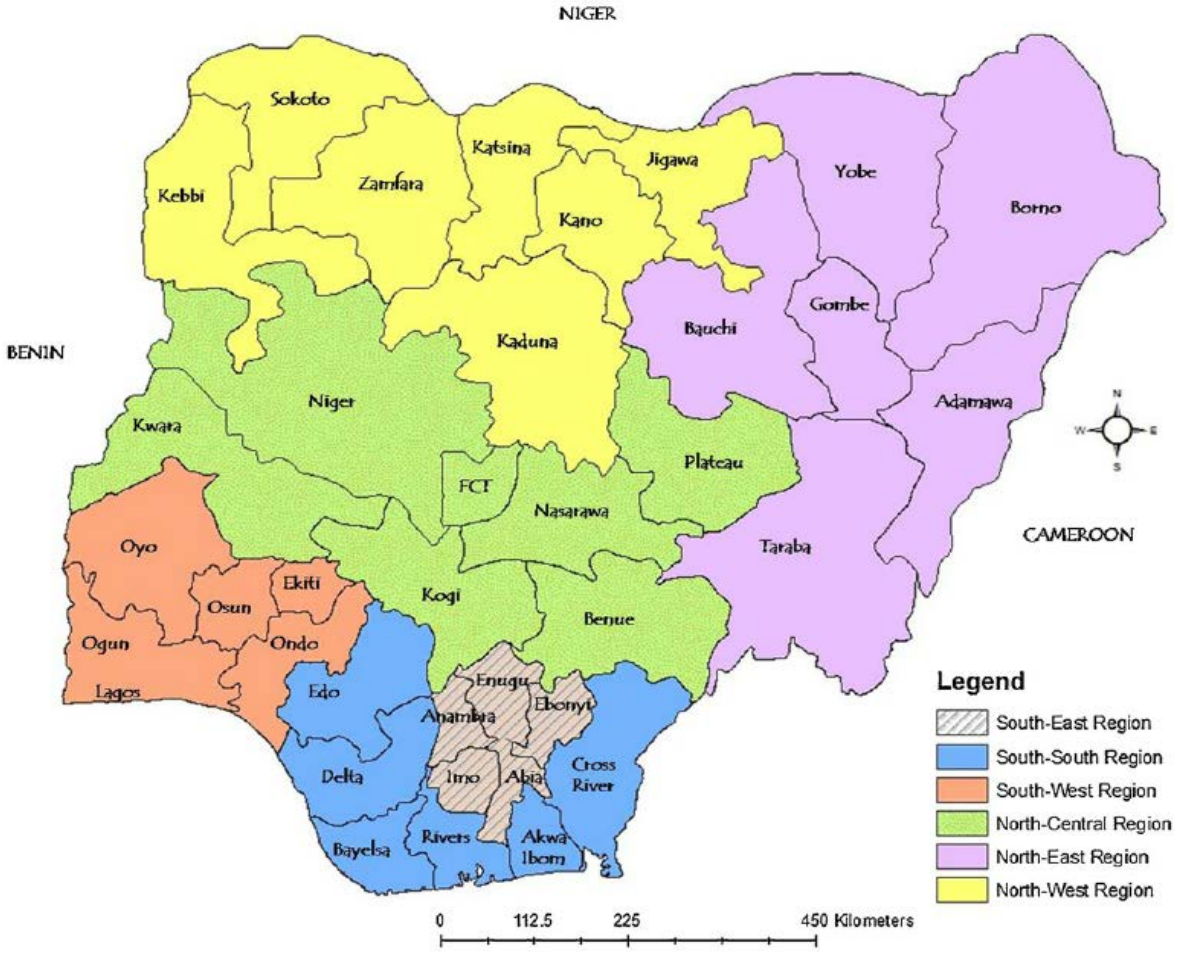

Figure 3.1: Map of Nigeria showing six regions (Bakare, 2015)

Nigeria is a country that puts so much value on education. Education is seen as a human right rather than a privilegethat should be accorded to the citizenry. According to Adeyemi, Oribabor and Adeyemi(2012:1), "the utmost importance attached to education in Nigeria was clearly underscored in the National Policy on Education formulated in 2004. The Federal Republic of Nigeria, in this policy, adopted education as an instrument par excellence for effecting national development".The federal, state and local governments are in chargeof funding education in Nigeria. Also, the private sectors are involved in funding education as part of their social responsibilities. The Educational Ministry at the Federal level is saddled with the role of regulating the education sector and formulating policies in ensuring quality in the education sector. However, according to Staff (2017)the federal government is more directly involved with tertiary education than it is with school education, which is largely the responsibility of state (secondary) and local (primary) governments. Onyukwu (2011:1) stated that "The education sector in Nigeria is divided into three sub-sectors: basic (nine years), post-basic/senior secondary (three years), and tertiary (four to seven years, depending on the major or course of study)".

3.2.1 Education and tertiary education in Nigeria

Education is seen in Nigeria as themaininstrument for promoting the overall well-being of its citizenry. Similarly, Ibidapo-Obe (2007)views"education as a major instrument for national socio-economic development and for individual socio-economic empowerment and poverty reduction". Education is a significantimprovement index and it plays a supportive role for the benefit of the individual in particular, and the nation in general. There is a general belief that education is a powerful tool for development which allows nations invest huge resources ineducational institutions. The National Policy on Education (NPE) formulated:

> [a]6-3-3-4 education system which represents the number of years. The first stands for six years in the primary followed by three years at the junior secondary, three years at the senior secondary and four years at the tertiary levels for first degree" (Osei, 2016).

However, within the context of this study, emphasis was on tertiary education with specifically related to university education.

Tertiary education is a widely accepted tool that is used to grow the high-level practical capacities that sustain economic expansion and growth. Ibukun (1997) opined that "The main purpose and relevance of tertiary education in Nigeria is the provision of much needed manpower to accelerate the socio-economic development of the nation". Tertiary education is an indispensable tool for economic and social change. Hence, Borko and Putman (2010) and Ajumogobia (2011), are of the view that the highest form of manpower or capacity building is best handled at the tertiary education level, where there are specialised fields in accordance with the needs of the nation, the vocational expectation and aspirational needs or disposition of the individual concerned. To have a functional educational system which is an important instrument for enhancing an individual's development and national development, the NPE was formulated to address related issues. According to the NPE(2004), tertiary education is projected:

i. To contribute to national development through high-level relevant manpower training;
ii. To develop and inculcate proper values for the survival of the individual and the society;
iii. To develop the intellectual capability of individuals to understand and appreciate their local and external environments;
iv. To acquire both physical and intellectual skills which will enable individuals to be self-reliant and useful members of the society;
v. To promote and encourage scholarship and community service;
vi. To forge and cement national unity; and
vii. To promote national and international understanding and interactions.

University education across the world plays an essential role towards national development. In this regard, postgraduate studies involve aninvestment, whether personal or national in human capital development. Its overall objective is to have individuals and professionals that are capable ofaddressing specific and general issues oflocal, national or global contexts. Globally, "Postgraduate education landscape simultaneously undergoes rapid and tremendous changes with emphasis on research through equipping students with the necessary skills and knowledge to foster the growth of independent, creative and lifelong researchers" (Olibie, Agu, and Uzoechina, 2015:156). Postgraduate education is associated with acquiring higher degrees after obtaining a

first degree. Students within this category of education are often regarded as postgraduate students. Hence, Jonhu (2007), described postgraduate students as individuals who are studying for a degree beyond that of their bachelor degree to obtain postgraduate diploma, masters or doctorate degree. Furthermore, Collins(2012)opined that postgraduate students are learners who continued to study for a higher degree after obtaining a bachelor's degree or other first degree. These constitute students who had first degrees fromdegree awarding institutions such as universities or similar institutions but are occupied in further studies for a higher qualification. Ascontextualized in this research, postgraduate students constitutepostgraduate masters or doctorate degree students in information studies. According to Olibie *et al.* (2015:156) "one of the cardinal aims of postgraduate education in Nigeria is the production of skilled and high-level manpower, as a precursor of economic and national development". This is in line with the views of postgraduate education held globally. Universities play a leading role in postgraduate education programmes for research outputs. Abiddin (2012)believed that:

> [s]uch research outputs act as a core of excellence in prioritised areas of any nation which can generate high impact research publications as well as attract the best brains in the educational sector especially in teaching and research in producing high standard students.

Therefore, universities essentiallyguarantee quality teaching, which is corein producing the much-needed students, especially postgraduate students that are capable of transforming society.

In Nigeria, one core feature of postgraduate education is the research work (Federal ministry of information, 2012). Postgraduate studies require the writing of thesis or dissertation report which isindispensablein fulfillment of the award of a postgraduate degree. According to Olibie *et al.*(2015:157)"these research projects (for Postgraduate Diploma), thesis (For Masters Degree) or dissertation (for Doctorate degrees) usually investigates educational changes or developments that are being planned to define the way of finding solutions to peculiar situations". Postgraduate studyis designed to further equip the learner with a higher lever of proficiency in a more specialised manner. Olibie *et al.*(2015:157)noted thatin the research work, postgraduate students are expected to identify anappropriate research problem worthy of investigation from a chosen field. Olibie *et al.* (2015:158) further noted:

> The identified problem is expected to meet the tripartite conditions of significance, originality and feasibility. Additionally, theses or dissertations are required to consider whatever problems they

> identify vis-à-vis individual competence and professional experience, and possible difficulties such as availability of data, financial constraints and limitations of time.

Most universities in Nigeria requireresearch works to be presented in averbalassessment where students are expected to prove their knowledge on the specific research topic before a panel of experts.

In recent years, there has been an exponential increase in the number of postgraduate programmes in federal and state universities in Nigeria. The need to obtain postgraduate degrees has been on the rise as competitions among first degree holders intensify related to job procurement. The demand for more postgraduate programmes in Nigerian universities has given rise to many universities starting different postgraduate programmes. According to Staff (2017), there are 128 universities (40 federal, 38 state and 51 private) recognised by the National Universities Commission (NUC), the government umbrella organisation that oversees the administration of higher education in Nigeria. It regulates all the activities of public and private universities in Nigeria. The NUC approves and accredits all university programmes including postgraduate programmes. It ensures that only accredited programmes are offered by universities. The Nigerian government both at state and national levels, has considered quality higher education, especially postgraduate studies as a veritable instrument for achieving radical social, economic and political development.

3.3 Information literacy and education

The advent ofthe information explosion in the 21stcentury that is characterised by an innumerable choice of information available in print and digital format has given vigour to the promotion of information literacy (IL), especially in higher learning institutions. Information literacy is the bedrock and basis for using information technologies and digital resources. According to Bruce (2004:9):

> Information and communication technologies develop swiftly, and the information environment increasingly become complex, educators are recognising the needs for learners to constantly engage with the information environment as part of their educational learning processes. Information literacy is generally seen to be essential in the pursuit of lifelong learning and central to achieving both personal empowerment and economic development which is the essence of education.

The American Library Association (ALA) (2007:1) defines IL as "A set of abilities which enable individuals to recognise when information is needed, and possessing the ability to locate, evaluate, and utilise the needed information". According to the Chartered Institute of Library and Information Professionals (CILIP) (2006:n.d), "IL is the part of knowledge or learning that revolves around the acquisition of a series of skills or competencies". Similarly, information literacy, according to Amalahu, Oluwasina and Laoye (2009), includes "library literacy, computer literacy, research literacy and critical thinking skills". Therefore, IL addresses learning as a continuous process that requires adequate training as "Information literacy cannot be seen as something to be addressed once and then ignored. It is an integrated part of lifelong learning which must be recognised, enhanced and continually updated" (Welsh Information Literacy Project, 2011:38).

The task of using digital information in the21stcentury where there is wide range of EIRs is overwhelming; hence, information literacy skills (ILS) enable students to make efficacious use of information resources. Idiodi (2005:3-4)noted that "Information literacy instruction assists users in identifying and selecting necessary information, and using appropriate search strategies in evaluating, organising and synthesising the information thus acquired into a meaningful state". Due to the significance of IL, especially in this jet age, various information literacy standards or frameworks have been developed. For example, "a framework was developed through the Welsh Information Literacy Project to create a common understanding and to provide a reference point from which information literacy can be integrated into other strategies as appropriate" (Welsh Information Literacy Project, 2011:5). According to Duncan and Varcoe (2012):

> The framework was developed to be used in curricula, beginning at the elementary educational level through to higher education and industry. Another framework was developed in Scotland called the *National Information Literacy Framework Scotland*.

According to Glasgow Caledonia University (2011), "The framework is seen as a key tool for the embedding of information literacy in schools for lifelong learning and for life". However, the most adopted standard is the*Information Literacy Competency Standards for Higher Education* (ACRL, 2000), which was approved by the Board of Directors of the Association of College and Research Libraries (ACRL) in January 2000 (Duncan and Varcoe, 2012:10). ACRL standards lay out five

standards which higher institutions can adapt instrenghtening their information IL programmes (See Chapter One, section 1.2).

The similarity between the ACRL framework adopted to guide this research and the other two frameworks is that they could be integrated into the curricula as they describeIL skills in progression. The ACRL standards "have gained wide acceptance by librarians in colleges and universities and provided guidance for the knowledge (Standard One), access (Standard Two), evaluation (Standard Three), use (Standard Four), and ethics (Standard Five) of information sources" (Kimani, 2014). Similar frameworks have also been developed by the Standing Conference of National and University Libraries (SCONUL) Task Force in 1999 on information skills in the United Kingdom and the Australian and New Zealand Information Literacy Framework which were developed in 2004. All frameworks have served as guidelines for implementing information literacy programmes in various educational institutions. A common element of these frameworks is that they each identify a similar procedure in the information seeking process. In addition, each framework explains aclassification of information need as a obligatory element of IL, and emphasises the value of the moral or behavioural use of information (Boon, Johnstonand Webber, 2007:206; Lau, 2006:17). The differences between the frameworks, however, are that while the ACRL's definition sets information literacy within a social scenario, SCONUL's model places greater significance on the acknowledgment of information needs and procedures involved in seeking information, and tends to be more contextualised to the academic environment. The Australian and New Zealand Frameworks on the other hand, were largely adapted from the ACRL framework, and incorporate two additional standards which include ideals that includes social conscientiousness and dedication to lifelong learning and active participation (Boon, Johnston and Webber, 2007:206). "Often, as part of the assessment and accreditation process, university and college libraries seek to promote information literacy among their respective students' bodies"(Gullikson, 2006).

For some years, libraries have deliberately made efforts to promotethe incorporation of IL instruction into curricula(Ferguson, 2009:13). The concept of lifelong learning and the requirement that all education allows people to develop skills outside their particular discipline has led to "an institutional recognition of the need for everyone to acquire an understanding of how information

is used" (Underwood, 2002:12). In South Africa, some institutions such as the University of South Africa (UNISA), Cape Peninsula University of Technology (CPUT), the University of Cape Town (UCT), the University of Pretoria (UP) and others have integrated IL courses into curricula. Consequently,

> [m]any libraries have developed classes, which introduce students to research skills that not only enable them to find information effectively in a variety of formats, but also to analyse, organise, and apply information in their academic, professional, and personal lives (Johnson, Evensen, Gelfand, Lammers, Sipe and Zilper, 2012).

However, Moll (2011:12) noted that "There needs to be clarity in these concepts, but also how they relate to the curriculum". In this regard, discrete skills are identified, but are more commonly seen as part of a process. The idea of information literacy being founded on the ability to use skills within the process has been widely accepted within the library world; however, in education, these conceptsoften areonly used tacitly rather than explicitly.In the educational context, information literacy must been seen not only as a means to achieve the immediate goals within the context in which they are taught but, more importantly, as vital skills that are required to adapt to the changing circumstances which form the very basis of modern society (Bonanno, Herd, Kelly and Smith, 2006:5). Therefore, information literacy should be given a lot of attention in today's educational system as these skills go beyond those needed to find information but address the idea that "Students should be able to think, evaluate, interpret and question" (Foote, 2010:1). All educational systems, especially at tertiary educational levels must realize that there is a paradigm shift from the traditional idea that students should be trained in library usage to one where students need to be trained in information management and handling. Teaching information literacy has thus become more than teaching bibliographic instruction (De Jagerand Nassimbeni, 2002:167).

The importance of information literacy in tertiary institutions that are regarded as centres of learning and knowledge generation cannot be over emphasised as students, teaching staff, non-teaching staff, researchers and librarians all work with information. Salleh, Yaacob, Halim and Yusoff(2011:507) stated that "many countries in the developed parts of the world recognised the importance of information literacy among their citizens and have implemented programmes to inculcate the information literacy competencies and skills among students at all levels".

Also, Hadimani and Rajgoli (2009:2)were of the opinion that information literacy has a betterimplication for economic development, learningattainment and and personal well-being. Information literacy isa concept that builds on the importance ofacquiring knowledge and information literacy education is seen as thenecessaryagent to change the current information society into a more active learning society. Assessing students' information literacy skills began centuries ago and it wassustaineddue to its increasing value in the 21stcentury. (Conner, 2012:34). Meulemans (2002:61) "outline three contributors to the early state of information literacy assessment namely, the higher education assessment movement; the rise of strategic planning in HE; and the development of information literacy". These contributing factors have changed the concept of users' education to information literacy programmes. The importance of IL have increasinglyput libraries under pressureto design ways to educate and encourage university administrators to make their contribution to institutional commitment to ILobvious (Smith, 2000). These external pressures have also shifted the assessment methods used by librarians from perception-based surveys, to data-based accountability measures, to formalised assessment instruments built on standards and outcomes for information literacy programmes(Conner, 2012).

Educators across the world have developed strategies as well as formulated policieswith the intention of creatinglearning experiences that would encourage students' use of technologies that would enhance their academic pursuit. Hence, there is the need to bring information practices into learning experiences through the course content. Information literacy presents an inclusive approach that offers the potential for students to appreciate the significance of information and use information effectively and efficiently (Brindha, 2016:68). Therefore, students, especiallypostgraduate students, need toacquire vastamounts of knowledge and skills to function most favourably in their chosen discipline as well as occupations presently or in the nearest future. The educational process is closely related to IL as it involves the transmission of information between teacher and student with the aim of imparting knowledge, especially information search skills on learners. Bibliographic instruction, library orientation and other user education programmes have been considered forerunners of the concept of IL.

The importance of IL as part of the knowledge on acquiring a set of skills or competencies has created a new paradigm for the academic success of students.The teaching of conceptual models for handling information through an integrated and incremental approach have provided students with a broad context for understanding the different forms, sources and structures of information which ensures the transferability of acquired skills for lifelong experience(BaroandFyneman, 2009:672; Lwehabura, 2007:321). Apart from the development of theories as a result of the growing concern on information literacy education (ILE), it has also influenced the development of better curriculum structures in higher education institutions, especially with respect to course integration. Therefore, the structure of a curriculum is a decisive factor in the implementation of information literacy programmes and it should be made in accordance with existing standards in order to achieve the desired educational objectives (Bruce, 2002:Establishing policy guidelines).

Universities and colleges in developed countries have incorporated IL into students learning by way of a full courses or integrated into teaching courses like Social Studies, Government Studies, Natural Science and others (Conner, 2012:33). For example, the university libraries in Germany are at various phases of implementing IL courses into their undergraduate and postgraduate course curriculums. While some universities such as the University of Konstanz Library has acknowledgedthe importance of teaching IL as a new task for subject librarians and library as a whole (Singhand Klingenberg, 2008:15), from the perspective of the practical implementation of IL, the situation is far from rosy in most African countries. Baro(2011)carried out a study on ILE in library schools in Africa to ascertain if librarians are taking a prominent role in the development of information literacy in universities. The study revealed that only a few library schools have successfully integrated an IL course as a stand-alone course in their curriculum. Consequently, most institutions in Africa are making determined efforts to ensure the integration of IL into curricula. In South Africa, the Library and Information Association of South Africa (LIASA) has put in place strategies that would lead to the integration of IL into the curriculum. Furthermore, in Nigeria, there has been a lot of advocacy to a number of government organisations and other institutions that can be partners in the promotion of IL in Nigerian universities. In 2014, the Nigerian Education Research Development Centre (NERDC) and the Librarian Registration Council of Nigeria (LRCN) agreed to collaborate for the development of a curriculum for Library and Information Science (LIS) schools that will incorporate IL. Although, there seems to be a

general consensus for drawing up policy guidelines for the sake of advocacy and for libraries to become partners with academics in the teaching and IL, this is yet to be actualized(Baroand Zuokemefa, 2011:553). The National Universities Commission (NUC) Benchmark Minimum Academic Standards for Undergraduate Programmes (National Universities Commission, 2007) could be regarded as a basis for an effective implementation of IL programmes.This Benchmark provides a two-credit unit assigned to library usage, study skills and information and communication technology (ICT) under the general studies that are mandatory for the entirety of the students. The general studies cover areas of IL such as computer literacy, study skills (reference services), library education and so forth. Consequently, library practitionners have become more active in their roles to advocate and promote IL. Librarians are expected more than ever before to collaborate with the faculty to improve the quality searching and evaluation skills of students in order to use information appropriately (Dubicki, 2013).

Collaboration between librarians and faculties to design modules which can be embedded into the curricula has been a major challenge in developing countries. The emergence of IL into teaching curricula has been a welcome development in most developed countries.Anyaoku, Ezeani and Osuigwe (2015:97) noted that "ILE is gaining paramount importance in institutions of learning worldwide, librarians in Nigeria need to develop their own programmes, and map out strategies that will enable them to fully integrate the programme into the curriculum of their various universities".

To achieve this aim, librarians need institutional support as well as collaborate effectively with faculty members to integrate ILE into the curriculum(Øvern, 2014). Hence, there is a common consensus on the significance of faculty-librarian partnership in facilitating the information literacy (IL) agenda in higher education(Bury, 2011).Research indicated that there is the need for collaboration between the library staff and faculty members to design IL courses that would have a positive impact on students' capability in the use of information (Dhanesar, 2006; Montiel-Overalla, 2008). Montiel-Overalla(2008) noted that the teacher-librarian collaboration would assist students to improve their use of information. However, a number of factors over the years have been identified as hindering the successful implementation of IL programmes in most African universities. A study by Dadzie (2007)on information literacyof Ghanaian universities identified

a lack of university commitment to the IL project, inadequate information about what IL is, lack of collaboration, limited technological infrastructure/computers, inadequate electronic resources and inadequate human resources as barriers to IL. Similarly, Lwehabura (2008) outlined various factors hindering the delivery of IL in Tanzania universities. They include the lack of clear IL policies, as well as inadequate time to teach IL as a full-time course. It is taught on a voluntary basis and by non-teaching staff. Similarly, Lwehabura and Stilwell (2008) pointed out that, to a great extent, IL instruction is weak in terms of its efficacy in imparting IL knowledge and skills in Tanzania. The reasons given arethat there is no dedicated IL policy to guide IL practice, there is a lack of awareness among students about the IL instruction sessions, instruction sessions are affected by time constraints because IL is not allocated official time in university academic timetables, attendance by students is voluntary, and as a result, not all students take advantage of the sessions that are in place,there is lack of resources such as computers and CD-ROMs to support hands-on-practice, andinformation skills sessions are not integrated into the curriculum ((Lwehabura and Stilwell, 2008).

Also, a study by Baro and Zuokemefa (2011:549) on information literacy programmes in Nigerian university libraries, identified various barriers which include

> [a]lack of interest by students and other stakeholders, inadequate manpower resources to handle IL training, lack of facilities, low acceptance of an online IL delivery approach, and the absence of an IL policy as factors hinderinglibrarians' efforts when advocating and providing IL training in university libraries in Nigeria.

Therefore, this study helped to create the most needed awareness on information literacy among universities under study and beyond.

3.3.1 Pedagogical Approaches of Teaching Information Literacy

The concept 'information literacy' is rooted in the concept of'library instructions' and 'bibliographic instructions' as it involves the application of information related skills. Salleh *et al.*(2011:506) posited that "IL unfolds over a long history of library traditions, which included library orientation, library instruction or bibliographic instruction". However, it is clear that IL has moved beyond library instruction or bibliographic instructions as it is being integrated into

curricula to be taught and developed by diverse higher education stakeholders (Secker and Coonan, 2011).

IL as a concept:

> [w]as intended to change and expand the role of librarians in creating information literate citizens; and was distinguished from the traditional instructional role of the librarian, which was known as bibliographic instruction or user education. There are a number of factors that differentiate IL from bibliographic instruction(Salleh *et al.,* 2011:506).

Bibliographic instruction is a traditional way of educating its users through a once-off lecture delivered by librarians with a focus on library usage; whereas, ILinvolves library staff and a course instructor collaborating withthe intention of enhancing students' information skills through integrated courses in the curriculum. The one session information literacy instruction with the conventional instruction method is no longer adequate for students to acquire IL skills (Dawson, Hsieh and Carlin,2012; Hsieh, Dawson and Carlin, 2013). Most university libraries in Nigeria are yet to integrate IL into stand alone courses. Anyaoku *et al.*(2015:98) noted that "five of the university libraries out of the seven in the South East of Nigeria are involved in formalised information literacy programme which is embedded in a General study course in their universities". However, user education or bibliographic instructions are the major literacy taught. IL competencies cannot be sufficiently learned and applied in a once-off training, such as library instructions but rather close-coaching and guidance was required for students to adequately internalise and practice their IL skills and knowledge over time (Hsieh, Patricia, Dawson, Hofmann, Titus and Michael, 2014; Mokhtar, Majid and Foo, 2008).Hsieh*et al.*(2014:235)echoed the point that "information literacy instruction must go beyond the once-off mode due to the broad nature of IL". Abubakar and Isyaku (2012:36) further noted that IL goes beyond technological competence or online research. Rather, it is a holistic knowledge that promotes critical thoughts and evaluation in the perspective of the exponential quantity of information that isobtainable through different types of technology. Therefore, there is the need for a paradigm shift in the teaching of IL through the collaborationof librarians and the faculty which would provide opportunities for a more meaningful contribution from the teaching faculty and librarians and allowing a more productive methodology to the teaching of IL (Abubakarand Isyaku, 2012:36).

Collaboration in teaching IL brings in new rolesand relationships between the professionals(Igboand Imo, 2011).

The use of pedagogical approaches will make IL teaching more effective as it provides the necessary collaboration between the facilitators (librarians) and the students. Liles (2007)in comparison, outlines three different types of learning theory: behaviorism, cognitive learning and constructivism and established how the different theories assist IL trainers and students in the teaching methods adopted. A pedagogical approach to IL would recognise that students generally have some level of understanding as information users. This might be as simple as recognising information resources for some students. While others mighthave a broader perspective, but in either case, students must be allowed to relate their experiences as information users to their first attempts of acquiring information literacy skills. As a result of this pedagogical perspective which recognises the student as the center of the learning and teaching process, librarians need to become active by collaborating with faculty members. Supporting this view, Bennett and Gilbert (2009) were of the opinion that"Partnering with faculty in new educational methodologies is one significant way in which librarians and faculty can work together to enhance student learning". Therefore, librarians are encouraged to see faculty members as partners in promoting IL. In this regard, the student becomes an active participant in the learning process. Information skills are best learned and practiced as students undertake their 'real' work, which implies the need for collaboration between library and faculty (Young, 2008:139). Onwibuko and Asogwa (2011:5) noted that:

> One of the means ofachieving the objective of IL competence is through a three-stage process which the fundamentals of information competence are introduced in an orientation course and further embedded in general education courses, popularly called general studies which could be strengthened and extended in the major subject areas.

Similarly, the programme can be integrated through all courses at all levels of the university training. As with the learning process, IL competency is not developed in neatly successive steps, or in a single lesson but through participation where knowledge is created or constructed. This is closely associated with the constructivist theory that sees learning as less a matter of delivering knowledge to students and more a matter of facilitating the students' discovery of knowledge. Knowledge is created either individually as a result of prior experience or collaboratively by active

participationin a current task. Constructivist learning principles hold that learners construct their own knowledge by building on existing knowledge in a process which is fostered by timely input from teaching staff. IL competence allows for students to construct knowledge by using IL as a management tool within disciplinary learning tasks.

Pedagogical methods to teaching IL underscorean active participation and involvement that put the learner at the centre of the learning process. Hence, there is paradigm shift from content transmission to participatory methodology where learning IL becomes more realistic and holistic. Bruce, Edwards and Lupton (2006:2) suggested"Six frames for IL education based on relational learning theories. These six frames provide a guideline for higher educators with instructions on how to design an IL curriculum with a pedagogic approach". The *Content Frame* focuses on what learners should know about IL, e.g. teaching a key set of information tools and the techniques for using these tools:

> The *Competency Frame* focuses on what learners are able to do and at what level of competence, e.g. to develop different levels of IL competencies for students to obtain. The *Learning to Learn Frame* focuses on how to use information to learn, e.g. in problem-based learning, students learn through the process of solving problems by accessing, evaluating and applying information(Bruce *et al.,* 2006:4).

According to Maybee, Bruce, Lupton, and Rebmann(2013:5):

> *The Personal Relevance Frame* focuses on learners' interests in order to engage them in the learning process. An example is for students to explore what their future career could be. The *Social Impact Frame* focuses on social impacts or social changes, e.g. seeing the social implications in the cases or tasks at hand and considering how relevant policies could be developed to guard against negative impact. The *Relational Frame* focuses on different perspectives. An example of this is to ask students to articulate their own views about the cases or problems in hand and to observe the differing viewpoints of their peers. Some of these frames have been applied in IL teaching.

Studies have shown that the pedagogy of teaching IL provides a connection between what students need to know and how they learn. Mokhtar *et al.*(2008:196) investigated the impact of IL teaching incorporating pedagogical approaches on how students applied IL competencies in Singapore. The

study revealed that effective IL learning should include specific pedagogical approaches on the part of the facilitators, to make IL teaching more effective, with students being given enough time to practice their learned skills. Moreover, the study also revealed that individual students have different learning styles and this affects how they learn. Teaching approaches must therefore incorporate this understanding in their design on IL instruction. Dadzie (2009), who investigated IL initiatives in Ghanaian universities found out that addressing IL teaching and learning challenges might require that IL is integrated within other existing courses offered, in order to give the students a contextual IL experience. In addition to integrating IL in many of the existing courses, respondents felt it was time a full IL course was included in the university curriculum for all undergraduates. This would give it its rightful place. Similarly, Kanguha (2016)who investigatedinformation literacy learning experiences of fourth-year psychology students in Kenyan universities concluded that there is the need to change methods of teaching, from the lecture only to one that requires students to do research and write quality term papers. Therefore, successful IL programmes must be introduced early and be reinforced often, with assignments of increasing complexity as part of the pedagogical approach in teaching IL. Approaches to teaching IL should focus on encouraging students to experience IL in a way that enables them to easily apply the skills across disciplines as far as selection, evaluation and application of information is concerned (Kanguha, 2016:74).

This study outlined four mediums to providing IL education in tertiary institutions. These four mediums or approaches include extra-curricular, stand-alone, inter-curricular and intra-curricular (Eisenberg, Lowe and Spitzer, 2004; Wang, 2010).

- The *extra-curricular* approach allows librarians to teach IL as extra curricular activities. Peacock (2006) noted that IL could be taught by librarians outsideof an academic curriculum. In the extra-curriculum approach, teaching of IL is supplemental to the academic curriculum and not usually connected to any precise academic course and it is not compulsory for students to attend as there is no form of academic assessment attached to such extra-curriculum activities.
- In the *stand-alone* approach to IL education, “IL is taught as an independent curricular course solely devoted to IL as part of the students’ curriculum. The stand-alone IL course can be taught by academic staff or librarians or shared by both. It is taught either as an

elective course for-credit/non-credit"(Visser, 2005). These stand-alone IL courses are regarded as an effective method of promoting IL skills among students.

- The *inter-curricular* approach to IL education is also known as "subject related or academic course related. IL is taught as add-in session (s) for an academic curriculum by librarians in consultation with or at the request of individual academic staff" (Peacock, 2006). According to Wang (2010), it is related to academic curricular teaching content or assignment. Attendance may be a requirement of the course or programme. IL teaching is generally related to an academic course or programme. Students normally view IL teaching as an add-in session (s) in this approach as IL may or may not be assessed.
- The *intra-curricular* approach to IL education is also known as thecurriculum integrated or embedded approach. IL education is integratedinto an academic curriculum commonly via collaboration between academic staff and librarians during curricular design, delivery or assessment(Breivik and McDermand, 2004). There is usually a form of collaboration between library staff and academic staff as IL courses should be taught by both librarians and academic staff. IL teaching in this approach is "part of the academic curriculum, and assessment can be either formative, summative or a combination of the mandatory requirements of the course or programme (Wang, 2010).

The above four approaches to providing IL education in tertiary institutions isvery important; however, literature suggeststhat the most efficient way in providing IL education is through integration into curricula. This will offer collaboration between librarians and faculty for an indepht teaching of IL.

3.4 Concept of self-efficacy

The importance of self-efficacy as a key factor among students in achieving academic excellence is becoming increasingly understood. "Self-efficacy research explains how and why individuals perform differently at various tasks within a range of complex environments including academic and computing performance domains"(Miltiadou and Savenye, 2003). Bandura (2001), "credited with introducing the concept of self-efficacy in the area of social psychology defined self-efficacy as a conception that one nurtures about his/her own personal beliefs in one's capabilities to achieve a given level of performance". Similarly, Lee and Mendlinger (2011:244) defined self-efficacy as

a personal perceptionon the capability to perform a particular task. Self-efficacy can also be seen as the confidences that people have in their ability to perform a particular task. Thus, Sharma and Nasa (2014:58) defined "self-efficacy as an individual's confidence in his or her ability, which may impact the performance of a task". Therefore, self-efficacy is the belief in one's capability to execute the actions required to attain a goal, and, as such, is an attribute of confidence/self-confidence. Confidence in one's ability directly affects once performance. It is "simply a self-perceived measure of one's belief in one's own abilities, dependent upon contextual background and setting(Leigh, 2008:8).

Self-efficacyreflects an individual's confidence in his/her ability to perform the behaviour required to produce specific outcome and it's thought to directly impact the choice to engage in a task, as well as the effort that will be expended and the persistence that will be exhibited(Singh, 2011). In other words, self-efficacy is the confidence in one's ability to perform in such a way as to produce a desirable outcome(Heng and Mansor, 2010). "Unless people believe that their actions can produce the outcomes they deserve, they have little incentive to act or to persevere in the face of difficulties"(Sharma and Nasa, 2014:58). However, Zulkosky (2009:98) noted that "self-efficacy is not concerned with specific skills one has but rather with the judgments of what a person can do with those specific skills". It is necessary to emphasise that self-efficacy is not assessing the strength of skill; rather, it reflects personaljudgement on the actual application of the skill."Self-efficacy beliefs determine how long individuals will persevere and how resilient they will be in the face of difficulties and how much effort they will expend on an activity. Individuals with a high self-efficacy perception expect to succeed and will persevere in an activity until it is completed" (Kinzie *et al.,* 1994). Contrary, an individual who possesses low self-efficacy is less expected to persevere doing challenging activities.

In some research studies that "associate self-efficacy perception with performance, it has been claimed that people with higher self-efficacy perception are more successful in overcoming the obstacles with passion and resolution"(Aşkarand Umay, 2001). In relevant literature, there are some research studies indicating that self-efficacy perception involves cognitive processes, feelings and controllable behaviours (Çetin, 2008; Kurbanoglu, 2009; Zulkosky, 2009). In addition, self-efficacy has an effect on the way a person acts properly or wrongly and the level of

perseverance in coping with the problems (Akkoyunluand Orhan, 2003), and that "students with lower self-efficacy levels shall keep themselves distant from learning situation or task"(Schunk, 2000). It is generally a belief that:

> self-efficacy is influenced by four main sources: an enactive mastery experience that is, hands on experience; vicarious experiences, that is, other people's experience; verbal persuasion, that is, appraisal or feedback from others; and physiological and affective states, that is, stress, emotion, mood, pain, and fatigue(Sharma and Nasa, 2014:61).

In academic settings, self-efficacy is seen as a strong predictor that could positively enhance academic performance of students. Askar and Davenport (2009:26) noted "self-efficacy is especially important, and potentially useful, when the context relates to education. This is because the self-efficacy theory recognises also that an individual's actual performance influences their self-efficacy, and hence can affect any future performances".

Odaci (2011:110)articulated that "students' belief in their academic self-efficacy and their ability to begin and continue their studies is also highly important". Self-efficacy in education is regarded to be interconnected with effort, perseverance and accomplishment. Sharma and Nasa (2014:59) noted that "For thepast two decades, self-efficacy has proven to be highly active predictor of students' motivation and learning". Academic self-efficacy is rooted in self-efficacy theory. The theory emphasises personal self-confidence on one's ability to handle and execute a given course of action in finding solution to a problem (Eccles and Wigfield, 2002:110). Based on this theory, the present studypresumes that self-efficacy provides the basis for students' motivation and academic accomplishments through the aptitude within the backgroundcircumstance to modifyor adapt through emotional and physiological changes.

Most studies on self-efficacy in an academic setting around the world have shown that the variable has a direct correlation to academic performance (Schunk, 2000; Zhang, Li, Duan and Wu, 2001; Robbins, Lauver, Le, Davis, Langley and Carlstrom, 2004; Ketelhut, 2006; Adeyinka, Tella, Ayeni and Omoba, 2007; Çetin, 2008; İpek, Tekbiyik and Ursavaş, 2010). It has become an important factor required by students generally for academic performance. Therefore, students should develop a wider sense of self-efficacy to maintain the persistent effort required to excel

academically. The correlationlinking self-efficacy and academic attainment has been a theme for academic discourse in social sciences research. To highlight the significance of self-efficacy in academic performance, Artino and Stephens (2006) carried out a study to determine if 'students' self-efficacy was associated with their self-reported use of cognitive and metacognitive learning strategies in online courses. The subjects used for the study were 32 graduate and 64 undergraduate students in a public university in the Northeastern United States. Findings showed that self-efficacy was found to beinterconnected to students reported utilization of elaboration, critical thinking and metacognitive self-regulation. This is a preposition that "a student who believed they were capable of learning was more likely to report the use of cognitive and metacognitive strategies" (Artino and Stephen, 2006). Also, Bong (2004) assessed academic self-efficacy performance-approach as well as performance avoidance achievement goal orientations in reference to English language and general school learning. The participants used for the study were 389 Korean high school girls. The results showed that academic self-efficacy perceptions were correlated moderately, whereas performances approach and performance avoidance achievement goal orientations displayeda strong correlation across different contexts. In another study conducted in Spain (Valle, Nunez, Gonzalez, Gonzalez-Pienda, Rodriguez, Rosario, Munoz Casavid and Cerezo, 2009:101):

> [t]he researchers focused on investigating the relationship between university students' self-efficacy for performance and learning as well as their effort regulation. The study indicated that when students possessed a higher self-efficacy, they were more likely to invest more effort into their academic studies.

Also, Turner, Chandler and Heffer's study (2009) investigated the influence of parenting styles, achievement motivation and self-efficacy on college students' academic attainment. The results indicated that self-efficacy was a consequential predictor of one's academic attainment. Therefore, self-efficacyhas been established to be responsive to subtle changes in academic success.

Adeyemi*et al.* (2007:2) noted that efficacy optimismdiffers in level, strength and generality. This diversity proves essential in determining a suitabledimension. In academic settings, a self-efficacy measurement scale might be designed to assess students' confidence in solving specific problems, accessing various sources of information, as well as accomplishinga particular task. The role of

self-efficacy has been investigated in correlation toapparent ability and explicit academicperformance (Folk, 2016:5). “In line with related theories, self-efficacy beliefs influence students’ academic attainment due to the outcomes they produce through four psychological processes”(Bandura, 1993). These arecognitive, motivational, affective and selection processes:

(i) **At the cognitive level:** The nature of optimism students hold concerning their abilities in correlation to a given task influences the way they perceive their prospective future academic accomplishment. Students who believe in their abilities envisage successful positive outcomes while those who do not trust their capacities are likely to suffer from what Bandura (1997) named cognitive negativity (which is a state where they becomepreoccupied by their shortcomings and become doubtful about their capacity to succeed in the face of challenging learning situations)

(ii) **At the motivational level:** A high sense of self-efficacy strengthens students’ willingness to invest more efforts in their learning, serves them well to persist when facing difficulties and assists students to recover more quickly after a negative attainment. Conversely, a perceived sense of inefficacy diminishes students’ interest in their learning, lessens from their capacity to persevere when facing impediments and undermines their commitment to achieving their goals.

(iii) **At the affective level:** A strong perceived sense of proficiency is likely to reduce the amount of anxiety students might experience in the course of their learning whereas a low self-estimation of capacity might result in high levels of anxiety and agitation that often lead to irrational thinking that eventually impair their cognitive and intellectual effectiveness.

(iv) **At the selection level:** The conceptions that students develop concerning their academic potential are likely to impacton the nature of decisions they take, the environment they opt for and the quality of choices they adopt. It is generally the case that students are frequently involved in activities in which they feel efficacious while they avoid those in which they feel less competent.

Therefore, self-efficacy is a concept which impacts positively on human performance at different levels. Even though, competence and skills could play a crucial role in task accomplishment,

people's level of motivation and confidence are important in accomplishing specific tasks(Pajares, 2002).

3.5 Links between self-efficacy and information literacy

There exists a strong correlationinvolving self-efficacy and information literacy (Tuncer, 2013:38) because peopleare inclined to select tasks and actions in which they have expertise, a positiveattitude and avoid a difficult task. This is the rationale why self-efficacy is very essential for lifelong learning. There are countless motivational constructs, but self-efficacy is one of the motivational constructs in promoting students' engagement and learning of information literacy skills (Linnenbrink and Pintrich, 2003). The importance of self-efficacy has led to many research studies in the educational sector. For instance, research has been conducted on students' self-efficacy (Tella *et al.*,2007; Kurbanoglu, 2009; Daniel, 2014; Sharma and Nasa, 2014). There is an immensebody of literature related to self-efficacy and computer efficacy; however those related to self-efficacy in the context of information literacy are few(Akkoyunlu and Kurbanoglu, 2004; Kurbanoglu, Akkoyunlu and Umay, 2006; Usluel, 2007).

The concept of self-efficacy has been applied to IL as well as all the fields (Tuncer and Balci, 2013:85). Tang and Tseng (2013) employeda survey design to examine the correlation between self-efficacy andinformation literacy skills(ILS) of distance learning. The researchers established that students who possess high self-efficacy exhibitedgreatercomprehension on how to adopt and utilize appropriate resources to achieve their learning needs. Self-efficacy is an essential factor that impacts greatly on IL and library skills (Kurbanoglu, 2003). Students who are competent and confident about their ILS are willingto assumeeven the most difficult information task assigned to them. Folk (2016:700) suggested that "students with higher levels of IL and self-efficacy have a better understanding of the research process and how to select information resources". Tuncer (2013:34) while establishing the links between both variables, stated that the last ILSE constitute the last type of self-efficacy conceptionin the perspective of research.

In today'sinformation based society, in order for people to actively participate in information-problem solving actions and become life-long learning individuals, they are presumed to cultivate a positive self-efficacy perception on information skills(Kurbanoglu, 2009). Zinn (2013:3) noted

that “an IL person in today’s information society must also be efficacious because both variables are essential in our knowledge based society”. Similarly, Bandura (1997) noted that success is not achieved based on the possession of necessary skills only, but it is also important that the confidence to apply the skills is needed. Hence, in addition to information literacy skills, students in this 21stcenturyshould also develop self-efficacy (confidence) in the skills that they possess.Therefore, the realization of a strong sense of self-efficacy optimism becomes essential as students possess IL skills.Ross, Perkins and Bodey(2016)suggests that individuals who express lack of confidence in their capabilities and who actively evadedifficultactivities are less willing to develop the IL competencies that advance lifelong learning, whereas individuals who demonstrate high self-efficacy are more likely to develop these competencies. The persistence and resilience associated with self-efficacy are two fundamentalelements for information seeking and lifelong knowledge which constitute IL in this 21st century. Bandura noted that self-efficacyis important in equipping individuals to be self-confident and self-directed in pursuit of knowledge. Hence,advancinga strong self-efficacyfor information literacy is a requisite to realise lifelong learning (Price, Becker, Clark and Collins, 2011). Kurbanoglu (2009:4) noted that “If individuals judge positively their level of competence and confidence, then they could effectively undertake and solve information problems”. Thus, it ispossible,if students are not confident, they may avoidsolving information problems. Schroeder and Cahoy (2010:129)in discussing the usefulness of understanding information literacy skills in terms of affective learning, established a strong link between the two variables by noting that the affective domain encompasses an individual’s attitudes, emotions, interests, motivation, self-efficacy, and values.

Few studies have considered IL and self-efficacy in combination. However, there is a correlation linking both constructs(Kurbanoglu, 2003;Korkut and Akkoyunlu, 2008; Tang andTseng, 2013; Baran and Ata, 2014). These studies have revealed that there is a strong link between self-efficacy and information literacy. This study focuses on the dimension designating the relationship between IL and self-efficacy. Related to this dimension, certain research findings attract attention for understanding of the links that exist between the two variables. Bayram and Comek (2009),“investigated the correlation between information literacy and academic success and identify a connection between academic success of prospective teachers and information literacy self-efficacy”. A collaborative study by Heng and Mansor (2010) accentuated that ILE was

effective in elevating academic self-efficacy and academic performance of students. Also, Tang and Tseng (2013) in a study on distance learners' self-efficacy and information literacy skills found that “distance learners who have higher self-efficacy for information seeking and information manipulation skills exhibited higher self-efficacy for online learning”. According to Tang and Tseng (2013), “studies have shown that learners with a strong sense of academic self-efficacy use more effectual strategies and process information more efficiently”. In most of these studies, self-efficacy is seen as a task or activities specifically on information seeking behaviour, information manipulation, online learningand electronic information searching (Folk, 2016) which constitutes IL. Rosenthal (2010) in her study found out that “anxiety or stress and a lack of self-confidence are two major obstacles to developing digital information literacy”.

The importance of self-efficacy in IL cannot be overemphasised as both variables are meant to influence each other at any given time. Hence, ILSE is“the optimism of the individual towards accessing information, makingjudicious use of information, evaluating and disseminating the information” (Akkoyunlu and Kurbanoglu, 2004). However, people mustbuild up anoptimistic perception of self-efficacy with respect to information skills to successfully accomplish the information needs as well as become lifelong learners (Akkoyunlu and Kurbanoğlu, 2003). Daniel (2014:102) noted stated“It is foremost to promote self-efficacy since studies have shown that it relates to better IL skills and a higher ability to be self-regulated learners”. Self-efficacyas a concept expands continuouslyamid the realization of skills and practice while the skills and practice attained depends on the individual confidence in the application of the skills and experience with a specific task. Keshavarz, Shabani and Fahimnia(2015:1)stated that research studies have shown aconsiderably highaffiliationlinking self-efficacy and information seeking behavior. Self-efficacy is essentially imperative and significantly useful within the framework of IL. This is as a result of both variables recognising that a person’sdefiniteaccomplishment in searching for information depends on the competence (information literacy) and confidence (self-efficacy) of the individual. Consequently,“learners with high self-efficacy are more likely to undertake information related tasks and to expend considerably greater effort to complete them despite unexpected difficulties, than those with lower self-efficacy” (Isman and Celikli, 2009).

Despite the importance of IL and self-efficacy, literature focusing on self-efficacy in the perspective of IL remains few. Existing studies on different aspects of IL include: “IL instruction among students”(Maybee, 2006);“information literacy in the general education”(Zinn, 2012); “ILE and instruction in academic libraries as well as LIS schools in higher institutions” (Ferguson, 2009; Jiyane and Onyancha, 2010; Conner, 2012; Kumar and Edwards, 2013); Information Literacy and Integrative Learning(Galvan, 2006; Kimani, 2014); and 21st Century learning and information literacy(Breivik, 2010). However, the number of studies regarding ILSE are limited (Akkoyunluand Kurbanoğlu, 2003; Geçer, 2012; Zinn, 2013; Dinçerand Yılmaz, 2016). This suggests a gap in the literature. The current study would bridge this literature gap.

3.6 Concept of electronic information resources

Information resources provided by university libraries for students are either in print or electronic formats, hence, the library houses printed and electronic information resources (EIRs). The operational definition of EIRs is discussed in Chapter One, section 1.9. Besides, Haridasan and Khan (2009:118)who explained EIRs as “resources in which information is stored electronically and which are accessible through electronic systems and networks”. This view is corroborated by Okore, Asogwa and Eke(2009)who defines EIRs as “thoseinformation resources that could be accessed via the internet”. Similarly, the Library of Congress (2008:2) defines EIRs as “any work encoded and made available for access through the use of a computer”. These comprise electronic data available by (i) remote access and (ii) direct access (fixed media, such as discs/disks, cassettes, cartridges). An electronic resource is a “piece of information stored in the form of electrical signals and is commonly found on a computer which includes information available on the internet” (Dongardive, 2015:56). Ukachi (2013:31) stated that ‘electronic information resources’ as a term, is usually interchangeably used with such other terms as ‘electronic resources’, ‘virtual resources’, ‘online resources’, and ‘digital resources’. Electronic resources are also referred to as digital materials - materials available in a digital or electronic format such as CD-ROM, DVD, E-journals, and web sites (Johnson *et al.*, 2012:24).

EIRs are information resources stored in computer or computer-related facilities which are usually accessed via the internet. These resources encompass a variety of digital resources in the appearance of e-books, online-databases, e-journals, Online Public Access Catalogue (OPAC) and

other electronic resources. Also, these include “e-mail, online databases, CD-ROM, Digital Versatile Disc (DVD) and other digitized information” (Tsakonas and Papatheodorou, 2006). Theseand other types of e-resources which include “e-journals, e-data archives, e-manuscript, e-maps, e-books, e-thesis, World Wide Web, e- newspapers, e-research reports, and e-bibliographic databases are commonly available in universities libraries” (Sharma, 2009:2).

EIRs have been useful to the university community across different nations. They have greatly established a formidable presence in academic libraries. This view was supported by Bankole, Ajiboye and Otunla(2015:2) stating that EIRs have gained wide acceptability among university scholars due to its convenience, multi-access capability, unrestricted access to information, ability to browse the web and timeliness. They are now considered as essential resource in every university library and it has significantly changedthe information handling mechanism in most academic libraries. These rich information resources are beneficial to university students, especially postgraduate students who are striving for academic success through research. Ellis and Oldman (2005) posited that “electronic resources usage has availed researchers and students access to global information resources to enhance research”. Ukachi (2013:33)discovered that EIRs have become “indispensable for studies and are very popular among students because they can provide a number of advantages over traditional print based sources”.

The evolution of information technology (IT) has globally transformed the landscape of the library and information practice by provoking a dynamic move from print resources to electronic resources. Electronic information resources from varying sources are now available in enormous quantity. Khalil (2004) stated that the explosive growth of EIRs which gives access to reliable and up-to-date information has helped educational institutions such as the universities to stay at the forefront of this changing world.

3.7 Electronic information resources available in university libraries

A university library is considered as a warehouse of knowledge housing different information resources. It is regarded as a centre of both learning and research activities within higher institutions of learning. To fulfill its mission of assisting its parent bodies to accomplish educational objectives, which embraceresearch, teaching and learning, librariesmust not only

acquire print resources but also provide access to electronic resources and services. This gives libraries the capacity to influence learning, research and teaching in institutions Hart and Kleinveldt(2011) through the availability of print and EIRs. However, EIRs have become anessential part of collections in libraries with regard to the fulfillment of their educational role (Sharma, 2009). Hence, there has been an exponential growthin EIRs that hasimmenselychanged the attitude of students in searching for scholarly literature to enhance research. "Electronic resources have augmented the collection of libraries worldwide and in a special way, especially when considering the ageing collections of many universities' libraries in Nigeria"(Emwantaand Nwalo, 2013:32). This raised the aspirations of satisfying the user's needs and the image of libraries.

A lot of international and local organizations subscribed to a number of databases for Nigerian universities. For instance, the NUC through its URL link (www.nigerianvirtuallibrary.com) provides access to international and local journals through Nigerian universities' libraries. Also, the "NUC, Nigerian University Libraries Consortium (NULIB) and Electronic Information for Libraries Network (eifl.net) are partnering to provide access to electronic resources towards teaching, learning and research in Nigerian universities"(Okiki, 2012:2). Similarly, the National Information Technology Development Agency (NITDA), according to Egbe (2014), "is developing ICT in Nigerian tertiary institutions through the National Virtual Library Project by setting up virtual libraries and donations of computers and/or internet facilities". In current times, EIRs are well-known as a main source of information, especially for postgraduate students and other researchers. Okiki and Asiru (2011) remark that "academic libraries all over the world make a wide variety of electronic information sources available for use by undergraduate students, postgraduate students, researchers and staff in their respective institutions".According to Sonkar and Singh (2014:88), EIRs available in university libraries include various types of electronic documents like e-books, e-journals, e-databases, scholarly web resources, patents, etc. They are usually alternative to the print media. Gakibayo, Ikoja-Odongo and Okello-Obura(2013)submits that"the merits of electronic resources over printed ones include the following: speedy access, ease of use, the ability to search multiple files at a time and the ability to access documents from outside the library".

Eqbal and Khan (2007) also noted that the ease of use associated with EIRs is responsible for users preference compared to print media. Hence, acquiring, organising and providing access to EIRs is at the centre of attention in library activities. The availability of EIRs in a library plays an eminent role in facilitating access to qualityinformation in an expeditious manner. Hence, libraries are constantly taking advantage of ICTs to provide access to EIRs and services for users (Ndinoshiho, 2010:57). The availability of e-resources in Nigerian libraries is of great importance to students because a large segment of the student population cannot afford to procure computers and the cost of accessing internet. Nigerian libraries, especially academic libraries, should ensure adequate provision of infrastructures which include internet facilities to enhance student's accessibility of e-resources. Availability and utilisation of EIRs is imperative in the overallacademic accomplishment of students as libraries make an effort to provide its users access to such resources. Similarly, Priyadharshini, Janakiraman and Subramanian(2015) noted that the familiarity and use of EIRs in libraries for rapid development is necessary and important. Also, Daramola (2016)observed that the availability of EIRs in libraries is aimed at increasing the quality of the collections of the library and adding value to the content by making them accessible through digital means so that students, researchers, and other stakeholders can have access anytime and anywhere. Hence, EIRs, in reality have become the backbone of many academic institutions (Negahban and Talawar, 2009).

Electronic resources provide "accurate and timely information, especially for students who depend greatly on the electronic resources for information to advance research and collaboration with other researchers around the world for intellectual growth" (Ukpebor, 2012). The availability of EIRs in libraries provides users with innovative tools and mediums in searching and retrieving information that could impact positively in their information seeking behaviour. It has further changed the way libraries store their collections.EIRs minimizedemandsfor physical space needed in storing information resources and give an assurance that physical space will not hamper the acquisition of more electronic resources. EIRs hold huge volumes of information without necessarily occupying space butpermit students to recoverexcellence information. The provision of access by libraries has made it possible for students to access digital information resources using the internet. EIRs have got the convenience of being searchable from more than one approach, and are accessible to users both locally and from remote locations. Hence, "electronic resources, in many universities,

are regarded as a fundamental part of the library as they support teaching, learning and research activities"(Zhang and Liu, 2011). Elisha (2015:18) noted that access and use of these materials is fundamental to the clients of any university library. The internet revolution has accelerated availability and use of EIRs in the libraries, especially university libraries because of a high demand for relevant information by faculty members and students. In order to meet up with such needs, libraries and librarians have to wake up and meet this global development. Thus, university libraries now invest so much in electronic resources to expose students to digital informationvia the internet as well as othertechnology. Libraries allocate an enormous percentage of its yearly budget on electronic resources, especially e-books and e-journals in providing current and reliable information for an improvedlearning experience. Alhassan (2015:1) noted that in academic libraries, the electronic resources that are of critical importance for use are e-journals and e-books. This is so they are the e-version of the conventional books and journals found in our libraries. In fact, the growth and diversity of electronic resources, especially e-journals, make it worrisome for likely extinction of the printed journals. E-resources are stored and organised in various databases to permit easy retrieval unlike the print media. Some of these databases are subject-based while some cover a wide range of subject areas. Publishers often have their own databases with all their publications while some other agents collate publications from various databases to provide robust access to e-resources. Emerald, Ebsco, Scopus are some of the examples of online databases. The present dispensation of information services has put every librarian on his toes to be able to meet the demands of the varied clientele.

Access to library and information services has moved beyond local and geographical locations to universal or global platforms where technology has helped to solve and mediate the problemsclients face in using electronic materials. With the scientific revolution and the coming of contemporary ICTs, the library users may not relyonconventional library services. Therefore, one is"convinced thatthe wealth of information available in electronic formats can absolutely accomplish their information needs as a better substitute to traditional print services" (Swain, 2010:580). Thus, the role of EIRs in higher education is expeditiously aninfluential and widely discussed issue in contemporary education system. Therefore, libraries are to ensure that EIRs are made available in their quest to fulfill its role as an information reservoir to satisfy the information needs of users.

3.8 Information literacy skills and use of electronic information resources

Information literacy is essentially an indispensable skill as techonology is rapidly evolving and so is advancement in EIRs. As the use of EIRs continues to rise especially within higher institutions of learning, students are expected to develop the required IL skills. These are the skills that all students should acquire in order to function effectively in the work place and in the information society (Dalvi, 2010:117). Ukachi (2013:37) defined skill as expertise to carry out a task with predetermined result. Computer literacy which is an aspect of IL becomes very important since the use of EIRs depends on the competence in using computer and its applications. In the fast-growing knowledge society, IL has become one of the most important skills. This is because students with research information needs will most likely use electronic resources if they have the skills required for their effective use. Whilst IL seems to be a term that is mostly associated with LIS discipline, its application to EIRs is yet to be widely exploited. However, the importance of IL in the use of EIRs has generated few studies(Dalvi, 2010; Issa, Blessing and Daura, 2009; Kodani, 2012; Oyeniyi, 2013).

IL is much more than computer literacy, although having basic computer skills is an aspect of IL skills. Amalahu, Oluwasina and Laoye (2009) noted that IL encompass library literacy, computer literacy, publishing literacy, and tool literacy. According tothe University of Idaho IL Portal (2011) IL is the capability to identify needed information, understand organization of information, identify appropriate information sources, locate these sources, critically evaluate the sources, and disseminate such information. Other authors also think thatIL goes beyond locating and using information but includes holistic knowledge of information and informationevaluation(Banta and Mzumara, 2004; Livingstone, Bober and Helsper, 2005; Murray, 2003). Californian University Information literacy fact sheet (2000) and Shapiro and Hughes (1996)outlined a prototype curriculum that encompassed the concepts of computer literacy, library skills as well as an extensive and critical conception of a holistic approach to IL. Theproposed and operationalised seven-dimensional constructs of IL are:

- Tool literacy: This refers to the ability to understand and use practical and conceptual information technology tools in their respective professional life.

- Resource literacy: This means the ability to understand the form, location, access methods, and formats of information resources.
- Social-structural literacy: This reveals the understanding of how information is socially situated and produced.
- Research literacy: This indicates the ability to understand and use relevant information technology tools for research.
- Publishing literacy: This reflects the ability to format and publish research and ideas in textual and multimedia formats.
- Emergent technology literacy: This refers to the awareness and the ability to adapt to, understand, evaluate, and make use of emerging information technology.
- Critical literacy: This reveals the ability to critically evaluate the strengths and weaknesses, capabilities and limits, of information technologies (Farmer and Henri, 2008).

These seven-dimensional constructs of IL are important in the use of EIRs because of the proliferation of digital information presently experienced due to series of developmental activities in our world. The complexity of EIRs which requires that one possesses information literacy (computer and searching skills) may pose a great challenge to its effective utilisation by postgraduate students if they lack the skills required for its usage. In other words, successful search and retrieval of electronic information could be dependent on one's level of IL skills. "IL skills are imperative for accessing information in this generation of technology advancement that most of the information needed for research can be retrieved from electronic sources" (Adeleke and Emeahara, 2016). Students must show a tendency for lifelong learning by acquiring IL skills to contend with the rapid information growth in the information society and advance themselves. This is because "students' efforts to complement their work with EIRs may be limited due to lack of skills" (Ekenna and Iyabo, 2013:6) since there is a positive correlation between both variables. A study by Oyeniyi (2013) on "information retrieval skills and use of electronic resources among information professionals in South-Western Nigeria" revealed a significant positive correlation between the information professionals' retrieval skills and their utilization of online resources. According to Singh *et al*. (2011:10), "The main reasons for low usage of e-resources by postgraduate students in university libraries includes a lack of language proficiency and information literacy". Therefore, IL skills are basic in selecting and retrievingpertinent and current

information in an online environment. Information literacy skills acquisition is absolutely essential in using online resources sincemost information is available in electronic formatthat couldexclusively be used when students are information literate. These skills are compulsory due tothe proliferation of EIRs as well as the numerous mediums of access and the different formats in which information is available.Muhia (2015:20) noted that "abundance of information and technology will not in itself create more informed citizens without a complimentary understanding of and capacity to use information effectively". Therefore, IL skills will enable the students to make impressive and dynamic use of digital information.

According to Gui (2007), IL skills incorporate navigation skills, selection and evaluation skills as well as the ability to use information. "These skills as well as informational retrieval skills enable individuals to handle the changing contents of computer and information sources and knowing where and how to look for the resources" (Gui, 2007). Information literacy (computer) skills required to use EIRs comprise aptitude in computer usage.Possessing the indispensableunderstanding on computer applications is vital in accessing EIRs. Therefore, the concept of information literacy presupposes that an information user knows when information is needed, accesess, evaluates, uses and disserminatesinformation, especially in an electronic environment to solve particular problems for research purposes.

In recent times, students of higher education are facing the problem of using multiple formats of information resources efficiently (Dalvi, 2010:117).In addition, the tremendous growth in e-resources has changed the entire scenario of education and information industry. Hence, there is urgent need for students to be information literate as this would guarantee their effective use of EIRs. Students must not onlyhave knowledge about just the technology, but the domain of the application and the skills needed to determine what they need and how they use it. Librarians must realise that students will obtain IL skills through various users' education programmes. Therefore, libraries are requested to expand their user's education programmes to enable students to acquire IL skills. Ilogho and Nkiko (2014:10) noted that students' lack of information research skills is one of the contributory factors for the need to expand library instruction.

Librarians must reconsider their roles in this new information age characterised by electronic resources that require students to posses IL skills by collaborating with faculty members to advocate and support the integration of information literacy courses into curricula. Librariansmust support students to acquire IL skills and discovering how to integrate them into programmes and courses. Librarians should be concernedwith offering students IL skills to enhance their information skills through active demonstration and involvement in curriculum development (Agnes and Cristina, 2014:310). In addition, from their wealth of experience, librarians should also contribute to policies that would assist students to develop IL skills (Agnes and Cristina, 2014:310).

> Information literacy should be integrated into teaching curriculum and explicitly taught as it is essential for students to develop skills in using information as part of the knowledge required for lifelong learning. Therefore, attention should be given to IL when developing and reviewing curricula(NSW DET, 2007).

In this fast-growing electronic information environment where electronic information is usually not subjected to a quality assurance test, IL has become one of the most important skills for students to make effective use of EIRs. Increasingly, information comes unfiltered and this raises questions about the authenticity, validity, and reliability of that information. In addition, information is available inseveral media formats, including graphical, aural, and textual (Ukachi, 2013:39). This presents challenges, especially for students in using EIRs. Also, the increasing unverified digital information constitutes a big challenge in our society. Students, therefore, require IL skill to usethese ever increasing information resourcesmore effectively. Brindha (2016:85) affirmed that "The sheer abundance of information and technology will not in itself create more informed citizens without a complementary understanding and capacity to use information effectively".Therefore, IL skills will equip students with knowledge about specific subjects, content, research practices and information retrieval systems that apply generally across disciplines. ACRL (2000) also remarked that "IL creates opportunities for self-direction and independent learning where students engage in using a wide variety of information sources". Therefore, enhancing skills such as IL, especially computer literacy skills that are crucial for the valuable use of electronic information,becomes imperative forknowledge experience in a life time (Kelly, Coburn, Hegarty, Jeffrey and Penman, 2009).

Most of the studies reviewed indicated that IL skill is a major determinant in the use of EIRs. Since the computer is the most important medium to access EIRs, computer literacy which is an aspect of IL becomes very important. The use of EIRs depends on the knowledge of computers and its basic applications. The importance of IL in the use of EIRs has only generated a few studies (Issa *et al.*, 2009; Dalvi, 2010; Kodani, 2012; Oyeniyi, 2013). However, the insufficiency of literature will be alleviated by this current research.

3.9 Postgraduate students' use of electronic information resources

In the new technological environment, students, especially postgraduate students use an increasing array of EIRs, including online databases, OPACs, e-conference materials, e-mail, full-text databases, e-books and scholarly websites because of their ability to provide users with timely, easy to access and, up-to-date information. Sivathaasan, Murugathas and Chandrasekar(2014:48) observed that the use of e-resources have been increasing rapidly across the world and users are increasingly expected to use these resources in order to fulfill their requirements. The internet and its technologies have continued to have an effect on library transactions, andhave mainly aided in the acquisition and dissemination of information, aided e-learning and it has developed virtual campuses and thus, increased student's participation in access and collaboration activities. This trend is not just visible in developed countries, but also in developing countries such as Ghana, Botswana, Nigeria, Malaysia, and Uganda, just to mention a few (Martey, 2004). Hawthorne (2008:1) stated that:

> Electronic resources began to dramatically change the way patrons accessed library resources in the mid 1960s as the card catalogue, a standard fixture in libraries for a century faced its demise owing to the development of machine readable catalogue (MARC).

EIRs have exploded in popularity and use among postgraduate students. This is because EIRs are invaluable tools for study, learning and research (Togiaand Tsigilis, 2009). They provide users access to information without geographicalrestrictions (Sabouri, Shamsaii, Sinaki and Aboueye2010). To support this view, Naqvi (2012:1) ascertained that most postgraduate students simply make use of e-resources due to several features such as timeliness, search facilities, readily updated, remote accessand so forth. Considering the fact that postgraduate students require the use

of current and up-to-date literature, it then becomes very necessary that EIRs are greatly used by postgraduate students for research and other academic related activities. As a result of the many advantages associated with the use of EIRs such as easy accessibility, availability at any time and at any place, most academic libraries have provided access for their respective users.

The expanding nature and wide ranging scope of EIRs for scholarly work in higher institutions is acknowledged globally(Ukachi, 2013:36). Most postgraduate students make use of e-resources because it providesa mass of information in a manner that can be easily accessed and in various formats. Therefore, the indispensable role e-resources play in research and education is increasinglyattractive as the most essential issues in our current day education system. In Nigeria, investigations by Obaje and Camble (2008)and Okite-Amughoro, Makgahlela and Bopape(2014) reported that e-resources were frequently utilised for reviewing literature in scholarly works like dissertations and theses as well as for preparation of synopsis. This indicatesthat students depend on EIRs for current literature to enrich their research work. Similarly, a study conducted in the USA and Australia by Tenopir and King (2007)and Deng, (2010)found that the "principal reasons for using e-resources were gathering information on a specific topic, gaining general information, obtaining answers to specific questions, completing assignments, reviewing literature, writing essays and for making decisions". With the availability of EIRs, research is no longer complicated as quality information and resources could be consulted via theinternet, online database, OPACs, electronic journals, electronic books and other electronic sources which are usually freely available to students in most libraries. According to Chowdhury and Chowdhury (2007:1), students can have access to digital information resources and services through a variety of channels, which include:

- Library OPACs, which provide access to library collections;
- Online bibliographic or full-text databases (database search services), which provide access to remote collections;
- E-books and e-journal services such as Netlibrary, which provide access to electronic books and journal articles;
- Intranets and databases created by companies and institutions to provide access to various information resources within the institution;
- Websites, which are accessible either by going directly to the site if the web address or URL (uniform resource locator) is known; and

- Subject gateways that provide access to selected web resources in one or more specific discipline(s).

There are number of studies conducted on research scholars and postgraduate students' use of EIRs all over the world (Chandra, Sankaranarayanan, Nagarajan and Mani,2014; Garg and Tamrakar, 2016; Thanuskodi, 2012; Zhang, Ye and Liu, 2011). In Africa, Soyizwapi (2005) investigated postgraduate students use of electronic databases. The study revealed that postgraduate students made effective use of electronic resources. Similarly, Okiki and Asiru (2011) investigated the use of electronic information sources by postgraduate students in Nigeria. The study did not only report the effective use but also ascertained that research constitutes a significant factor that influenced the use of EIRs. Furthermore, Dolo-Ndlwana (2013) investigated the use and value of library's electronic resources by academics and postgraduate students at Cape Peninsula University of Technology (CPUT). The findings uncovered the regular user of electronic resources by academics and postgraduate students. Similarly, Komolafe-Opadeji (2011)investigated the use of internet and electronic resources among postgraduate students of a Nigerian private university and discovered that postgraduate students regularly access the internet and preferred using free online resources from Google and Wikipedia to subscribe to online data bases.The subscribed online databases include theHealth Inter Network Access to Research Initiative (HINARI), Elton B. Stephens Company (EBSCO Host), Journal Storage (JSTOR), Questia and High Beam, and many others.A study by Garg and Tamrakar (2016) titled"Utilisation of electronic resources among postgraduate students, research scholars and faculty members of Indian Institute of Technology, Kharagpur" found that postgraduate students had a higher proportion of respondents whoindicated preference for electronic version of journals. Contrary to the above findings, Hamutumwa (2014) carried out a study on electronic resources use by distance learners at University of Namibia(UNAM). The study revealed that learners had low levels of electronic resource used and that they prefer print resources compared to electronic resources subscribed by the UNAMlibrary. Similarly, a study by Ukachi, (2015) on students' information literacy skills as correlated with their use of electronic resources in university libraries in Nigeria revealed that EIRs are generally inadequately utilised. This has been a recurrent scenario in Nigeria and other African countries. The lack of information literacy skills could be responsible for this alarming situation. Since the effective utilisation of these resources by students will likely be influenced by the extent of IL skills possessed by them,

it is therefore important, that IL be integrated into the curricula. However, Nigeria and some other African countries are yet to completelyamalgamate IL in the curriculum in addressing inadequate utilisation of EIRs. Hence, librarians are yet to offer adequate training that will enable students to effectively and efficiently utilise EIRs. This view was supported by Muhia (2015:42)indicating that the training provided by librarians on the use of EIRs was very inadequate.

It is important to understand the principle in which postgraduate students utilise e-resources as this would justify the value of these collections in the library (Tenopir and King, 2010:1). EIRs are mainly utilized in higher educational institutions such as universities for academic and research activities (Lwehabura, 2009). Amankwah (2014:27) stated that "The purposes for students' use of electronic resources are mostly academic. Electronic resources play vital roles in all fields of study, as access and use of these materials is fundamental to postgraduate students irrespective of the disciplines. Postgraduate students mainly make use of EIRs which encompass e-journals, e-data archives, e-mail, e-research reports, e-manuscript, e-maps, e-books, CD-ROM, e-thesis, World Wide Web, e-newspapers, e-bibliographic databases and others for research purposes (Tenopir and King, 2007; Ansari and Zuberi, 2010; Bhatt and Rana, 2011; Shukla and Mishra, 2011).This view was supported by Lateef, Omotoso and Owolabi(2013) stating that "The aim of postgraduate study is for further development of graduate students with the intention of acquiring knowledge via education and research in an atmosphere of intellectual independence and individualcreativity". A study by Ali (2005) and Madhusudhan (2010) revealed that postgraduate students as well as other academic scholars use EIRs mainly for research work. Hence, Ellis and Oldman (2005:35) posit that "Electronic information resource is more of a tool to assist in conducting research, a way of scanning a lot of materials quickly". Students, especially those in universities use the EIRs for various academic purposes. These purposes include doing class assignments, writing term papers, augmenting class works, retrieving current literature for studies, following blog discussions on subject areas of interest, searching for scholarship opportunities, searching for internship placement and for research purposes (Ukachi, 2013:33).The use of EIRs encourages collaboration among students and researchers. For instance, the advent of the World Wide Web (WWW) has enhanced scholarly communication (Bamiro, Oluleye and Tiamiyu, 2006). Virtual study or research teams could be formed by students to link a variety of other students to enable them to contribute their opinion towards a particular research topic.

From the above literature reviewed, there is a high level of appreciation and acceptance of EIRs as important information resources that enhance academic and research output of postgraduate students through the provision of timely, up-to-date and easy access to information. However, for postgraduate students to adequately utilise these resources, they are expected to have acquired the necessary IL skills. The lack of IL (computer literacy) skill is responsible for the underutilizationof these resources. Therefore, librarians have a critical responsibility in providing access and equipping users with information literacy skills to efficaciously use EIRs that are highly valued by postgraduate students and academic scholars. Although, the usage mightdiffer due to discipline and degree of study; this is more noticeable with higher degrees, particularly at M. Sc and PhD programme levels. This is because at this level of study, they depend on EIRs to get the desired and relevant information (Chandran, 2013:86). Hence, they have been seen as pertinent to learning, teaching and research process. However, there has been little empirical research specifically into postgraduate students' information literacy related tothe use of EIRs. Research such as this current study should be carried out to proffer solutions to the inadequate utilisation of EIRs. Also, this study has added to existing literature through research question 3 which asked "What are postgraduate students' usage patterns of electronic information resources?"

3.10 Barriers encountered while using electronic information resources

According to the Research Information Network(2011) universities invest significantly in providing access to digital literature for scholarly work, with the idea that improved access would directly enhance research productivity. Hence, academic institutions across the world are providing students with access to EIRs to further enhance learning and research.Similarly, Ukachi, (2015:486) noted that"Nigerian universities as institutions of higher learning presently use considerable portions of their budgets to provide ICTs with accompanying electronic information resources (EIRs) for their academic communities to assist in enhancing teaching and learning processes and outcomes".

EIRs have been proven to be pivotal for effective learning, research and general academic outcomes.In developed countries, students adequately use EIRs, especially for academic purposes and are faced with fewer barriers. For instance, theSociety of College, National and University

Libraries (SCONUL) created a task force to address the library and information needs especially the issue of access to EIRs of distance learners registered in higher education institutions(Oladokun, 2014). The task force ensures that distance students get timely access to information in a manner that matches their needs.However, the scenario in developing nations of Africa is different from other nations as many African students have yet to commence effective utilisation of EIRs or any other resources accessed via the use of computers. Observations by librarians working in Nigerian university libraries reveal that EIRs are grossly underutilised by students (Ukachi, 2015:487). Despite the benefits associated with the use of EIRs and its availability in most libraries, their effective utilisation by students appeared to be hampered by different factors. These factors could be categorised into physical and personal barriers. The first category comprises physical barriers to the use of electronic resources (Selwyn, 2008; MacMillan, 2009) which include inadequate infrastructures, inconsistent electricity supply and others. Various studies have identified physical barriers as major factors hindering postgraduate students' use of EIRs. Goodluck and George (2014:64) while acknowledging that EIRs arenecessary in improving the quality of education in academic institutions of higher learning, they however noted that the usage of the said resources by lecturers and students in higher learning institutions in Tanzania, and in particular, at Mzumbe University is low. This is due to several barriers that affect its usage such as internet delays, computer viruses which limit access to e-resources andinadequate PCs. Similar studies conducted in Uganda by Okelle-Obura(2010) and in Malawi by Chaputula (2011) identified physical barriers such as slow internet connectivity, inadequate computers and opening hours, inadequate information infrastructure, energy/electricity power supply problem, and the cost of printing as barriers encountered by postgraduate students while accessing EIRs. In the Nigerian context, studies were conducted byNdubisi and Udo, (2013) and Edem and Egbe (2016). Both studies revealed that inadequate computers, poor internet facilities, inconsistent electricity supply, insufficient ICT facilities and the complexity in the discoveryof pertinent information are the major barriers hinderingpostgraduate students' use of EIRs.

The second category comprises personal barriers in using of electronic resources (Musakali and Mutula, 2007). The second category has to do with mainly the lack of information literacy skills. One major user personal barrier to the productive utilisation of information resources most importantly digital or electronic resources in developing countries is the comparatively low IL

skills (Tilvawala, Myers and Andrade, 2009). This view was supported by Baro, Eze and Nkanu(2013) stating that lack of skills and knowledge remains the major problem in the use of electronic resources in Nigeria. Students and other academic scholars who lack these basic skills and knowledge depend on library staff and other experts for assistance. Okiki and Asiru (2011)in a study, identified lack of skilled IT human resources in the libraries as one of the factors hindering usage of internet resources because the library sometimes lacks the capacity to train its users to use EIRs. The lack of skilled IT human resources to train library users has an adverse effect on their competence and confidence to use electronic resources. This is because the effective and efficient use of EIRs requires IL skills as well as confidence (self-efficacy). This view was supported by Bingimlas (2009) that identified lack of confidence and competence among others as major barriers to successful integration of ICT into education. The huge investments in electronic based resources may be a waste if the intended users are deficient in ILskills.

The use of EIRs has been adversely affected by IL related barriers which include lack of computer skills, language proficiency, lack of technical skills and others. A study by Singh *et al*.(2011) on "factors affecting the use of electronic information services by international students in Malaysia, observed a shift in focus of the inquiry, more recently, to factors affecting access to, retrieval, evaluation and use of EIRs, especially through library mediation. They indicated that factors like linguistic proficiency, computer literacy and information literacy affect the use of EIRs". Similarly, Sahin, Balta and Ercan(2010) in a study on internet resources usage by university students in course projects elicitation at the Izmir University of Economics in Turkey, using the questionnaire, reported that browsing information on the internet, students usually depend on the assistance of the library staff to effectively use EIRs. This is because they lack information literacy skills required to use internet resources.Similarly, a study by Zhang and Liu (2011)in China revealed that students who are deficientin IL skills,cannot effectively and efficiently use EIRs. Therefore, the development of IL skills among library users, especially postgraduate students, becomes a vital requirement to overcome the personal barriers encountered by postgraduate students while using EIRs. Literature reviewed on barriers encountered while using EIRs in this study were mainly from Africa. These include a study in Malawi (Chaputula, 2011); Uganda (Okello-Obura, 2010); Tanzania (Goodluck and George, 2014); Malaysia (Singh *et al.*, 2011) and Nigeria (Ndubuisi and Udo, 2013). This review suggests the unavailability of specific works onIL

barriers that hinder postgraduate students from using EIRs which the present study seeks to address through research question 4 (See Chapter One).

3.11 Strategies to enhance postgraduate students' information literacy self-efficacy.

ILSE plays an important role among postgraduate students in their academic pursuits, especially in accessing EIRs and in determining postgraduate students' usage of library resources, especially EIRs. There is the tendency that postgraduate students who possess ILSE skills are likely to achieve their full academic potential. Hence, ILSE is the competence and confidence exhibited to actualise specific goals or objectives. In these, self-efficacy (confidence) is as essential as the IL skills.

While IL is a necessary skill that will enablestudents to be sophisticated in their ability to access, evaluate and use information appropriately(Kiliç-Çakmak, 2010:193), self-efficacy enhances the critical attitude of the student, and therefore, could motivate the student for autonomous lifelong learning (De Meulemeester, De Sutter and Verhaaren, 2012). Given the pivotal role of ILSE in this information jet age, it is important to understand strategies that would enhance it. This is because enhancing students' ILSE sustains their motivation and promotes learning that will enable them to be more competent. To enhance students' ILSE, a number of strategies which involve building their levels of competence and confidence are required. ILSE can be developed and enhanced through learning, experience and feedback (Subramaniam and Freudenberg, 2007:98). In the same vein, Salleh *et al.*(2011) added that some examples of specific information skill programmes that could be undertaken at different levels to enhance students' ILSE skills are library orientation, bibliographic instruction, information competencies, information literacy education, development of information skills and others. Enhancing students' ILSE skills are very important as the absence of it could lead to the inability of participating in today's information rich society. This view is supported by Gross and Latham (2007) stating that the individuals who lack information literacy skills are unprepared to actively participate in our digital information society which cause such individuals to be at a disadvantaged position.

Considering the significance of information literacy education and self-efficacy in higher education, self-efficacy might be understood as a veryproductive predictor in educational motivation and learning and as the mediator of students' academic achievement (Zimmerman,

2000). Predominantly, “it is presumed that the following four categories of experience led to the development of self-efficacy: mastery of experiences, vicarious experience, social persuasion, and judgments of own physiological states”(Chowdhury, Endres and Lanis, 2002). Van-Dinther (2014) in a study on “student teachers’ self-efficacy and students’ perception of assessment in competence based educationascertained the role of mastery experiences, social persuasion and physiological and affective experiences as important sources of self-efficacy”. Van-Dinther (2014:14)noted that given the correlation between students’ self-efficacy and achievements, motivation and learning in general, it is essentialthat institutions of higher learning develop strategies that would enhance students’ self-efficacy development. Also, designing activities such as goal setting, sharing of experiences relating to information literacy, students’ adequate orientation and others could enhance students’ ILSE. This view was supported by Kiliç-Çakmak (2010:197)who considered that “designing activities which improve the motivational and learning strategies of students will be more effective in improving their ILSE levels”.

Therefore, this section intends to focus on learning strategies and motivational factors that enhanced students’ ILSE which include:

(i) **Mastery experience**: Also refers to as ‘performance accomplishments’ (Brown, 1999) or ‘enactive attainment’(Zimmerman, 2000), relates to the way people evaluate their own personal achievement in a given task. Enactive mastery experiences are presumed to be a very powerful source of self-efficacy and are seen as actual successes required in a specific taskwithin a peculiar situation. Van-Dinther (2014:14) noted that enactive mastery experience is the indicator of an individual’s capability with reference to previous success. In general, successes are the building blocks of a robust belief in self-efficacy while failures are the diminishing forces when a sense of self-efficacy is not firmly instituted(Bandura, 1995). The impact of failure is also partially dependent on the timing and overall pattern of experience. If an individual has already developed a strong efficacy through repeated success, an occasional failure would have reduced negative impact. As self-efficacyperception and performance are jointly linked, previous performance can alter one’s self-efficacy perception, while one’s self-efficacy can affect future performance(Cervone, 1993). According to Haddoune (2010), “students who judge their own past ILS results as being successful often develop a high sense of confidence about

their abilities". This is because efficacy perceptions are build up from a stablerealisation of skills and mastery of experiences. "While those who view their IL outcomes as unsuccessful are likely to experience feelings of doubts and uncertainty about their own effectiveness" (Haddoune, 2010).

(ii) **Vicarious experience** (**observational**): Vicarious experience is another source of self-efficacy. It is associated with self-evaluation that personsreceive from observing and comparing themselves with a given social model (course-mates, friends etc). Nevertheless, the effects of changes in self-efficacy can be negated by the observers' subsequent performance outcomes. For instance, if the observers fail to perform the task after their observation of successful models, then their initial increase in self-efficacy may be cancelled (SchunkandZimmerman, 1997). Previous studies have demonstrated that individuals can develop their self-efficacy solely through vicarious experience without overt performance (Pajares, 2002; Tompson and Dass, 2000; Wang *et al.*, 2004; Kurbanoglu, 2009; Tschannen-Moran and McMaster, 2009). Individuals can increase their self-efficacy if they know they have acquired new skills or improved on existing skills. Individuals with prior experience of failure can also increase their self-efficacy by learning effective coping strategies while those with high efficacy can further enhance their performance by learning from their models (Bandura, 1997). The impact of vicarious experience is strong, especially when the observers perceive the experience to be similar to theirs (Bandura, 1997). Therefore, people can develop high or low self-efficacy vicariously through other people's performances.

~~(iii)~~**Verbal or social persuasions:** The perceptionpeople develop about their capabilities in a given field is likely to be influenced by the verbal and tacit output they receive from others. Positive social persuasion that reflects realistic potential of individuals strengthens their self-efficacy. On the contrary, lack of positive social persuasion yields a negative effect when disconfirmed by a disappointing performance. Furthermore, social persuasion that convinces individuals of their lack of ability also leads them to avoid challenges and easily give up when confronted with difficulties (Bandura, 1995). The impact of persuasion on self-efficacy depends on the recipients' confidence about the credibility and expertness of the persuaders (Bandura, 1997). It is important to note that verbal and non-verbal messages

like a facial expressions, for instance becomes particularly influential when they are manifested by persons that are regarded as 'credible persuaders'(Zimmerman, 2000) and 'believable evaluators' in their own environment such as parents, librarians, teachers, experts etc.

(iii) **Physiological states**: Individuals also assess their potential success or failure based on their physiological and affective states. Self-efficacy estimates might also be affected by "somatic and emotional states" (Bandura, 1993). This is because people read into their mood states as an indicator of their capability. However, it is not always the negative mood or emotions such as stress, anxiety or fear per se that negatively affect performance, but it is rather the faulty interpretations that students make about the purported causes of those psychological states. For example, students may develop a low opinion about their competence in a given field when they judge (wrongly) the normal states of tension that usually accompany certain important academic events (like exams) as an indication of incompetence and inefficiency. Also, when people interpret aversive physical arousal such as tension, stress reactions, and fatigue as signs of inefficacy, they feel more vulnerable or susceptible to poor performance. To enhance self-efficacy, one can aim at alleviating stress, improve physical health, reduce negative emotions and rectify misinterpretation of somatic states (Bandura, 1993).

Enhancing self-efficacy of students is important but not the only influence on achieving ILSE.Other important influences are:

(iv) **Integration of information literacy into curricula:** This is perceived as a holistic approach through formal education. In formal education, curricula have been used to enhance students' information literacy skills. At the institutional level, 'curriculum' refers to teaching and learning objectives, teaching plans or strategies, curriculum policies of the particular institution, as well as to degree programmes. Many institutions have felt the necessity to integrate IL into their curricula in order to better prepare their students with all the necessary skills, including information literacy skills. Most institutions of higher education are involved in information literacy activities and most academic librarians are working on integrating information skills instruction into the curricula.A curriculum

develops information literacy strategies for solving problems effectively or carrying out research in any discipline (Webberand Johnston, 2006). Maitaouthong, Tuamsuk and Tachamanee(2012:52) noted that a number of research studies related to information literacy have been conducted in universities with the aim of enhancing students' IL. Advancing students' IL will enhance learning and support students academically, as well as increase their self-efficacy. Mostly, certain aspects of IL were provided to students through general education in first level and major level courses. Also, there is a wide recognition of librarians' involvement in ILE (Andretta, 2006; StubbingsandFranklin, 2006), particularly the role of academic librarians whom employ different approaches such as orientation, teaching one-on-one searching methods, seminars, integration in various courses, teaching through websites, and teaching it as a curricular course (Li, 2006;Korobili *et al.,* 2008; Malliari and Nitsos, 2008). As a step toward increasing graduate students' ILSE skills and in order to reach out to graduate students on their campuses, there is a pedagogic role shift that requires librarians to be equipped with pedagogic knowledge and skills that would enable librarians to become active contributors in curricular design and educators or learning facilitators in higher education.

~~(v)~~ **Goal setting:** Goal setting is the process of establishing an outcome (a goal) to serve as the aim of one's actions. In educational settings, the ultimate outcome is usually some form of learning as operationalised by the instructor and/or the students (Marzano, Pickering and Pollock,2001:93). Goals incorporating specific performance standards are more likely to enhance learning and activate self-evaluations than general goals. Specific goals boost performance by greater specification of the amount of effort required for success and the self-satisfaction anticipated. Goal setting is very important among students as it will create the persistence that could lead to the achievement of a specific task. This view was supported by Dewett (2007) observing that students who invest in their goals also demonstrate greater persistence, creativity, and risk taking in their achievement of those goals. Specific goals promote self-efficacy because progress is easy to measure. Setting goals increases motivation and achievement. Hundreds of correlational and experimental studies show evidence that setting goals increases the success rate in various settings, including education (Latham andLocke, 2007). In fact, goals and motivation are so intertwined that many definitions of motivation incorporate goals. Goals are integrated

components of motivation and learning. Students setting proximal goals result in greater motivation than distant goals. It is easier to measure progress toward a proximal goal, and the perception of progress raises self-efficacy. When people make a commitment to attempt to attain a goal, they are likely to compare their performances with the goals as they work on the task. The self-evaluations of progress usually raise self-efficacy and sustain motivation, especially in an electronic information environment.

~~(vi)~~(v) **Self-evaluation:** Is critically important for maintaining and enhancing ILSE for learning and performing well in this information age and are positive self-evaluations of one's capabilities and progress in skills acquisition. Self-evaluation raises self-efficacy and motivation because students believe they are learning and capable of further progress even when they seem not to get it right at the initial stage. A self-evaluative process enables a person to make the necessary adjustments to improve his or her own responses as necessary for achieving higher performance (Chung and Yuen, 2011:22). This is because low self-evaluation will not necessarily diminish self-efficacy and motivation if students believe they can succeed but that their present approach is ineffective. Such students may work harder, persist longer, adopt what they believe is a better strategy, or seek help from instructors and peers (Schunkand Ertmer, 2000). During periods of self-reflection, students evaluate their progress by comparing their performances to their goals (Schunk, 2003:160). Self-evaluation of progress enhances self-efficacy and maintains motivation in learning skills such as IL skills. Learners may decide to continue pursuing their goals, modify them~~,~~ or set new ones depending on the self-evaluation. It is of great importance for students to spontaneously evaluate their capabilities to highlight progress made in skills acquisition. Kruger and Dunning (2009) stressed the importance of knowing one's own abilities in order to avoid mistaken conclusions and recognise one's own limitations. Students feel efficacious and motivated to learn when performance improvement becomes salient. Self-evaluation methods have been explored across academic areas and findings have suggested that self-evaluation increases academic achievement in general (DiGangi, Maagand Rutherford, 1991).

~~(vii)~~(vi) **Feedback:** In this context, feedback is conceptualised as a mechanism of providing students with information regarding their understanding their performance relating to

academic issues. “A teacher or parent can provide corrective information, a peer can provide an alternative strategy, a book can provide information to clarify ideas, a parent can provide encouragement, and a learner can look up the answer to evaluate the correctness of a response”(Hattie and Timperley, 2007:81). Feedback thus, is a ‘consequence’ of performance. Feedback has no effect if not linked to specific tasks such as the acquisition of IL skills. It is part of the teaching and learning process; therefore, consideration should be given to instructional time to accommodate feedback. Within the information environment, ILSE can be enhanced by providing constructive feedback on initial efforts exhibited by individuals in an attept to accomplish a specific task. Teachers should keep students well informed and intensively supervises them to establish an effective feedback mechanism. As Hawk and Shah (2008) pointed out, “teachers need to interact positively with their students at an individual level and provide them with constructive developmental feedback not only on their progress but on the most effective ways to improve”. This interactive guidance is very important as it establishs a communication flow that enables students to appreciate the progress made and the motivation to gain self-efficacy to continue. Chung and Yuen (2011:24) noted that “teachers’ guidance in the form of feedback communication could assist students set goals, make good use of learning strategies and resources, and manage their own emotions”. Feedbackis essential as it assists students to maximise their potential at different stages of learning and identify areas for improvement(Fisher and Frey, 2009; Hattie and Timperley, 2007). Effective feedback can be a powerful incentive for learning and a source of motivation to improve on the learning experiences(Fisher and Frey, 2009; Hawk and Shah, 2008), especially in skills acquisition. Feedback is a catalyst that could trigger student’s engagement in self-regulated learning and capable of enhancing self-efficacy. Positive and narrative feedback, which is supportive and non-judgmental, can encourage librarian-student dialogue and foster positive motivation for enhancing self-efficacy and autonomy (Hawk and Shah, 2008). In other words, feedback is a crucial factor in advancing learning (Eggen and Kauchak, 2009) and enhancing ILSE.

~~(viii)~~(vii) **Modeling:** Innovative ways in teaching and enhancing ILSE skills have been devised, which in turn greatly depends on the ability of the group of students that IL is to

be taught. The modeling method is one that has been greatly accepted by students generally. Modeling is an important means of promoting learning and inculcating self-efficacy among students. Teachers are likely to provide a remedy to the learning and motivational deficiencies that their students might have by modeling cognitive strategies and self-regulatory techniques (Zimmerman, 2000). Providing students with a model that uses a given cognitive strategy for solving an exercise, for instance, is likely to have a positive effect on students' motivation and learning. Students must attend to a model, cope with the information for retention, be capable of producing the demonstrated pattern, and be motivated to perform it. For instance, in teaching students how to search for information regarding a particular topic, the librarian can first demonstrate how he or she does it. After which, the students can then embark on their respective tasks and build up on what the librarian has already done, such as identifying other means of searching for information or other types of sources that could be used.

An important form of observational learning occurs through cognitive modeling, which incorporates modeled explanations and demonstrations with verbalisations of the model thoughts and reasons for performing the actions. Teachers or librarians often employ cognitive modeling when teaching new skills, especially those related to information searching skills and concepts. Students are more likely to perform such skills due to the rewarding outcomes. Modeling also affects self-efficacy beliefs through a social comparison process. Students partly judge their capabilities in comparison with others. Modeling informs, motivates and raises efficacy among students who are apt to believe that they, too, will be successful if they follow the same behavioural sequence.

The above strategies have been successful in enhancing IL and self-efficacy among learners. However, to ensure that IL and self-efficacy interventions relate to the needs and experience of the learner, it is recommended that teachers and librarians should understand the learner's style of learning and experience with the intention of applying the appropriate strategies.

3.12Summary of literature review

This chapter has extensively reviewed related literature to this study. Variables and broader issues such as IL and education, pedagogical approaches to teaching IL, links between IL and self-efficacy, the concept of self-efficacy, usage of EIRs, information literacy related barriers in the use of EIRs and strategies to enhance ILSE were reviewed. Majority of the literature reviewed was from developed and developing countries. Literature reviewed indicated a productive correlation between IL and self-efficacy. Studies revealed that students with IL and self-efficacy have animprovedappreciationofthe research procedure includingthe use of EIRs. Moreover, it is apparent from literature reviewed that self-efficacy hascaptivated different researches in the educational sector. Browsing through the web indicated that there exists a vastdtabase of literature on self-efficacy and computer efficacy but limited literature in ILSE. However, this paucity of literature was alleviated through the research problems this current study investigated.

The next chapter examines the research methodology employed in investigating the research problems in this study.

CHAPTER FOUR
RESEARCH METHODOLOGY

4.1 Introduction

According to Holloway (2005:293), "methodology means a framework of theories and principles on which methods and procedures are based". It consists of the assumptions, rules and methods by which the researcher will seek to undertake the study (Schensul, 2008:516). This implies that methodology is a set of beliefs that guide the study, especially in collecting and analyzing data(Politand Hungler, 2004; Denzin and Lincoln, 2005). "Methodology incorporates the design, setting, sample, methodological limitations, and the data collection and analysis techniques in a study" (Burns and Grove, 2003:488). Methodology is also concerned with the understanding a researcher has about social reality, the interpretation given to a phenomenon, and the essential apparatus put in place for designing appropriate research methods comprising of techniques employed in getting to the issues to be addressed within a body of research (Cohen, Manion and Morrison, 2007). Research methodology is very important in any research as Durrheim and Painter (2006:35) noted that "designing a study involves multiple decisions about the way in which the data will be collected and analysed to ensure that the final report answers the initial research question". Hence, it is seen as a rational group of approaches that supplement each other and possess the capacity to harmonise data and findings to echo the investigativeproblems and purpose of the study.

Research is a logical and systematic search that is underpinned by various beliefs or schools of thoughts. Some authors such as Thomas (2010) refer to beliefs as paradigms, while others such as

(Creswell, 2009) also refers to them as worldviews. The choice of research paradigms and their compatibility in research methodologies and methods are of paramount importance in any form of research. Examples of research paradigms include positivism, post-positivism, social constructivism, advocacy and participatory and pragmatic paradigms (Bailey, 2007; Creswell, 2009). These paradigms explain the foundation for any chosen methodology that a researcher decides to employ in doing social research, be it quantitative, qualitative, or mixed methods. Therefore, this chapter discussed the two major methodological paradigms, namely, the qualitative and quantitative approaches. The justification for the mixed methods approach and its strengths and weaknesses were discussed in this chapter. The chapter further describes the various research processes undertaken in the study such as the population, methods of data collection, the research instruments, validity and reliability of research instruments and the selected procedures for data analysis.

4.2 Research paradigms

A research paradigm is most excellently described as anentirestructure of interrelated practice employed to conduct research(Neuman, 2011:94). In this sense, “a paradigm refers to the established research traditions in a particular discipline” (Mouton, 1996:203), or a theoretical framework (Collis and Hussey, 2009:55). Welman, Kruger and Mitchell(2005:13)describe a paradigm as “the progress of scientific practice based on people’s philosophies and assumptions about the world and the nature of knowledge”. According to Creswell (2009:6), paradigm means “a basic set of beliefs that guide action”. De Vos, Strydom, Fouche and Delport(2011:40) and Barker (2003:312) defined a paradigm as “a pattern containing a set of legitimated assumptions and a design for interpreting and collecting data”. Therefore, a research paradigm is the totality of the philosophical framework through which knowledge is produced to improve how things are done (Creswell, 2012). In particular, “a paradigm would include the accepted theories, traditions, approaches, models, frame of reference, body of research and methodologies; and it could be seen as a model or framework for observation and understanding” (Creswell, 2007:19; Babbie, 2011:32; Rubinand Babbie, 2010:15).

Paradigms play an essential role in the social sciences. It is the totality of the philosophical framework through which knowledge is produced to improve how things are done (Creswell,

2012). However, the application of the paradigm varies from one researcher to another based on the nature of the topic under investigation. Different meanings have been attributed to the concept of paradigmsby authors and researchers(Creswell, 2009; Livesey, 2011). Creswell (2009:6)views paradigm as a worldview. This is because "a research paradigm acts as a lens that the researcher uses to view the world; therefore, it reflects the worldview of the researcher"(Creswell, 2009:6). There are diverse paradigms, however, but two main paradigms form the foundation for the social sciences namely the positivist and interpretivist paradigms. According to Phillips and Burbules (2000) positivism deals with real observations, objectives and a measurable phenomenon. Positivists presumethat "reality is objectively given and is measurable using properties which are independent of the researcher and instruments; in other words, knowledge is objective and quantifiable"(Antwi and Hamza, 2015:218). "Positivism argues for the existence of a true and objective reality that can be studied through applying the methods and principles of natural sciences and scientific inquiry" (Pickard, 2007:8). Therefore, positivists are encouraged to use valid and reliable methods in describing and explaining events. On the other hand, the interpretivist paradigm is developed as a critique of positivism in the social sciences and is an alternative to the positivists orthodoxy (Bryman, 2008). Reeves and Hedberg (2003:32) noted that " the interpretive paradigm is concerned with understanding the world as it is from subjective experiences of individuals". Interpretivists believe that human nature is distinct from natural events and requires different methods of investigation. "It uses meaning (versus measurement) oriented methodologies, such as interviewing or participant observation, that rely on a subjective relationship between the researcher and subjects" (Creswell, 2009:6). Intrepretivist research philosophy believes in interpreting, learning and understanding human behaviour (Babbie, Mouton, Vorster and Prozesky, 2006:643; Schutt, 2006:43; University of KwaZulu-Natal, School of Education, 2004:40). Therefore, the ultimate goal of interpretivism is to understand individual experiences, with the belief that reality is subjective and constructed by the individual (Lather, 2006).

The application of "a paradigm is metaphorical when used in social sciences research, as opposed to research in the natural sciences, hence, it remains largely hidden when used in natural sciences research work that affect the practice of research; and therefore, they need to be stated"(Creswell, 2009:5). The origin of qualitative and quantitative approaches expand into various philosophical

research paradigms, however, positivism and post-positivism remains the commonly used philosophical research paradigms in social sciences research(Neuman, 2006:81;Cohen *et al.*, 2007:16; Flick, 2007:11; Gall, Gall and Borg, 2007:16-31; Wisker, 2008:68; Creswell, 2009:6-16; Gratton and Jones, 2010:23-26; Rubin and Babbie, 2010:37; Muijs, 2011:3-5). These paradigms cut across the deductive and inductive perspective of the way social reality is construed. They also underline the interpretation of social reality, either from a subjective or objective point of view, be it in the qualitative, quantitative or mixed methodologies. Although Creswell (1998)has tended to portray the paradigms more from a qualitative standpoint, the quantitative method uses the positivism paradigm in viewing social reality. Outputs from qualitative research can be quantified (Prasad and Prasad, 2002), thereby making the methodological pursuit of the quantitative method fall within Creswell's paradigms which are supposedly qualitatively inclined. Therefore, this study employed the post-positivist research paradigm and combined quantitative and qualitative methodologies.

4.2.1 Post-positivism

According to Teddlie and Tashakkori (2009:5), the post-positivism paradigm is a "revised form of positivism that addresses several of the more widely known criticisms of quantitative orientation and, yet maintains an emphasis on quantitative methods". Merriam (2009:8) basically referred to post-positivism as a new version of positivism. Mohamed-Arraid (2011) asserts that post-positivism shows that the enquirer can hardly be separated from the sequence of events being observed objectively in the course of research into a particular human phenomenon. According to post-positivism, human rational thinkingis inflexible, and for this reason, researchers can never fully capture a "true" reality. Post-positivists base their knowledge on the examinationand measurement of 'realities that exists in our world'. Korzybski (2011:112) noted that the world is regulated by specific theories and laws. These theories, however, must be tested and improved so that people can understand the world. Therefore, it is important for a post-positivist to develop several measures of observations and to study individual behaviour. This implies combining both qualitative and quantitative methods in doing research to collect data using interviews, focus groups, observations, questionnaires and others.Post-positivists will pursue the following approach to research: firstly, they will start with a theory, secondly they will collect data that moreover hold ups or counters the assumption, and lastly they will make the necessary adjustments before

additional tests are made (Creswell, 2009). In this regard, Blaikie (2010:97) argued that post-positivism consists of a reality revolving around human experiences. However, "they acknowledge that reality can never be fully known and efforts to understand reality are limited owing to the human beings' sensory and intellectual limitations"(Guba, 1990).

The aim of post-positivist research is also prediction and explanation. Like positivists, post-positivists seek to be objective, neutral and ensure that the findings correlate with the existing knowledge base(6 and Bellamy, 2012:60). The paradigm views the idea of researcher-participant independence as something that can be realised only improperly in actual practice (Betz andFassinger, 2012). Ryan (2006) described the characteristics of post-positivism as broad, bringing together theory and practice, allowing acknowledgment and encouragement for the researchers' motivations and commitment to the topic, and recognising that many correct techniques can be applied to collecting and analysing data. Post-positivism does not in any way suggest that positivism is no longer relevant, but rather offers that something exists subsequent to positivism that also is worth considering. Hence, Creswell (2009:6)views"post-positivism as an expansion of positivism, since it present a more realistic notion of the absolute and objective truth of knowledge in the social sciences". Similarly, Gratton and Jones (2010:26-27) view "post-positivism in reality, does not possibly gain understanding merely through measurement".According to (Glicken, 2003:28)post-positivist substantially manifests a greater openness to different methodological methods, and generally includes qualitative and quantitative methods whichpermit for the development of alternative research strategies to find information in a creative way.

Furthermore, researchers in this paradigm school of thought normally believe in multiple perspectives from participants rather than a single reality(Creswell, 2007:20, 2009:7)which this study is based on. An important distinction between the positivist and post positivist views is that the former stresses theory verification and the latter theory falsification(Lincoln and Guba, 2000:107). Positivists on the one hand believe in an objective, anticipated reality, whereas post-positivists on the other hand, admit to an objective reality that is only inadequately anticipated. Nevertheless, "unlike positivists, they acknowledge and spell out any predispositions that would affect the objectivity"(Doucet, Briers and Sénécal, 2010).

The paradigm shifts slightly from the positivist approach by using different methods in approximating reality, such as critical induction and constant comparison. Methodologically, post-positivists emphasise that researchers' bias can be eliminated by the utilization of several sources of data, multiple techniques of data collection, theoretical frames and triangulation of researchers (Tracy, 2013). Post-positivism offers a practical approach to collecting data using more than one method and legitimise the potential for using mixed methods. According to Denzin and Lincoln (2011:8), "post-positivism relies on multiple methods for capturing as much of reality as possible". Denscombe (2008) argued that mixed methods represent a third paradigm in addition to what he called the qualitative and quantitative methodological paradigms. The purpose of mixed methods is to improve accuracy of data to be analysed in any study, especially in the social sciences. Denscombe (2008) also described the value of mixed methods for getting a more complete picture of phenomena, a way to avoid biases, and a means to build analyses, which is perhaps more reflective of interpretivism. Mixed methods, however, represent a continuum of combining methods and may give the best useful information for many of the investigative questions.

The post-positivism paradigm is considered mostsuitable for the present study. The researcher employed both qualitative and quantitative methods to solicit empirical data relating to the research problems the study is set out to investigate. Studies have suggested that the use of pluralistic philosophies and methodologies show that research can use aspects of more than one paradigm to be consistent and coherent with the research questions and to address the complexities of social science research (Easterby-smith, Thorpe and Lowe,Easterby-Smith, 2002; Greene and Caracelli, 2003). The post-positivism paradigm has been used for several studies and it offers a practical approach to collecting data using more than one method. Zinn (2012) applied the post-positivism paradigm in a study on'information literacy in the classroom'. Also, Gakibayo, Ikoja-Odongo and Okello-Obura (2013) applied the post-positivism paradigm in a study titled'Electronic information resources utilization by students in Mbarara University Library'. The decision to use different approaches in addressing the research questions was to show that flexibility is desirable and possible when choosing to carryout research and to ensure the validity and reliability of the data to be collected. Therefore, the current study adopted both qualitative and quantitative

methodologies to encompass a holistic approach to the use of EIRs by postgraduate students based on their IL and self-efficacy skills.

4.3 Methodological approach

The main methodologies or research approaches in social research include the quantitative, the qualitative and mixed methods research (Harwell, 2011:148). "Quantitative and qualitative research designs, until recently, have been utilised independently of each other in educational research" (Caruth, 2013:112). Mixed Methods Research (MMR) have been established as a third methodological movement over the past twenty years, complementing the existing traditions of quantitative and qualitative movements(Tashakkori and Teddlie, 2003; Teddlie and Tashakkori, 2009). "The roots of mixed methods are mostly traced to the multi-trait, multi-method approach of Campbell and Fiske"(1959), "although it is regarded asa relatively new methodology whose major philosophical and methodological foundations and practice standards have evolved since the early 1990s"(Teddlie and Tashakkori, 2009).

This present study applied a mixed methods approach which consists of qualitative and quantitative approaches of data collection. Mixed methods research (MMR), is usually seen as a "third methodological movement"(Venkatesh, Brown and Bala, 2013:22), and is progressively accepted by scholars and researcher. The term MMR refers to the use of two or more methods in a research project yielding both qualitative and quantitative data(Creswell and Plano Clark, 2007; Greene, 2007; Teddlie and Tashakkori, 2009). It employs combining quantitative and qualitative approaches in a sole research study to advance limitations of using either a quantitative or qualitative approach individually. The combination of both methods provided a superior understanding of the research problems and questions than either method used independently.

According to Frenz, Nielsen and Walters (2009:70), the concept of mixing different methods originated in 1959 when Campbell and Fisk used it to study the validity of psychological traits. They encouraged other researchers to employ their multi-method matrix to examine multiple approaches to data collection.This has led to mixed methods using field approaches such as observation and field interviews (qualitative data) with traditional surveys (quantitative data). It is thought that the "combination of quantitative and qualitative methods present a more enhanced

insight into the research problem(s) and question(s) than using one of the methods independently" (Hong and Espelage, 2011; Creswell, 2012; Frels and Onwuegbuzie, 2013). Similarly, Flick (2009:189) pointed outfor overcoming the problems between qualitative and quantitative research and also to obtain knowledge about the issue of the study which is broader than the single approach provided, the two methodologies can be combined.

MMR permits the "opportunity to compensate for inherent method weaknesses, capitalise on inherent method strengths, and offset inevitable method biases" (Greene, 2007:xiii).Creswell (2003:20-22) outlined six overlapping MMR designs, known as "strategies of inquiry, that guide the construction of specific features of a mixed methods study". It includes:

(i) Sequential explanatory design
(ii) Sequential exploratory design
(iii) Sequential transformative design
(iv) Concurrent triangulation design
(v) Concurrent nested design
(vi) Concurrent transformative design

The designs differ ifthe qualitative and quantitative data are collected sequentially or concurrently, the weight given to one kind of data or another, when the mixing is done, and the extent to which a theoretical perspective (e.g., post-positivism, constructivism) is present and guides the research design (Creswell, 2003).

This present study adopted the MMR design to have viewpoints that would complement each other for better research outcomes. In MMR, data are collected simultaneously in order to streghten each other. Frick (2011:187) noted that the combination of multiple approaches refers to a triangulation method. Kalof, Dan, and Dietz (2008:25) maintained that triangulation is seen as the best technique to understand the social world. Bryman and Bell (2011:630) further mentioned other motives for using triangulation and these include: to obtain a variety of information on the same issues; to employ the strengths of each technique in order to conquer the deficiencies of the other; and to achieve a higher degree of validity and reliability. McNeill and Chapman (2005:23) stated that triangulation helps to verify the reliability of a particular research tool and the validity of the data collected.

Venkatesh *et al.*(2013:26)profile seven purposes of MMR. The seven purposes involve:

(i) Complementarity: to obtain mutual viewpoints about similar experiences or associations.

(ii) Completeness: to ensure total representation of experiences or associations is attained.

(iii) Developmental: to build questions from one method that materialize from the implications of a prior method or one method presents hypotheses to be tested in a subsequent method.

(iv) Expansion: to clarify or elaborate on the knowledge gained from a prior method.

(v) Corroboration/Confirmation: to evaluate the trustworthiness of inferences gained from one method.

(vi) Compensation: to counter the weaknesses of one method by employing the other.

(vii) Diversity: to obtain opposing viewpoints of the same experiences or associations.

Similarly, Creswell (2009) stated that both quantitative and qualitative methods can be used developmentally because the first helps inform the second, while the second can provide additional information to support the first. Therefore, the present study employed the use of interviews and questionnaires as data collection instruments. The nature of the study demanded a combination of approaches to soliciting and analysing data from the students and the subject librarians to enhance the validity of the study findings and to strengthen the dependability of information solicited from the respondents, and to enable the researcher to have better understanding of the subject's point of view.

4.4 Research design

A research design is a comprehensive plan in which research is undertaken. Creswell (2009)defined a research design as a roadmap and procedures for research including decisions from wide assumptions to data collection methods and analysis. According to Brink, Van der Walt

and Van Rensenburg (2012:96), research design forms the blueprint of research which sets out the methodology to be used by the researcher in obtaining sources of information, such as elements, units of analysis and participants, for collecting and analysing data and interpreting results. A research design is key to every step in the process to actualise an appropriate outcome. Hence, a research design is seen as the practicalplan in which certain research methods and procedures are linked together to acquire a reliable and valid body of data for empirically grounded analyses, conclusions and theory formulation(Creswell, 2007:45).

The choice of the research design to be employed in a study is based on a number of factors. These include the nature of the research problem, the worldview assumptions that the researcher brings into the study and the research questions that are addressed (Creswell, 2007). The aim or purpose of research is said to determine the choice of appropriate research method for a given study(6 and Bellamy, 2012; Seidman, 2006; Silverman, 2001; Welman, Krugerand Mitchell, 2010). There are different types of research designs in social science and these encompasssurvey, experiment, observation, case study, content analysis (analysis of records/documents such as bibliometrics) among others(6 andBellamy, 2012; Seidman, 2006; Welman, Kruger and Mitchell, 2005).

As a result of the nature of the current study, the descriptive survey design is most appropriate. In this current study, the descriptive survey approach was distinctively chosen as it provides a precise and authentic description of the subject under investigation. The justification for the adoption of this design according to Pickard (2013:113) is that it describes the "situation and/or look at the trends and patterns within the sample group that can be generalised to the defined population of the study". Also, Kumar (2005:93) lauds this survey design as the"commonly used design in social sciences. It is best suited to studies aimed at finding the prevalence of a phenomenon, situation, problem, attitude or issue such as in this present study is set to investigate".

A survey approach is used to gather primary or empirical data in social science research mostly through questionnaire and interview (structured interview) in research(Ani, 2013:112). This design is consistent with the post-positivism paradigm, which is pluralistic and allows the application of mixed methods and it permits the researcher to solicit quantitative data using questionnaires, qualitative data using interviews (one-on-one interviews) and statistically analysing the data. The

descriptive survey according to Calmorin and Calmorin (2007:70) is a research design that allows the researcher to generalise the results of findings and show relevant characteristics of the population that has been measured. This is further asserted by Babbie *et al*., (2001:265) that "survey research is especially appropriate for making descriptive studies of large populations".

Related studies that have used the descriptive survey design include Ani(2013); Cidpeta(2008); Dolo-Ndlwana(2013); Hamutumwa(2014); Issa and Daura(2009); Kimani(2014); Odiyo(2011) and Okelle-Obura(2010). Issa *et al.* (2009) used descriptive survey design to study theeffects of information literacy skills on the use of e-library resources among students of the University of Ilorin, Kwara State, Nigeria. Similarly a descriptive design was adopted ina study by Odiyo (2011) titled"Factors influencing the use of electronic information resources by postgraduate students in Egerton University". Moreover, Dolo-Ndlwana (2013) used a descriptive survey design to exploreacademics and postgraduate students use and value ofthe library's electronic resourcesat Cape Peninsula University of Technology (CPUT).Cidpeta (2008) used a descriptive survey to collect and analyse data on teaching and learning of information literacy in institutions of higher learning in Kwazulu-Natal province and Malawi. Therefore, a descriptive research design was employedfor the current study to survey postgraduate students' ILSE in the use of EIRs. The descriptive design is consistent with the mixed methods approach adopted for this study since it is concerned with gathering data from the participants using questionnaires and interviews as applicable in the present study.

4.5 Population of the study

According to Wayne and Stuart (2006:34), a population is an aggregate or totality that a study is set out to investigate."Population is the study object and consists of individuals, groups, organisations, human product and events or conditions to which they are exposed" (Welman Kruger and Mitchell, 2005:51). In other words, a population for a study comprisesof the subject (usually of people) who have similar characteristics that is of interest to the researcher. The targeted population for this study was 115 postgraduate students admitted for the 2016/2017 academic year and three subject librarians in the various universities under study. The 115 postgraduate students are newly admitted and they could be easily accessed. Postgraduate students in the institutions under study comprised ofmasters and PhD students. The universities include

Delta State University in Abraka, the University of Uyo in Uyo and the University of Calabar in Calabar which are the only institutions in the region accredited by the NUC and the LRCN to offer Library and Information Programmes at postgraduate level. The entire population is presented in Table 4.1 below.

Table 4.1: Population distribution

University	Postgraduate Students		Subject Librarians	Population
	PhD	Masters		
DELSU	8	29	1	38
UNICAL	10	26	1	37
UNIUYO	30	12	1	43
TOTAL	**48**	**67**	**3**	**118**

Source: Admissions lists, 2016 and university librarian's office, 2016.

The entire population of postgraduate students in the selected library schools in the South-South of Nigeria and the subject librarians were investigated in this present study.This is in line with Okorodudu (2003:14)who suggested that "If a population is small, the researcher does not need to draw any sample". Therefore, the entire population was studied with the researcher employing a census survey.

4.6 Method of data collection

The method of data collection refers to the differentmeans employed to pull together information (Welman, Kruger and Mitchell, 2005:134). This involves the actions that a researcher takes to gather relevant data tooffer solutions to research questions. The present study employed mixed methods of data collecction. Therefore, the researcher applied both qualitative and quantitative data collection methods and instruments. The researcher used interview (See Appendix 10) to solicit qualitative data from subject librarians and a questionnaire (See Appendix 8) was employed to solicit quantitative data from the postgraduate students.

4.6.1 Quantitative method

Designing a quantitative research methodology implies“making decisions concerning the type of case or samples to select, how to measure relevant factors and what research techniques such as questionnaires or experiments to be employed”(Neuman, 2006:14). The objective of quantitative research is to provide facts that can be applied to predict, explain causality and validate existing relationships among variables through translation of numerical data (Leedy and Ormond, 2005). Data solicited from quantitative methods are continually believed to yield more objective and accurate information when considering using standardised methods such as a questionnaire. This view was supported by Dudwick, Kuehnast, Jones and Woolcock(2006:3)who noted that “quantitative methods characteristically refer to standardised questionnaires that are administered to individuals or households, which are identified through various forms of sampling, usually random sampling”.Often, quantitative research methods arenumerical anddata is solicitedand usually analysed with statistical tools. The aim is to identify dependent and independent variables with the intention of eliminating inadequate variables, and in this way, minimise the complexity of the problem so that the initial hypothesis can be confirmed or discarded. “Quantitative research depends on deductive reasoning or deduction”(Sekaranand Bougie, 2010) and employ different“quantitative analysis techniques that range from providing simple descriptives of the variables involved, to establishing statistical relationships among variables through complex statistical modeling (Saunders, Lewis and Thornhill, 2009). The quantitative data collection approach is fast and economical and suitable when time and resources are limited. Given the unique purposes of quantitative research, it adopts different data collection and analyses techniques. One of the instruments of data collection in the quantitative method, there is a survey questionnaire. For the purpose of the present study, the questionnaire was employed to solicit quantitative data from postgraduate students.

4.6.1.1 Questionnaire

The questionnaire is one of the instruments usually used in soliciting data in survey research. It is an instrument that iswell structured with series of questions for participants to obtain statistically useful information about a given topic. A questionnaire that is well constructed and responsibly administered becomes an important research tool by which statements can be made about specific groups or people or entire populations. The use of questionnaires can be very efficient at gathering

large amounts of information, whilst statistical analysis supports inferences to a larger population from a small sample. Mathers, Fox and Hunn,(2007:19) noted that a questionnaire is "a very convenient way of collecting useful comparable data from a large number of individuals". However, "questionnaires can only produce valid and meaningful results if the questions are clear and precise and if they are asked consistently across all respondents" (Mathers *et al.,* 2007). Therefore, deliberate reflection is required to design the questionnaire. In this study, the researcher adopted a range of items to evaluate IL as projected by Shapiro and Hughes (1996) and the Californian University Information Literacy Fact Sheet(2000) as well as formulation of other questions to fit the current study. The questions were developed partly with regards to the standard guiding the study (ACRL, 2000) and the research questions formulated for this study. The questionnaire is organised into sections (See Appendix 8). The survey questionnaire consisted of six sections in line with the research questions as highlighted in Chapter One. These sections are:

(i) respondents background information;
(ii) information literacy skills in the use of EIRs;
(iii) relationship between postgraduate students' information literacy self-efficacy and their use of electronic information resources;
(iv) respondent's usage pattern of electronic information resources;
(v) information literacy related barriers hindering the use of electronic information resources;
(vi) strategies to enhance postgraduate students' information literacy self-efficacy.

The researcher personally participated in distributingcopies of the questionnaire for a period ofthree weeks (13th of February, 2017 to 6th of March, 2017) and collected them back immediately afterwards. However, the researcher encountered some difficulties during the administration of the research instruments. For instance, the researcher was asked to wait for lecture hours and during examinations in UNIUYO and UNICAL respectively as that was the only means to reach out to the postgraduate students.

4.6.2 Qualitative method

A qualitative research method is a centered and holistic perspective that assistsa researcher to produce an in-depth account that will present a lively picture of the research participants' reality.

Qualitative research engagesin inductive reasoning (Sekaran and Bougie, 2010) and aims to acquire an in-depth understanding of human behaviour and the reasons of occurrence of that behaviour. In qualitative research, the researcher is expected to be a good listener, non-judgmental, honest and friendly. Various authors (Babbie and Mouton, 2001; Sapsford and Jupp, 2006; Teddlie and Tashakkori, 2009) have described qualitative methods as methods used where in-depth analysis is required, involving the collection of textual, verbal data or graphic data. The data collected places emphasis on words, as opposed to quantification in data collection and analysis or statistical summaries, and may be in the form of people's words or descriptions of the researcher, based on observation and experience (Babbie and Mouton, 2001; Bryman, 2004; Denzin and Lincoln, 2005; Durrheim and Painter, 2006). Qualitative methods of data collection are flexible and could capture verbatim reports or observable characteristics and yielding data that are not in a numerical form. Qualitative research can also be called "interpretive research as its primary objective is not generalisation but to provide deep interpretation of the phenomena" (Cooper and Schindler, 2006). It has been used in several academic disciplines such as social sciences, and market research (Denzin and Lincoln, 2005) especially where the point is to probe human behaviours and personalities. Snape and Spencer (2003:5) noted that "whilst significant diversity exists in the nature of studies that can be described as qualitative, it is possible to define a set of core characteristics". These include:

(i) aims which are directed at providing an in-depth and interpreted understanding of the social world of research participants by learning about their social and material circumstances, their experiences, perspectives, and histories;

(ii) samples that are small in scale and purposively selected on the basis of salient criteria;

(iii) data collection methods which usually involve close contact between the researcher and the research participants, which are interactive and developmental and allow for emergent issues to be explored;

(iv) data which are very detailed, information rich and extensive;

(v) analysis which is open to emergent concepts and ideas and which may produce detailed description and classification, identify patterns of association or develop typologies and explanations;

(vi) outputs which tend to focus on the interpretations of social meaning through mapping and re-presenting the social world of participants (Snape and Spencer, 2003:5-6).

There are variety of methods of data collection in qualitative research, including observations, textual or visual analysis (e.g from books or videos) and interviews (individual or group). Walliman (2011:99) mentioned that an interview is regarded as a very flexible tool for gathering qualitative data. Therefore, the interview method was employed in this study and the interviews recorded via mobile phone (As permission was granted by the participants. See Appendix 9). The interview is an alternative method of collecting survey data (Babbie, 2011:263),especially to acquire additional information from the subject librarians. The interview schedule seeks to examine the subject librarians' perception on postgraduate students' information literacy self-efficacy in the use of electronic information resources in relation to the research problems formulated to guide this study. The interview schedule acted as a supplement to the questionnaire. Therefore, qualitative data was collected through interviews from the subject librarians.

4.6.2.1 Interview

Schostak (2006:54) defined an interview as "an extendable conversation between partners with the aim at having an in-depth information about a certain topic or subject, and through which a phenomenon could be interpreted in terms of the meaning the interviewees bring to it".

It is a conversation with the aim of gathering descriptions or perspectives with respect to interpretation of the meanings of the 'described phenomena' from the interviewee. Interviewsare mostly used in qualitative research methods. This view was supported by Dörnyei (2007:132) stating that qualitative data are more often elicited via interviews and questionnaires. However, "interviews compared to questionnaires are more powerful in eliciting narrative data that permits researchers to investigate people's views in greater depth" (Kvale, 2003). In a similar vein, Cohen *et al.*(2007:29) noted that interviewing is "a valuable method for exploring the construction and negotiation of meanings in a natural setting". Therefore:

> the value associated with interviewing is not only because it builds a holistic snapshot, analyses words, reports detailed views of informants; but also because it enables

interviewees to speak in their own voice and express their own thoughts and feelings(Berg, 2007:96).

Thomas (2009:160) pointed out that interviews have a number of advantages; interviews enable the researcher to explain the purpose of the study and to establish a rapport, immediately clarify issues,and allowing possible triangulation or the application of other validity enhancing instruments. According to De Vos *et al.* (2011:186), the researcher has more control over the response rate and quality of data is superior to that obtained by other methods (Burton, 2000:323). Hence, interviews were used to gather supplementary data as well as verifying some points that emanated from some of the responses to the questionnaire. Alshenqeeti (2014:40) stated that there are four types of interviews commonly employed in social sciences. They include; the structured interview, the unstructured interview, the semi-structured interview and the focus group interview. However, the present study adopted the structured interview with six (6) sets of open-ended questions (See Appendix 10).

The interviews with subject librarians were conducted to allow for an in-depth investigation of the phenomenon (De Vos *et al.*, 2011:351) and to supplement the questionnaire. For this particular study, the subject librarians' perspectives were obtained using a structured conversation in which the interviewer asked pre-arranged questions that covered themes such as; perception of information literacy self-efficacy; information literacy skills, the relationship between postgraduate students' information literacy self-efficacy and their use of electronic information resources; students' usage patterns of electronic information resources; information literacy related barriers in the use of electronic information resources as well as strategies to enhance postgraduate students' information literacy self-efficacy.

4.7Pre-testing of research instruments

Pre-testing is a very important step in survey research to ensure that data collection instruments produced the expected results. Hilton (2015:1) noted that pre-testing is a method of checking that questions work as intended and are understood by those individuals who are likely to respond to them. Pre-testing of instruments is usually administered on a small number of respondents with similar characteristics to the final sample of the study. Pre-testing of an instrument is necessary to

ensure all kinds of errors that are associated with survey research are reduced. Moreover, it helps to improve the quality of data significantly. Krishnaswami and Ranganatham (2010) stated that the purpose of pre-testing is to test whether or not the instruments would obtain the responses required to achieve the research objectives, to test whether or not the content of the instruments is relevant and adequate, to test whether or not the wording of questions is clear and suited to the understanding of the respondents, to test the other qualitative aspects of the instrument such as question structure, and to develop appropriate procedures for administering the instrument with reference to field conditions. There is a general consensus among various authors on the importance of pre-testing to remove ambiguities in the instrument and ensure questions are appropriate and clearly understood (Babbie, 2004; Easterby-smith *et al.*, 2002; Babbie and Rubin, 2008). Similarly, Saunders *et al.* (2009:394) recommended pre-testing the questionnaire because this process allows for refining it and then the study can overcome ambiguities that would distract the respondents from answering the research questions correctly.

The importance of pre-testing a questionnaire cannot be over emphasised as it provides a feedback mechanism on a particular item that essentially requires some changes and adjustments. Hence, the questionnaire for this current study was pre-tested using twenty-one postgraduate students from the Library and Information Science department and a subject librarian at the Nnamdi Azikiwe University, Akwa. The 21 postgraduate students were those found to be present on the day of the pre-test. The validity and reliability of the instruments were ascertained through the pre-test result as described in section 4.8.1. The pre-test study assisted the researcher to estimate the time frame in filling the questionnaire as well as the interview. This was very important in planning and convincing the participants that it would onlytake about 10 -15 minutes to complete the questionnaire and 15 – 20 minutes for the interview session. The sources of data for each research question are reflected in Table 4.2.

Table 4.2: Mapping research questions to data collection instruments

Research question	Source of data
1. What information literacy skills do postgraduate studentshave to use electronic information resources?	Survey questionnaire and structure interview

2. What is the link between postgraduate students' information literacy self-efficacy and their use of electronic information resources?	Survey questionnaire and structure interview
3. What are students' usage patterns of electronic information resources?	Survey questionnaire and structure interview
4. What are the barriers related to information literacy that hinder postgraduate students from using electronic information resources?	Survey questionnaire and structure interview
5. How can information literacy self-efficacy be enhanced amongst library and information science postgraduate students?	Survey questionnaire and structure interview

4.7.1 Changes to the research instruments following the pre-test

From the pre-test, the questions in the questionnaire and interview schedules were revised to ensure clarity before the final administration of the research instruments. The restructuring included rephrasing some items in the research instruments to allow easy comprehension by respondents as well as renumbering of items for clarity. Specific changes made include:

- Initial section two that measures IL skills of the postgraduate students was deleted because it was similar to the current section two
- The World Wide Web was deleted from section four of the questionnaire which intend to measure postgraduate students' use of EIRs. The section listed various EIRs but the WWW was considered as a gateway to those resources. Therefore, it was inappropriate to have included it as one of the EIRs. Hence, it was deleted.
- For easy comprehension by participants, additional explanations were given with regard to question number 6, 20, 80, 81, 82, 83, 84, 85 and 86 in the questionnaire.

4.8 Validity and reliability of instruments

In every research study, the research instrument is often subjected to some form of scrutiny to ensure it is capable of measuring the research variables is states it is measures. The main indicators of a standardised research instrument are the reliability and validity of the measures. Heale and Twycross (2015:66) stated that it is essential to consider the validity and reliability of the data

collection tools (instruments) when either conducting or critiquing research. Patton (2001) statesthat "validity and reliability are two factors which researchers should be concerned about while designing a study, analysing results and judging the quality of the study". This view is supported by Dörnyei (2007)who was of the view that validity and reliability issues serve as guarantees of the results of the participants' performances. Therefore, a balance must be established between reliability and validity to ensure quality measurements through appropriate data collection techniques (Neuman, 2006:188).

4.8.1 Reliability

Reliability refers to the consistency of a measuring instrument to ensure that the scores of an instrument are stable and consistent. Babbie, (2007:143) and Rubin and Babbie, (2008:180) stated that reliability in a study refers to the ability of a particular technique to yield the same result each time if applied repeatedly. Therefore, reliability is the consistency with which a measuring instrument yields a certain result under the same condition(Leedy and Ormrod, 2001). In research, the ability of the research instruments to be consistent over time under the same representation of population affects the quality of data collected and consequently the results and their interpretation. In other words, reliability deals with the stability of research instruments to ensure that data collected from the same or similar source at different times, using the same instruments and in the same conditions, will yield the same results (Easterby-smith, Thorpe and Lowe, 2002135).

This current study employed a pre-test to achieve the reliability of the instruments to ensure that the instruments measure appropriately. Pre-test results were subjected to Cronbach's Alpha coefficient measurement and analysed using SPSS to test for internal consistency. The regression analysis and correlation test showed a Cronbach's Alpha coefficient of 0.96 (See Table 4.3). This is within the acceptable range 0.72 to 1.00 recommended by Yin (2013). Similarly, Mohamad, Lisa, Sern and Mohd(2015:165) stated that reliability values close to 1.00 indicate that the investigated factors can be measured. Therefore, the results of the pre-test show that the research instrument used for this study is reliable. The formula for calculating Cronbach's Alpha reliability is indicated below, while Tables 4.3 and 4.4 show the summary of the test.

$$a = \frac{Kr}{(1 + (k-1)\, r)}$$

Table 4.3: Reliability processing summary (N=21)

Case Processing Summary

		N	%
Cases	Valid	21	100.0
	Excluded[a]	0	.0
	Total	21	100.0

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

Table 4.4: Reliability statistics (N=21)

Reliability Statistics

Cronbach's Alpha	N of Items
.958	111

4.8.2 Validity

Thatcher (2010:125) refers to validity as the extent to which any measuring instrument measures what it is intended to measure. Similarly, Welman *et al.* (2010:142) described "validity as the extent to which the research findings accurately represent what is really happening in the situation". For a research instrument to be valid, the survey questions should measure the identified dimension or construct of the study's interest. Validity therefore, determines whether the research truly measures that which it was intended to measure, and in extension, to determine how truthful the research results are. Validity in research is concerned with the accuracy and truthfulness of the research instrument in measuring what it is supposed to measure. Leedy and Ormond (2005:280) posited that validity assesses the accuracy of whether measurements for an attribute collected are really what were supposed to be measured. Validity therefore, concerns itself with the quality of research, showing how well the ideas correspond with actual reality (Neuman, 2006:188).

There are many types of validity and many names have been used to define the different types of validity. The differences are usually based on scope, relevance, predictive quality, and association. However, Heale and Twycross (2015:66) noted that there are three major types of validity, namely content validity, construct validity and criterion validity. According to Ruane (2005), content

validity examines how representative the test is in relation to the attitude expected to be measured. It is the extent to which the questions fully cover the content area of the construct to be measured. Content validity ensures that the instrument adequately covers all the content that it should with respect to the variable. Content validity is an essential consideration when working with complex and different dimensional concepts. Therefore, several items or scales should be used to document the concept. “Content validity is essentially a subjective evaluation of the criterion used to define a domain which often involves judgment and relevance ratings of the contents of the instrument by experts in the field” (Galvan, 2006). A subset of content validity is face validity, where experts evaluate the instrument to ensure it contains the necessary items capable to measure the concept intended. Face validity is the type of content validity that is most relevant to this current study. Hence, the research instruments for this study were validated by the researcher’s supervisor and other experts in the area of information literacy to ensure face and content validity.

Construct validity is concerned with the accuracy of instruments used in data collection and how well results measured fit the theories underpinning the study (Cohen *et al.*, 2007:138). It examines the extent to which a research instrument (or tool) measures the intended construct. Johnson and Christensen (2008:272) and Neuman (2006:194) noted that to address threats to construct validity, a study needs to clearly spell out definitions for constructs of the theories adopted to avoid any ambiguities in understanding. Therefore, construct validity refers to inferences about test scores related to the concept being studied.

Criterion validity refers to the extent to which a research instrument is related to other instruments that measure the same variables. This type of validity provides evidence about how well scores on the new measure correlate with other measures of the same construct or very similar underlying constructs that theoretically should be related. Therefore, it is important that these criterion measures are valid themselves. There are two major types of criterion validity; concurrent and predictive validity (Kimberlin and Winterstein, 2008:2279). “Concurrent validity examines with the aim to establish whether scores on the instrument agree with, or concur with scores on other factors that one would expect to be relevant” (Muijs, 2004). In predictive validity, the criterion measurement is obtained at some time after the administration of the test, and the ability of the test to accurately predict the criterion is evaluated.

4.9 Data processing and analysis

Data processing entails cleaning it and evaluating it for "ambiguity, completeness, comprehensibility, internal consistency, relevance, and reliability"(Ngulube, 2005:138). The statistical analysis required that the data be coded and for the purpose of this study, the data cleaning process involved checking all variables for incorrect or impossible codes. Creswell (2009:183) noted:

> Analysis of data involves making sense out of the text and image data. It involves preparing data for analysis, conducting different analyses, moving deeper and deeper into understanding the data, representing the data, and making an interpretation of the larger meaning of the data.

Quantitative and qualitative data solicited were statistically analysedby a statistical software programme called the Statistical Package for Social Sciences (SPSS) and thematic content analysis respectively. The justification for the use of SPSS is because it is specifically made for analysing statistical data and thus it offers a great range of methods, graphs and charts as well as contains an extensive range of univariate and multivariate procedures used in the social sciences (Landau and Brian, 2004; Peugh and Craig, 2005). Thematic content analysis provides systematic and visible stages to the qualitative analysis process so that funders and others can be clear about the stages by which the results have been obtained from the data (Lacey and Luff, 2007). The study used both tables and figures with the aim of making the research findings more understandable and easier to interpret.

4.9.1 Quantitative data

Quantitative data collected with the aid of the questionnaire was scrutinised, sorted, edited and analysed using SPSS togenerate frequency counts, percentage and descriptive statistics. The descriptive was used as they provided the basic tools for summarising survey data and measuring the degree of association between variables and samples. The results are displayed in graphical forms (such pie charts, bar charts and tables).

4.9.2 Qualitative data

The qualitative data collected by using an interview method was analysed using areduction process to manage and classify the data. This involves reading through the interview transcripts, developing codes, coding the data and developing themes. Jones (2007:6) noted that "In qualitative analysis, documents are coded and codes are collected into categories until the categories are described to develop some meaning". In this process, units of text are developed for ideas or themes are thenapplied or linked to raw data for further analysis, which may includecomparing the relative frequencies of themes or topics within a data set.Thematic content analysis involves analysis of the frequency of the theme to understand the potential of any issue more widely. The researcher coded the data collected into themes and key words before they were analysed and presented.

4.10 Ethical considerations

Ethics in research is very crucial in determining the integrity of the research outcome. It is capable of eliminating the bias of any form during investigation of research problems as well as protecting the right of participants. Creswell (2009:87)explicated "the researchers need to protect research participants, develop a trust within them, promote the integrity of research, safeguard against misconduct and impropriety that might reflect on their organisations or institutions, and cope with new challenging problems".

The confidentiality and anonymity of participants is a major concern that is usually addressed in any research study. The anonymity of participants is protected when the subject's identity cannot be linked with personal responses. Nieswiadomy (2007) noted that if the researcher is not able to promise anonymity, the issue of confidentiality, which is the management of private information by the researcher in order to protect the subject's identity, must be addressed. In this regard, the ethical requirements as set out by the UKZN research ethics policy were fully complied with. Respondents were duly informed of the purpose of the study before the research instrument (questionnaire) was administered and interviews conducted. The respondents were informed that they were free to withdraw from the study if they desired to at any stage. The identity of participants and the data collected was handled with the strictest care and used for the research purposes only. A consent form (See Appendix 7 and 9) was provided for participants to fill in to ensure that all willingly consented to participate in this study. According to Greener (2011),

informed consent should provide detailed information about the research, so that prospective participants can make an informed decision about their possible participation. During the interview, the researcher ensured that respondents' consent was sought inaudio recording the interviews.

In addition, the researcher also obtained permission (gatekeeper letters) from the three institutions investigated in this study. The institutions are Delta State University, Abraka, the University of Uyo, Uyo and the University of Calabar, Calabar.

4.11 Summary

This chapter presented the methodology employed in this study. The study adopted a post-positivism paradigm which is most suitable for the present study, where the researcher combined both qualitative and quantitative approaches, known as mixed methods to collect empirical data. This chapter also discussed the study population, data collection instruments which include a questionnaire and interview, data processing and analysis, validity and reliability of the research instruments, as well as ethical considerations. The next chapter focuses on data analysis and presentation of findings.

CHAPTER FIVE

DATA ANALYSIS AND PRESENTATION OF FINDINGS

5.1 Introduction

This chapter presents the analysis and findings derived from the research instruments used for data collection, namely; a survey questionnaire and structured interview. The analysis and findings are organised and presented in accordance with section 1, 2, 3, 4, 5 and 6of the research instrument. Both the questionnaire and the interview schedule covered the background information of respondents, information literacy skills in the use of EIRs, the link between ILSE andthe use of EIRs, usage patterns of EIRs,information literacy related barriers hindering the use of EIRs, andstrategies to enhance ILSE.The main research question was to investigate the contributions of ILSE in the use of EIRs by library and information science postgraduate students in South-South, Nigeria. While the specific research questions were:

- What information literacy skills do postgraduate students have to use electronic information resources?
- What is the link between postgraduate students' information literacy self-efficacy and their use of electronic information resources?
- What are students' usage patterns of electronic information resources?
- What are the barriers related to information literacy that hinder postgraduate students from using electronic information resources?
- How can information literacy self-efficacy be enhanced amongst library and information science postgraduate students?

For the purpose of clarity, this chapter is divided into two main sections. The first section is on presentation and analysis of findings from the questionnaire. The second section is on presentation and analysis of findings from the structured interviews. This view is supported by Creswell's proposition that a researcher can analyse quantitative data separately from qualitative data (Creswell, 2008).Percentages presented in this current study were rounded off to one decimal point. Therefore, some total percentages do not necessarily add up to 100%.

5.2 Analysis of questionnaire data using descriptive statistics

This section contains analysis of data from the questionnaires administered between 13th of February, 2017 to 6th of March, 2017. All questions in the research instrument (questionnaire) contain single responses.

5.2.1 Study respondents

This section contains the total number of questionnaires administered to the study population in the three institutions under study and the actual number of copies of questionnaire completed and retrieved by the researcher. This is presented in Table 5.1.below.

Table 5.1: Response rate from the three institutions

Institutions	Expected Respondents (N=124)	Actual Respondents (N=115)	% of Actual Respondents
DELSU	40	37	92.5
UNICAL	38	36	94.7
UNIUYO	46	42	91.3
TOTAL	**124**	**115**	**92.7**

Table 5.1 shows that 115 (92.7%) copies of questionnaire were completed and retrieved by the researcher out of the 124 that were administered. Data analysis revealed that 37(92.5%) were returned from DELSU, 36(94.7%) from UNICAL and 42(91.3%) from UNIUYO. This indicates that UNICAL with 94.7% hadthe highest response rate.

5.2.2 Results of demographic data analysis

This section contains the demographic distribution of the respondents used for this study. The demographic information obtained from the respondents included gender, age, programme of study and institution of study.

5.2.2.1 Gender of respondents

Respondents were asked to indicate their gender. The results are presented in Figure 5.1 below.

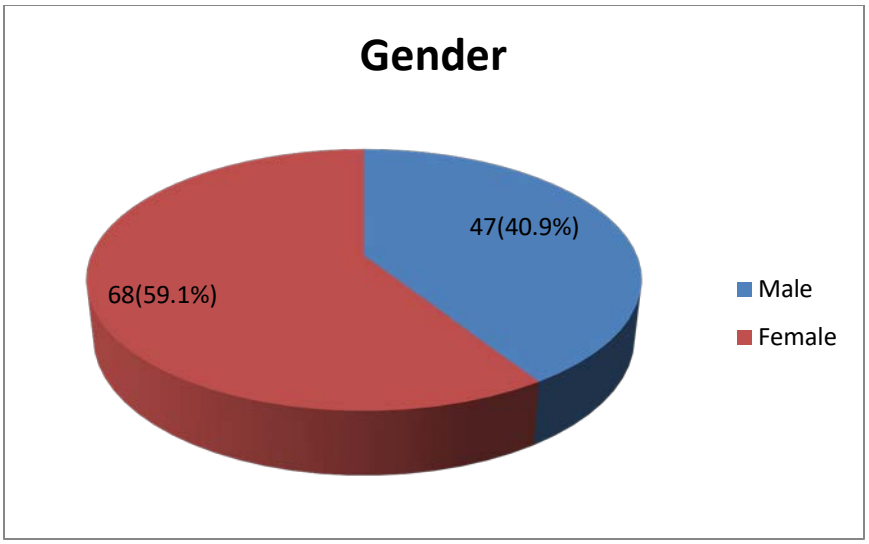

Figure 5. 1: Gender of respondents (N=115)

The gender distribution of respondents revealed that 47(40.9%) were males and 68(59.1%) were females. The results show that the majority of respondents were females.

5.2.2.2 Age of respondents

Respondents were asked to indicate their age group. The results are presented in Figure 5.2

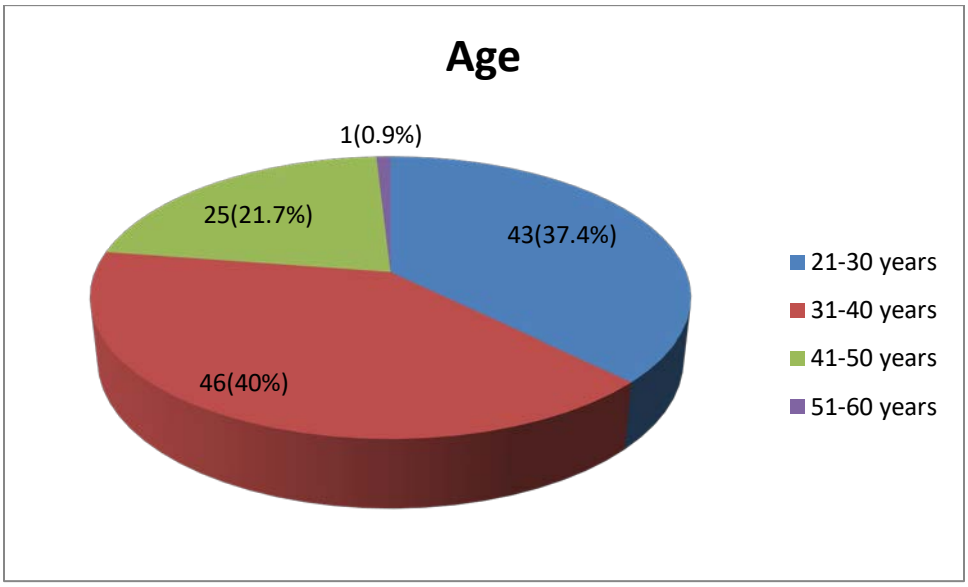

Figure 5. 2: Age of respondents (N=115)

The responses revealed that 43(37.4%) were within the age category of 21-30 years, 46(40%) were within 31-40 years, 25(21.7%) within 41-50 and 1 (0.9%) within the 51-60-year-old category. The results show that the majority of respondents were in the category of 31-40 years.

5.2.2.3 Study programme of respondents

Respondents were asked to indicate their programme of study. The results are presented in Figure 5.3

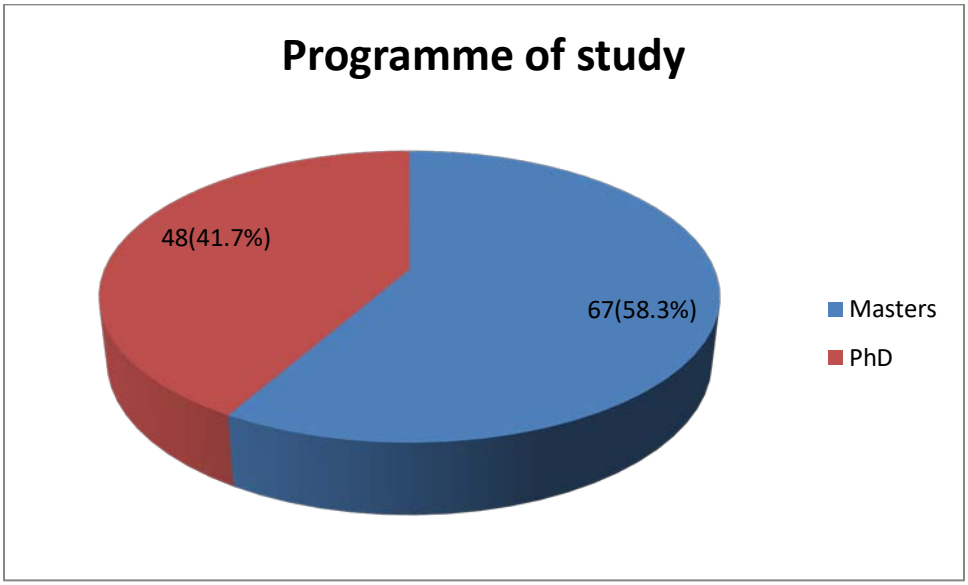

Figure 5. 3: Respondents' programme of study (N=115)

The responses revealed that 67(58.3%) were in a master's degree programme and 48(41.7%) were in a PhD programme. The result shows that the majority of respondents are in master's degree programmes.

5.2.2.4 Institution of respondents

Respondents were asked to indicate their institution of study. The results are presented in Figure5.4

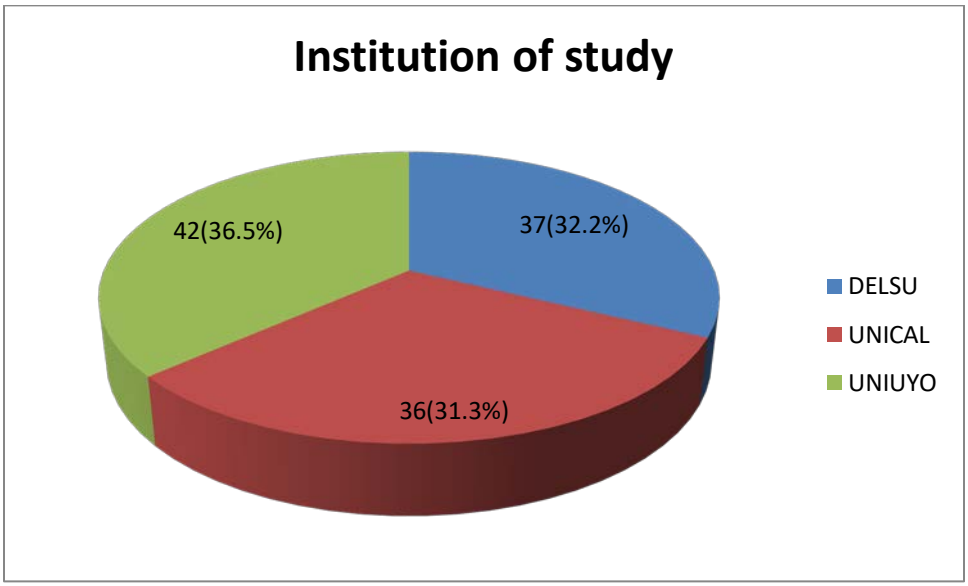

Figure 5. 4: Respondents' institution of study (N=115)

The responses revealed that 37(32.2%) of the respondents in this study were from DELSU, 36(31.3%) were from UNICAL and 42(36.5%) were from UNIUYO. The results showthe majority of the participants were from UNIUYO.

5.2.3. Information literacy self-efficacy skills

The study is to ascertain the contribution of ILSE skills in the use of EIRs. "Information literacy is a principalskill necessary for both academic achievement and predominantly for effective intellectual functioning in an information dense world" (Ross,Perkins and Bodey, 2016).

5.2.3.1 Information literacy skills in the use of EIRs

This section provides data on respondents' IL skills in the use of EIRs. The results are presented below

Table 5.2: Postgraduates tool literacy skills that determine use of electronic information resources

N=115

Tool literacy		Responses					
	Strongly Agree	Agree	Disagree	Strongly disagree	Neutral	Non-response	Total
	%	%	%	%	%	%	%
Locate information in multiple sources	35.7	54.8	2.6	0	5.2	1.7	100
Browse online databases to locate pertinent information	43.5	47	0	0	8.7	0.9	100.1
Recognise different methods of accessing information resources	40.9	46.1	3.5	0	7.8	1.7	100

The results presented in Table 5.2 shows that majority of respondents agreed that the use of EIRs is determined by their competency in information literacy (tool literacy). The results revealed the majority of 63(54.8%) agreed that their use of EIRs is determined by their ability to locate information in multiple sources, 41(35.7%) strongly agreed, six (5.2%) were neutral, while three (2.6%) disagreed. Similarly, 54(47%) of respondents agreed that the use of EIRs is determined by their ability to browse online databases, 50(43.5) strongly agreed, 10(8.7%) were neutral and none disagreed. Also, the majority 53(46.1%) of the respondents agreed that they use EIRs due to their ability to recognize different methods of accessing information resources, with 47(40.9%) who strongly agreed, nine (7.8%) were neutral, while four (3.5%) disagreed.

Table 5.3: Critical literacy skills of postgraduates for using electronic information resources

N=115

Critical literacy	Responses						
	Strongly Agree	Agree	Disagree	Strongly agree	Neutral	Non-response	Total
	%	%	%	%	%	%	%
Compare and evaluate critically if the informationcollected is credible and relevant	32.2	54	1.7	0	11.3	0.9	100.1
Judge critically if theinformation on websites is authentic and accurate	26.1	58.3	7	0	7	1.7	100.1
Compare and evaluate critically if the information is timely and appropriate	29.6	53.9	7	0.9	7	1.7	100.1

Table 5.3 shows that information literacy (critical literacy) is important, especially in the use of EIRs. Findings indicated that critical literacy enables students to critically evaluate EIRs as 62(54%) of respondents agreed that they use EIRs due to their ability to compare and critically evaluate if the information collected is credible and relevant. Thirty-Seven (32.2%) of the respondents strongly agreed, 13(11.3%) were neutral, while only two (1.7%) disagreed. However, one (0.9%) did not respond. The majority 67(58.3%) of the respondents also agreed that they use EIRs due to their ability to critically judgeif theinformation on the websitesare authentic and accurate.Thirty (26.1%) of the respondents strongly agreed, eight (7%) were neutral and disagreed respectively, while two(1.7%) did not respond.Similarly,62(53.9%) of the respondents agreed that they use EIRs as a result of their competency to compare and critically evaluate if the information is timely and appropriate, 34(29.6%) strongly agreed, eight (7%) were neutral and disagreed respectively, one (0.9%) strongly disagreed, whiletwo (1.7%) did not respond.

Table 5.4: Social-structural literacy skills of postgraduates for using electronic information resources

N=115

Social-structural literacy	Responses						
	Strongly agree	Agree	Disagree	Strongly disagree	Neutral	Non-response	Total
	%	%	%	%	%	%	%
Understand how information is socially situated	21.7	51.3	11.3	1.7	11.3	2.6	99.9
Understand how information is socially produced	25.2	47	13.9	1.7	10.4	1.7	99.9

Table 5.4 shows that information literacy (social-structural literacy) is also important in the use of EIRs. Findings indicated that social-structural literacy enables students to understand the form, format and location of EIRs.The majority 59(51.3%) of respondents agreed that their use of EIRs is determined by their ability to understand how information is socially situated, 25(21.7%) strongly agreed, 13(11.3%) disagreed, two (1.7%) strongly disagreed, while 13(11.3%) were neutral. However, three (2.6%) did not respond. Similarly, 54(47%) of the respondents agreed that they understand how information is socially produced in using EIRs, 29(25.2%) strongly agreed. However, 16(13.9%) disagreed, two (1.7%) strongly disagreed, 12(10.4%) were neutral, and two (1.7%) did not respond.

Table 5.5: Publishing literacy skills of postgraduates for using electronic information resources

N=115

Publishing literacy	Responses						
	Strongly agree	Agree	Disagree	Strongly disagree	Neutral	Non-response	Total
	%	%	%	%	%	%	%
Format and publish ideas electronically in textual form	19.1	46.1	10.4	0.9	20.9	2.6	100
Create content in blogs, YouTube, and personal webpages for different audiences	18.3	33.9	17.4	2.6	26.1	1.7	100
Format and publish ideas electronically in multimedia form (information presented through audio, video and animation, in addition to traditional media)	21.7	34.8	18.3	0.9	22.6	1.7	100

Table 5.5 shows that information literacy (publishing literacy) is also important in the use of EIRs. Findings indicated that publishing literacy enables studentsformat and publish research andideas electronically. Fifty-three (46.1%) of the respondents agreed with their ability to format and publish ideas electronically in textual form, 22(19.1%) strongly agreed, 24(20.9%) were neutral, 12(10.4%) disagreed, while one (0.9%) strongly disagreed.However, three (2.6%) did not respond to the question. Similarly, 40(34.8%) of respondents agreed that they could format and publish ideas electronically in multimedia form, 25(21.7%) strongly agreed, 26(22.6%) were neutral, 21(18.3%) disagreed, while one (0.9%) strongly disagreed. Two (1.7%) respondents did not respond to the question. The ability to create content in blogs, YouTube, and personal webpages recorded the least affirmative response with 39(33.9%) who agreed, 21(18.3%) who strongly agreed, 30(26.1%) were neutral, 20(17.4%) disagreed, while three (2.6%) strongly disagreed. Similarly, two (1.7%) respondents did not respond.

Table 5.6: Postgraduates emerging technology literacy skills that determine use electronic information resources

N=115

Emerging technology literacy	Response						
	Strongly agree	Agree	Disagree	Strongly disagree	Neutral	Non-response	Total
	%	%	%	%	%	%	%
Decide when to adopt the continually emerging innovations in information technology	19.1	45.2	13.9	1.7	17.4	2.6	99.9
Know when to adopt latest product development in new information technologies	22.6	40	14.8	0.9	19.1	2.6	100

Table 5.6 shows that information literacy (emerging technology literacy) is important in the use of EIRs. Findings indicated that emerging technology literacy enables students to adopt, understand, and make use of continually emerging innovations ininformation technology in accessing EIRs. The majority 52(45.2%) of respondents agreed that they could decide when to adopt continually emerging innovations in information technology, 22(19.1%) strongly agreed, 20(17.4%) were neutral, 16(13.9%) disagreed, while two (1.7%) strongly disagreed. However, three (2.6%) did not respond. Similarly, 46(40%) agreed that they know when to adopt the latest product development in new information technologies, 26(22.6%) strongly agreed, however, 22(19.1%) were neutral, 17(14.8%) disagreed, one (0.9%) strongly disagreed while three (2.6%) did not respond.

5.2.3.2 Link between information literacy self-efficacy and use of EIRs.

This section sought to determine the link betweeninformation literacy self-efficacy and the use of EIRs. The results are presented in Table 5.7 below.

Table 5.7: Link between information literacy self-efficacy and use of EIRs

N=115

ICT components	Responses						
	Strongly agree	Agree	Disagree	Strongly disagree	Neutral	Non-response	Total
	%	%	%	%	%	%	%
Computer	79.1	20.9	0	0	0	0	100
Computer software and applications	57.4	39.1	0.9	0	2.6	0	100
Information from any source	52.2	40.9	4.3	0	1.7	0.9	100
Variety of information at any time	47	47	0.9	0	4.3	0.9	100.1
Variety of information systems	43.5	48.7	2.6	0	3.5	1.7	100
Variety of information formats	38.3	48.7	5.2	0	6.1	1.7	100
Information systems user interfaces	31.3	58.3	1.7	0.9	7	0.9	100.1
Navigation of online information	44.3	46.1	0	0	7.8	1.7	99.9
Online catalogue	35.7	49.6	7	0.9	7	0	100.2
World Wide Web	47	46.1	0.9	0.9	4.3	0.9	100.1
Internet search tools	56.5	38.3	1.7	0.9	2.6	0	100
Social networking sites	51.3	43.5	0.9	1.7	0.9	1.7	100

The results presented in Table 5.7 show that there is a link between information literacy self-efficacy and the usage of ICT components, especially those related to the use of EIRs. Hence, information literacy self-efficacy has effect on the use of EIRs. The results revealed that 91(79.1%) and 24(20.9%) of the respondents strongly agreed and agreed respectively that information literacy self-efficacy have effected their use of computers. Similarly, 66(57.4%) of the respondents strongly agreed that information literacy self-efficacy has effect on their use of computer software and applications, 45(39.1%) agreed, while three (2.6%) were neutral. Furthermore, the majority 59(51.3%) of the respondents strongly agreed that information literacy self-efficacy has effect on their use of social network sites, 50(43.5%) agreed, one (0.9%)disagreed while two(1.7%) strongly disagreed.However, two (1.7%) did not respond.Similarly, 65(56.5%) of respondents strongly agreed that it has effect on their use of internet search tools, 44(38.3%) agreed, two (1.7%) disagreedwhile one (0.9%) strongly disagreed. Other areas that ILSE have effect on include the

use of a variety of information at any time with 54(47%) of the respondents who strongly agreed and agreed respectively. Information from any source recorded 60(52.2%) who strongly agreed and 47(40.9%) who agreed respectively. The majority 54(47%) of the respondents also strongly agreed on the effect ILSE has in the use of World Wide Web popularly known as WWW, 53(46.1%) agreed, five (4.3%) were neutral, while one (0.9%) disagreed and strongly disagreed respectively. Furthermore, the majority 56(48.7) of respondents agreed that information literacy self-efficacy skills have effect on their use of a variety of information systems, 50(43.5%) strongly agreed, while three (2.6%) disagreed.Similarly, 53(46.1%) of the respondents agreed on the effect of ILSE on their navigation of online information, 51(44.3%) strongly agreed, while nine (7.8%) were neutral. Two (1.7%) respondents did not respond to the question. Moreover, the majority 56(48.7%) of the respondents agreed that they could use a variety of information formats based on their ILSE skills, 44(38.3%) strongly agreed, while six (5.2%) disagreed. Two (1.7%) respondents did not indicate their views. Fifty-Seven (49.6%) of the respondents agreed that ILSE skills have effect on their use of an online catalogue, 41(35.7%) strongly agreed, eight (7%) disagreed, while one (0.9%) strongly disagreed. Results indicated that ILSE skills have an effect on all items in the research instrument. Therefore,a linkexists between ILSE skills and the use of ICT components, especially those related to the use of EIRs.

5.2.3.3 Usage patterns of EIRs.

This section sought to determine the usage patterns of EIRs by postgraduate students. These were ascertained using usage frequency and the purpose for using EIRs. The findings are presented in Table5.8 and Figure 5.5

Table 5.8: Frequency of using EIRs

N=115

Electronic information resources	Responses					
	Always	Often	Sometimes	Rarely	Never	Total
	%	%	%	%	%	%
E-journals	42.6	36.5	15.7	5.2	0	100
E-data archives	15.7	36.5	28.7	14.8	4.3	100
E-manuscripts	20	28.7	32.2	13.9	5.2	100
E-books	40.9	27.8	24.3	5.2	1.7	99.9
Online discussion group	27.8	24.3	30.4	12.2	5.2	99.9
E-theses	24.3	36.5	23.5	10.4	5.2	99.9
E-newspapers	35.7	28.7	27	6.1	2.6	100.1
E- research reports	28.7	32.2	29.6	7.8	1.7	100
E-bibliographic databases	21.7	26.1	33	13.9	5.2	99.9
E-maps	13.9	19.1	30.4	23.5	13	99.9
CD-ROM	25.2	22.6	32.2	16.5	3.5	100
E-reference sources	34.8	21.7	26.1	15.7	1.7	100
E-tutorials	13.9	19.1	37.4	18.3	11.3	100
Online databases	28.7	28.7	32.2	7.8	2.6	100
Online catalogue	22.6	25.2	30.4	12.2	9.6	100

To enable the researcher to achieve the frequency of use, respondents were asked to indicate how frequently they used EIRs. Table 5.8 depicts that most of the respondents 49(42.6%) specified that they always make use of e-journals, while 42(36.5%) indicated they use e-journals often. None of the respondents indicated that they never used e-journals, however, 18(15.7%) indicated they use it sometimes, while six (5.2%) rarely use e-journals. In e-data archives, most of the respondents 42(36.5%) specified that they use it often, 33(28.7%) said they use it sometimes, while 18(15.7%) used it always.However, five (4.3%) did not use it at all. Similarly, the results show that 37(32.2%) of the respondents use e-manuscripts sometimes, while 33(28.7%) use it often. However, a few of the respondents six (5.2%) did not use it at all. Forty-Seven (40.9%) of the respondents used e-books always, 32(27.8%) used it often, while 28(24.3%) indicated that they sometimes use e-books. Results indicated that e-theses are used often with 42(36.5%) affirmative responses, while 28(24.3%) affirmed that they use it always. However, 12(10.4%) of the respondents specified that they rarely use e-theses and six (5.2%) of the respondents did not use it at all. Similarly, 41(35.7%)

of the respondents indicted that they always use e-newspapers. A further 39(34.0%) of the respondentsindicated that they always use e-reference sources, while 25(21.7%) of the respondents agreed that they often use them. For the use of e-research reports, the majority of the respondents 37(32.2%) affirmed that they use it often.

Results also indicated that some of the electronic information resources are not frequently used by respondents. For example, 37(32.2%) of the respondents indicated that they sometimes use CD-ROMs, 19(16.5%) rarely, while four (3.5%) havenot ever used CD-ROMs. However, 29(25.2%) of the respondents said they used it always, while 26(22.6%) used it often. Similarly, 13(11.3%) of the respondents indicated that they never used e-tutorials, 16(13.9%) indicated that they used it always. However, most of the respondents 43(37.4%) indicated that they sometimes use e-tutorials, 22(19.1%) used it often, while 21(18.3%) used it rarely. Thirty-Eight (33.0%) of the respondents also affirmed that they sometimes used e-bibliographic databases. Moreover, 37(32.2%) of the respondents affirmed that they only use online databases sometimes, nine (7.8%) rarely used it, while three (2.6%) have not used it at all. However, 33(28.7%) of the respondents agreed that they often use it. On the use of online catalogues, a majority of respondents 35(30.4%) indicated that they sometimes use them, 29(25.2%) used them often, 26(22.6%) used them always, 14(12.2%) rarely used them and 11(9.6%) of respondents have never used an online catalogue. Similarly, 35(30.4%) of the respondents indicated that they sometimes use online discussion groups while 32(27.8%) indicated that they used them often. However, six (5.2%) respondents never used online catalogues. E-maps recorded the highest responses of electronic resources never used by respondents with 15(13.0%) indicating that they have never used them, 27(23.5%) rarely used them, 16(13.9) indicated they used them always. However, 35(30.4%) of the respondents indicated that they sometimes used e-maps.

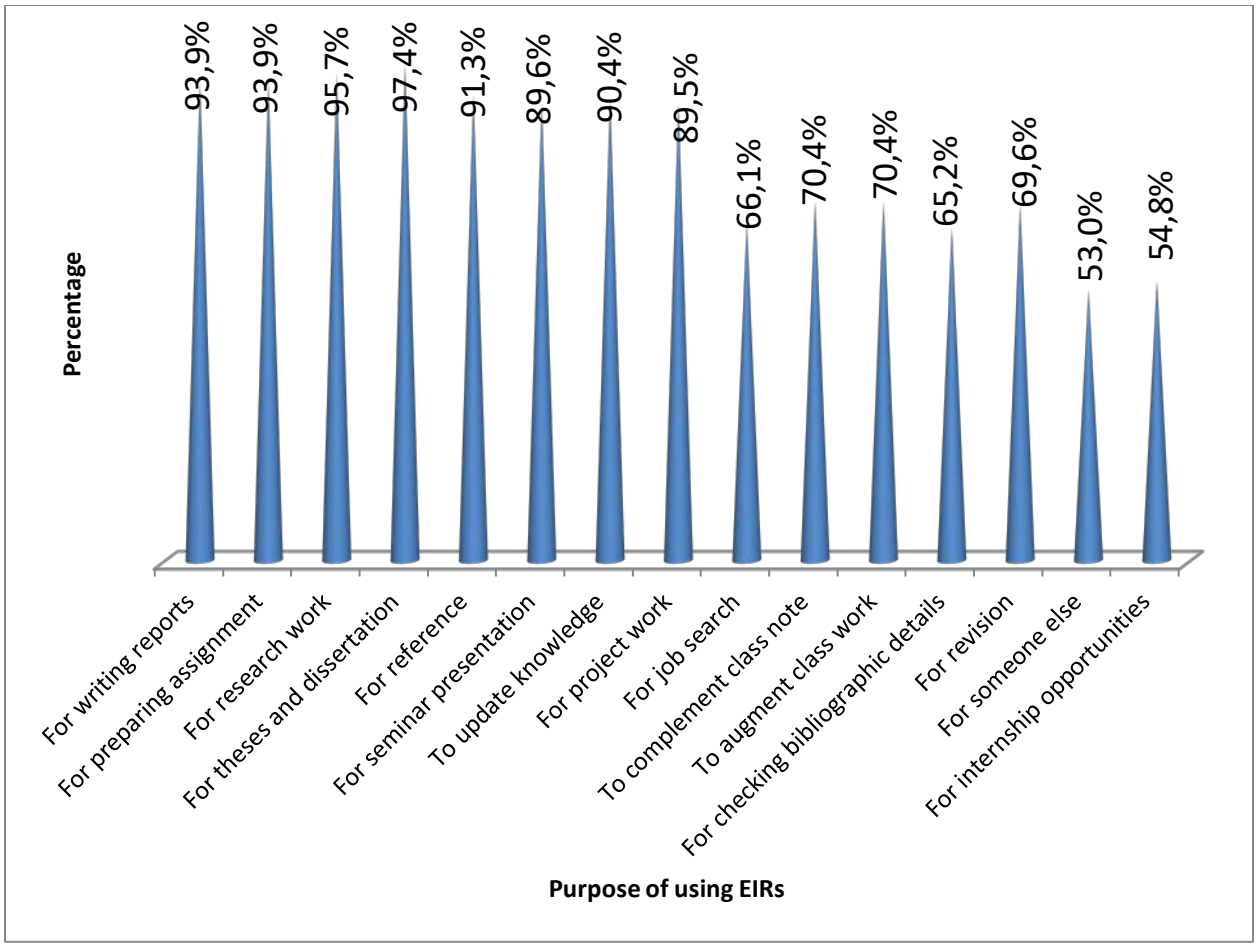

Figure 5.5: Purpose of using EIRs

N=115

Statistics from Figure 5.5 revealed that majority of the respondents 112(97.4%) use EIRs for theses and dissertations preparation, 110(95.7%) of the respondents used EIRs for research work, while 108(93.9%) of the respondents used it for writing reports and preparing for assignments. Moreover, 105(91.3%) of the respondents used EIRs for reference purposes, 104(90.4%) of the respondents used it to update knowledge, while 103(89.6%) of the respondents used EIRs for seminar presentations. Results show a clear indication that postgraduate students use EIRs for multiple purposes, and 81(70.4%) of the respondents also indicated that they use EIRs to complement class notes and augment class work. Similarly, 75(65.2%) of the respondents used EIRs for checking bibliographic details, 23(20%) disagreed, while 15(13.1%) were neutral. Furthermore, 80(69.6%) of the respondents indicated that they used EIRs for revision, 17(14.8%)

disagreed, while 18(15.7%) were neutral. The least response was 61(53%) which is more than half of the study population that revealed they used EIRs to assist someone else.

5.2.3.4: Information literacy related barriers hindering the use of EIRs.

The researcher sought to establish IL related barriers hindering the use of EIRs. The findings are shown in Table 5.9

Table 5.9: IL related barriers hindering the use of EIRs in the institutions

N=115

Barriers	Responses						
	Strongly agree	Agree	Disagree	Strongly disagree	Neutral	Non-response	Total
	%	%	%	%	%	%	%
Information overload	36.5	51.3	7	0	5.2	0	100
Problem with credibility of information	28.7	47.8	11.3	0.9	11.3	0	100
Lack of search skills	24.3	35.7	20	7	11.3	1.7	100
Lack of awareness on availability of EIR/electronic information services in the libraries	26.1	38.3	20.9	4.3	9.6	0.9	100.1
Lack of adequate knowledge of IT	29.6	43.5	12.2	6.1	7.8	0.9	100.1
Failure to find specific information	16.5	47	22.6	3.5	9.6	0.9	100.1
Inaccessibility of some websites	22.6	40.9	17.4	1.7	15.7	1.7	100
Difficulties in navigation of some websites	17.4	52.2	9.6	4.3	14.8	1.7	100
Difficulties in downloading	32.2	46.1	13.9	0	7.8	0	100
Lack of knowledge on search terms	24.3	40	16.5	5.2	13	0.9	99.9
Access to limited information	19.1	37.4	16.5	4.3	20	2.6	99.9

Lack of adequate internet navigating skills	25.2	46.1	13.9	2.6	10.4	1.7	99.9
The interface to the resources are not user friendly	24.3	37.4	21.7	4.3	11.3	0.9	99.9

The results in Table 5.9 show the information literacy related barriers confronting postgraduate students while using EIRs. Details of the findings revealed that 59(51.3%) agreed that information overload is a major barrier in using EIRs, 42(36.5%) strongly agreed, six (5.2%) were neutral, while eight (7%) disagreed. This was followed by difficulties in downloading with 53(46.1%) respondents who agreed that it is a barrier to the use of EIRs, 37(32.2%) strongly agreed, nine (7.8%) were neutral, while 16(13.9%) disagreed. Problems with the credibility of information was also rated very high as a barrier with 55(47.8%) of the respondents who agreed it was a barrier, 33(28.7%) strongly agreed, 13(11.3%) rated neutral and disagreed respectively, while one (0.9%) strongly disagreed.50(43.5%) of the respondents also agreed the lack of adequate knowledge of IT is one of the barriers faced using EIRs, 34(29.6%) of the respondents strongly agreed, 14(12.2%) disagreed,whileseven (6.1%) strongly disagreed. However, one (0.9%) did not respond. Similarly, 53(46.1%) of the respondents agreed on the lack of adequate internet navigating skills as a barrier with 29(25.2%) who strongly agreed, 16(13.9%) of the respondents disagreed, three (2.6%) strongly disagreed, while two (1.7%) did not respond. More than half 60(52.2%) of the respondents agreed on the difficulties in navigation of some websites as a barrier encounteredwhile using EIRS, 20(17.4%) strongly agreed, 11(9.6%) disagreed, five (4.3%) strongly disagreed, while two (1.7%) did not respond. Forty-four (38.3%) of respondents agreed the lack of awareness in the availability of EIR/electronic information services in the libraries as a barrier with 30(26.1%) who strongly agreed, 24(20.9%) disagreed, while five (4.3%) strong disagreed. However, only one (0.9%) did not respond. Lack of knowledge on search terms as a barrier recorded 46(40%) who agreed, 28(24.3%) who strongly agreed, 19(16.5%)disagreed and six (5.2%) strongly disagreed. Only one (0.9%) respondent did not respond to the question. 41(35.7%) of the respondents agreed a lack of search skills hinders the use of EIRs, 28(24.3%) strongly agreed, 23(20%) disagreed, while eight (7%) strongly disagreed. However, two (1.7%) did not respond. Access to limited information as a barrier also got 43(37.4%) agreed responses, 22(19.1%) strongly agreed, 19(16.5%) disagreed, five (4.3%) strongly disagreed and three (2.6%) did not respond.

5.2.3.5: Strategies to enhance information literacy self-efficacy.

This section sought to establish strategies that could enhance information literacy self-efficacy.

The findings are shown in Table 5.10

Table 5.10: Strategies to enhance information literacy self-efficacy in the institutions

N=115

Strategies to enhance ILSE	Responses						
	Strongly agree	Agree	Disagree	Strongly disagree	Neutral	Non-response	Total
	%	%	%	%	%	%	%
Mastery experience (the use of personal past experience to a particular task)	33	51.3	6.1	0.9	7.8	0.9	100
Vicarious experience (observing others performing a similar information task)	30.4	52.2	6.1	0	9.6	1.7	100
Verbal persuasions (positive comments and encouragement)	34.8	44.3	7	1.7	10.4	1.7	99.9
Physiological state (being in a general more relaxed state that is free from anxiety, fear, fatigue etc)	27.8	53	7.8	0	9.6	1.7	99.9
Modeling (exhibiting and describing the act of mastery information skills to a novice)	28.7	51.3	4.3	1.7	11.3	2.6	99.9
Constructive feedback (getting clear, concrete and positive feedback)	24.3	58.3	5.2	0	9.6	2.6	100
Goal setting (setting a proximal goal)	32.2	49.6	1.7	1.7	13.9	0.9	100
Rewards	29.6	48.7	4.3	5.2	8.7	3.5	100
Strategic training on information literacy self-efficacy	34.8	47.8	6.1	1.7	7.8	1.7	99.9
Sharing of experiences relating to information literacy	27	56.5	6.1	0	7.8	2.6	100
By getting adequate orientation to the library and its resources	40.9	47	3.5	0	7	1.7	100.1

Introduction of information literacy self-efficacy related courses	41.7	49.6	3.5	0	3.5	1.7	100

The results in Table 5.10 show the strategies that could enhance information literacy self-efficacy. Details of the findings revealed that all items are capable of enhancing information literacy self-efficacy. 57(49.6%) respondents agreed that one of the strategies is the introduction of information literacy self-efficacy related courses with 48(41.7%) who strongly agreed, while four (3.5%) disagreed.However, two (1.7%) did not respond. Similarly, 54(47%) of the respondents also agreed that getting adequate orientation to the library and its resources would enhance their information literacy self-efficacy, 47(40.9%) strongly agreed, eight (7%) were neutral, while four (3.5%) disagreed. Another two (1.7%) respondents did not indicate their views. Most of the respondents 59(51.3%) agreed that mastery experience (the use of personal past experience to a particular task) is capable of enhancing ILSE, 38(33%) strongly agreed, seven (6.1%) disagreed, while one (0.9%) strongly disagreed. One (0.9%) respondent did not respond to the question. Sharing experiences relating to information literacy was also considered as a strategy that could enhance ILSE with 65(56.5%) of the respondents who agreed, 31(27%) who strongly agreed, nine (7.8%) were neutral and seven (6.1%) disagreed. Three (2.6%) did not respond. Fifty-five (47.8%) of the respondents also agreed that strategic training on information literacy self-efficacy would enhance ILSE, 40(34.8%) strongly agreed, seven (6.1%) disagreed, while only two (1.7%) strongly disagreed. Two (1.7%) of the respondents did not respond. Sixty-seven (58.3%) of the respondents agreed that constructive feedback (getting clear, concrete and positive feedback) would enhance ILSE, 28(24.3%) strongly agreed, 11(5.2%) were neutral, six (5.2%) disagreed, while three (2.6%) did not respond. Moreover, 57(49.6%) of the respondents agreed that goal setting (setting a proximal goal) would enhance ILSE, 37(32.2%) strongly agreed, 16(13.9%) were neutral, while two (1.7%) disagreed and strongly disagreed respectively. However, only one (0.9%) respondent did not respond. Furthermore, 61(53%) of the respondents noted that physiological state (being in a generally more relaxed state that is free from anxiety, fear, fatigue etc.) would enhance ILSE, 32(27.8%) strongly agreed, nine (7.8%) disagreed, while 11(9.6%) were neutral. Another two (1.7%) respondents did not indicate their views. Similarly, 56(48.7%) of the respondents agreed that another strategy to enhance ILSE is through rewards, 34(29.6%) strongly agreed, five (4.3%) disagreed, six (5.2%) strongly disagreed, four (3.5%) did not respond and 10(8.7%) were neutral.

5.3 Analysis of interview results

This section contains an analysis of qualitative data obtained from subject librarians through structured interviews.The interviews were used to supplement the questionnaire and obtain in-depth information regarding postgraduate students' information literacy in using EIRs, the relationship between postgraduate students' information literacy self-efficacy and their use of EIRs, usage patterns of EIRs, information literacy related barriers hindering postgraduate students from using EIRs as well as strategies to enhance information literacy self-efficacy amongst postgraduate students.A subject librarian fromeach of the universities was interviewed face to face.The researcher interviewed the subject librarian of UNIUYO on the 17th February, 2017, UNICAL on the 20th February, 2017 and DELSU on the 27th February, 2017.The results of the interview were collated and interpreted using the thematic content analysis method.The results of the interviews are discussed as follows.

5.3.1 Demographic data

The researcher sought to determine the demographic profile of the subject librarians by asking questions such as gender, age, highest level of education and years of work experience. Two out of the three subject librarians were male while the thirdsubject librarian was a female. Two of the subject librarians were between the ages of 51-60 years, while the third subject librarian was between the ages of 41-50 years. In terms of highest level of education, two of the subject librarians are PhD holders, while the third subject librarianis anM.Sc. holder in Library and Information Science. All three subject librarians have more than 10 years working experience.

5.3.2 Information literacy skills in using electronic information resources

The researcher sought to determine information literacy skills required for postgraduate students to effectively use EIRs. Two (66.7%) of the participants affirmed that postgraduate students require some component of information literacy skills such as computer literacy, digital literacy, critical literacy and other skills to effectively make use of EIRs. However, one (33.3%) of the participants did not specifically mention the information literacy skills neededby postgraduate students to judiciously use EIRs. The complexity of EIRs requires that one possesses information literacy skills, especially computer and searching skills to effectively utilise such important

resources. Computer literacy is one of the information literacy skills vitally essential in the 21st Century, especially in accessing electronic information resources.

5.3.3 Link between information literacy self-efficacy and use of electronic information resources

The researcher sought to ascertain the link between information literacy self-efficacy and the use of EIRs. All three (100%) participantswere affirmative in the link between information literacy self-efficacy and the use of EIRs as each affects the other. For instance, one of the respondents noted that "increased levels of ILSE skills lead to high usage of EIRs". Information literacy self-efficacy skills enable postgraduate students to retrieve valuable information such as digital or electronic information using the computer and its software and applications. "ILSE has been affiliated with higher levels of motivation in students" (Pintoand Sales, 2010) and with academic accomplishment(Bayramand Comek, 2009; Pajares, 2003) through the use of information technologies such as the computer and the internet to access a wide range of electronic resources. Results therefore indicate that there is a link between ILSE and the use of EIRs.

5.3.4 Postgraduate students' usage patterns of electronic information resources

The researcher sought to determine postgraduate students' usage pattern of EIRs. Results from the structured interview show that postgraduate student' usage of EIRs is low. The majority (66.7%) of the participants indicated that postgraduate students' usage of EIRs is low. However, one (33.3%) of the respondents noted that the usage is high. While emphasising the low utilization of electronic EIRs by postgraduate students, one of the respondents noted that:

> Even with the establishment of e-library specifically for postgraduate students, its services and resources were underutilised. The respondent said that most of the databases subscribed to with the assistance of Nigerian Library Association (NLA), Association of Vice Chancellors of Nigerian Universities (AVCNU) to mention but a few were underutilised.

The findings from the interview contradict the findings from the survey questionnaire. This contradiction could be that participants (postgraduate students) overestimated their usage of EIRs.

5.3.4.1 Postgraduate students' purpose of using EIRs

The researcher sought to determine postgraduate students' purpose of using electronic information resources. It could be inferred from the structured interviews, that postgraduate students use EIRs for academic purposes. All three (100%) respondents were of the opinion that postgraduate students mainly use EIRs for academic purposes. Although two (66.7%) of theparticipants noted that there are no statistical records on their purpose of using EIRs, however, the usage is usually high during examination periods. This indicates that they use it mainly for academic purposes. EIRscould improve postgraduatestudents' research as the resources provide current and updated information in an easily accessible format. Hence, EIRs are a substantial part of libraries' collections in this 21st century.

5.3.5 Information literacy related barriers hindering the use of EIRs

The researcher sought to determine information literacy related barriers hindering EIRs usage. Results from the structured interviews indicated that postgraduate students encounter ILSE related barriers while using EIRs. Two (66.7%) of the respondents indicated that postgraduate students are faced with information literacy self-efficacy related barriers while using EIRs. According to two of the subject librarians, these barriers includeddigital divide, lack of information search skills, technophobia, information overload, language barriers, lack of adequate knowledge of IT and difficulties in downloading.

However, one (33.3%) of the participants noted that postgraduate students are faced with general barriers such as epileptic power supply, distance factors (students' residing outside the campus) as well as inadequate ICTs facilities.

5.3.6 Strategies enhancing information literacy self-efficacy

The researcher sought to determine the various strategies that could enhance ILSE amongst postgraduate students. Results from the structured interview indicated that a number of strategies are capable of enhancing information literacy self-efficacy skills of postgraduate students. Two (66.7%) of the participants agreed on a number of strategies that could enhance ILSE, which includeaccess to ICTs at basic education level, the introduction of stand-alone courses on IL, the

awareness on IL, a feedback mechanism, the introduction of IL courses at all levels of education, creating awareness on IL, seminar/workshop on ILSE, strategic training in ILSE skills and training the trainer on ILSEskills.

However, only one (33.3%) of the respondents indicated that user education remains the only strategy in enhancing postgraduate students' ILSE skills.

5.4 Summary of findings

Chapter five presented the analyses of data collected through the use of a questionnaire and interviews. While the questionnaire was used to solicit data from the postgraduate students, the interviews were used to solicit data from the subject librarians. The findings gathered through the questionnaire for the postgraduate students were presented first in this chapter followed by findings gathered from the interviews. The background information presented in the questionnaire included gender, age group, programme of study and institution of study. The major variables analysed included IL skills in the use of EIRs, the relationship between ILSE and the use of EIRs, usage pattern of EIRs, information literacy related barriers hindering the use of EIRs and strategies to enhance ILSE.

Findings from the survey revealed that IL skills are essential in the use of EIRs. The majority of the respondents were affirmative that their use of EIRs is determined by IL skills such as the ability to browse online databases, locate information in multiple sources, the ability to recognise different methods of accessing information resources etc. Similarly, findings revealed that information literacy self-efficacy skills have a great impact on the use of computers, computer software and application, social network sites, internet search tools to mention but a few.

The results also revealed that the postgraduate students frequently used EIRs. They are mainly used for theses and dissertation preparation, assignments, updates of knowledge and seminar presentations. A number of information literacy related barriers hindering the used of EIRs such as information overload, difficulties in downloading and lack of information search skills was identified. Findings revealed that strategies such as the introduction of information literacy self-efficacy related courses, adequate orientation to the library and its resources, mastery experience

(the use of personal past experience to a particular task), sharing of experiences relating to IL and strategic training on information literacy self-efficacy would enhance postgraduate students' information literacy self-efficacy skills.

The findings from the structured interview indicated that IL is required in using EIRs. This is consistent with the findings obtainedin the survey questionnaire. Results from the interview on the relationship between information literacy self-efficacy and the use of EIRs indicated that there exists a link between both variables as students equipped with ILSE skills are likely to use EIRs more than those not equipped with such skills. Findings from the structured interview also revealed that postgraduate students' usage of EIRs is low. This contradicts the findings from the survey questionnaire. However, both findings suggest that postgraduate students mainly use EIRs for academic purposes. Interview results also show that various information literacy related barriers such as technophobia, lack of information search skills, information overload, digital divide and difficulties in downloading hinders the use of EIRs. Also, findings revealed that various strategies such as the introduction of IL courses, creating awareness on the need to be information literate, workshop/seminars, feedback mechanisms, collaboration between lecturers and librarians and strategic training would enhance ILSE skills. The next chapter focuses on the discussion of the findings.

CHAPTER SIX
DISCUSSION OF FINDINGS

6.1 Introduction

This chapter presents the discussion and interpretation of findings obtained from quantitative and qualitative data collected for this study. According to Okon, Edem and Ottong(2010:535), discussion of the results is important as it strengthens the researchers' will to address certain issues tied along with specific answers as aligned with the research objectives drawn from the research study. Similarly, Cotterall (2011) opined that the purpose of a discussion of findings is to collate research findings and demonstrate the researcher's ability to think critically about issues for advancing creative solutions to the research problem.

The main objective of this study is to investigate self-efficacy in information literacy with regards to the use of EIRs by LIS postgraduate students in South-South, Nigeria. The following specific research objectives were addressed to:

- examine postgraduate students' information literacy self-efficacy skills;
- examine IL as a survival skill in the information age;
- investigate the students' use of electronic information resources;
- identify the barriers confronting students in using EIRs
- identify strategies that could enhance postgraduate students' ILSE.

The discussion of findings is organised based on the following research questions:

- What information literacy skills do postgraduate students have to use electronic information resources?
- What is the link between postgraduate students' information literacy self-efficacy and their use of electronic information resources?
- What are students' usage patterns of electronic information resources?
- What are the barriers related to information literacy that hinder postgraduate students from using electronic information resources?
- How can information literacy self-efficacy be enhanced amongst library and information science postgraduate students?

6.2 Demographic characteristics of respondents

The demographic characteristics of respondents in this present study include gender, age group, programme of study and institution of study.

The findings indicatedthat the majority of the respondents were females 68(59.1%), while males stood at 47(40.9%). This indicates that there were more female postgraduate students in the LIS department. The findings corroborate Alqudsi-ghabra and Al-Muomen (2012) that observed there were more females in librarianship than males.This could be as a result that "Librarianship is considered a suitable job for the female and numbers of females are increasing every year that are joining this profession" (Yousaf, Tariq and Soroya, 2013). However, the situation is different in some developing countries like Pakistan where societal, ethnic and cultural factors imposelimitations on the females entering the labour force. The finding revealed that there was gender disparity among postgraduate students in the institutions under study. The age group of the majority of the respondents is within the age category of 31-40 years (See Figure 5.2). This affirmed Omopupa's findings(2016:111), that there was a concentration of academics in the age range of 30-49 years. Although, there is no age limit for postgraduate education, the high level of proficiency and the financial implications for postgraduate studies could be responsible for the majority of the respondents being in this more independent age group of 31-40 years as a result of their active participation in the economy of any nation.

Most of the postgraduate students 67(58.3%) as shown in Figure 5.3 were in masters programme, while 48(41.7%) were in PhD programme. This is an indication that there are more master's students than doctoral students. This corroborates Omarsaib's(2015) study on information literacy skills of postgraduate students in the Faculty of Engineering at the Durban University of Technology. The findings indicatedthat there were more master's studentsthan doctoral students. The current study also indicated that most of the respondents 42(36.5%) were from UNIUYO, while 37(32.2%) of the respondents were from DELSU and 36(31.3%) of the respondents were from UNICAL.

6.3 Information literacy skills in using electronic information resources

Saade and Kira (2009) stated "all educational systems emphasise the importance of information literacy in this 21stCentury". In developed countries, information literacy is part of the educational curriculum of every student for higher education (Spenceand Smith, 2010).This is because, information literacy goes beyond reading and writing; it includes understanding how to work with computers, using computer software and hardware to process information, which includes the use of EIRs. Ukachi (2013:38) noted that information literacy skills are important in using electronic resources because of the proliferation of information presently experienced as a result of a series of developmental activities. The complexity of electronic resources which requires that one possesses information literacy (computer and searching skills) may pose a great challenge to its effective utilisation by students if they lack the skills required for its usage. In other words, successful search and retrieval of electronic information could be dependent on one's level of IL skills.

The findings of the present study revealed that the use of EIRs is determined by competency in information literacy. The results revealed that the majority 63(54.8%) of respondents agreed that their use of EIRs is determined by their ability to locate information in multiple sources, 41(35.7%) strongly agreed with only three who (2.6%) disagreed.The 21stcentury has witnessed too much information in multiple formats. The ability to locate information in multiple sources such as online databases, websites, social media and other sources promotes the use of EIRs. Therefore, becoming information literate is an active process that is required in seeking information from these multiple sources (Ilogho and Nkiko, 2014:9), especially in this era where information is digitised and converted into different formats. Postgraduate students must possess the skills in accessing information in multiple sources in which electronic information is mostly stored. This is because EIRs play aninfluential role by providing access to a wide range of current information required by postgraduate students to further enhance research. Postgraduate students' ability to access these resources gives thepossibility to transmitaccess and disseminates information on any subject and specific subject of interest. Postgraduate students' skills in accessing information in multiple sources enable searching different files at one time with positive results more easily than when using printed equivalents. Similarly, 54(47%) of the respondents agreed that the use of EIRs is determined by their ability to browse online databases, 50(43.5%) strongly agreed, however,

none disagreed. This study corroborates Mwatela (2013) and Adeleke and Emeahara (2016). Both studies found out that students reported browsing online databases as their main method of looking for and using electronic resources in the library. Similarly, Ansari and Zuberi (2010:5) in their study also found "that there is a direct correlation between computer literacy (internet browsing skills) and use of electronic resources". Postgraduate students' ability to browse online databases gives them access to and use of EIRs. In addition, the ability to browse online databases is key in accessing EIRs as it contains a collection of digital information stored in a computer having retrospective search using computer software. Postgraduate students depend on online databases as an excellent tool for electronic information retrieval, referencing and sharing of data since online databases are widely available and can be accessed from anywhere and by many users at the same time. Hence, they have become important and useful information sources for postgraduate studies. It is interesting that none of the respondents disagreed that their use of EIRs is determined by their ability to browse online databases. This is an indication that postgraduate students use of EIRs is greatly determined by their ability to browse online databases as indicated in this current study.

Also, 53(46.1%) of the respondents agreed that they use EIRs due to their ability to recognise different methods of accessing information resources, 47(40.9%) strongly agreed, while only four (3.5%) of the respondents disagreed. This finding is important as the digital revolution has brought different methods of accessing information resources. Postgraduate students must be able to recognise different methods of accessing EIRs such as online databases, the World Wide Web, digital libraries, archives and others. EIRs are easily accessible online either in subscription based publishers' digital libraries or posted in publicly accessible web sites (Nazir, Ahmad and Khazer, 2015). EIRs have got the beauty of being searchable from more than one approach, and are accessible to users both locally and from remote locations. This is as a result of continued innovation in the information world which has led to a shift in paradigm in information seeking behavior. Therefore, postgraduate students must be able to recognise the different methods of accessing the increasing array of electronic information resources. The ability to recognise different methods of accessing information resources (e-information) is an important component of accessing EIRs for research activities by postgraduate students. Therefore, the above findings indicated that tool literacy which has to do with ability to locate information in multiple sources,

browse online databases to locate pertinent information as well as recognise different methods of accessing information resources, is rated very highly in using EIRs.

Findings further indicated that students' use of EIRs is determined by their ability to evaluate information critically (critical literacy). The majority 62(54%) of the respondents agreedthat they use EIRs because they can compare and critically evaluate if the information collected is credible and relevant, 37(32.2%) of the respondents strongly agreed, 13(11.3%) were neutral, while only two (1.7%) disagreed. Similarly, the majority 67(58.3%) of respondents also agreed that they could critically judgeif the information on the website is authentic and accurate, 30(26.1%) strongly agreed, eight (7%) of the respondents were neutral and disagreed respectively. Similarly, 62(53.9%) of the respondents agreed that they use EIRs as a result of their competency to compare and critically evaluate if the information is timely and appropriate, 34(29.6%) strongly agreed, eight (7%) were neutral and disagreed respectively, while only one (0.9%) strongly disagreed.This is an indication that critical literacy that enables students to evaluate information sources and resources is important, especially in this era of proliferation of EIRs. To encourage an increase in students' use of EIRs, students must possess critical literacy as indicated in this study. Saunders (2012:230) reiterated this point by stating that most students understand that they must evaluate information they access on the web.This supports the assertion by Mwatela(2013:52-53) that information literate students can identify the need for information, ascertain the extent of information needed for a task at hand, access information andcritically evaluate information sources. The ability to critically evaluate information relates to the ACRL third standard (See Chapter One, section 1.2). The third standard propounds that "the information literate student evaluates information sources critically and incorporates selected information into a knowledge base and value system". Findings indicated that the postgraduate students can evaluate information sources. A similar kind of trend is noticeable by Catalano (2010) in her study titled "Using ACRL standards to assess the information literacy of graduate students in an education programme". Her study indicated that the majority of respondents were comfortable or very comfortable with evaluating information. Critical evaluation is indispensable in this technologically driven society characterised by the abundance of EIRs easily accessible via the internet. Critical literacy is crucial in anenvironment as the internet where an abundance of information which is also sometimes unreliable and incorrect information, is easily accessible. Students who therefore can critically

evaluate the information and find the correct information they are looking for will benefit strongly from this capability(Vanwynsberghe, Boudry and Verdegem, 2011:17-18) and make use of EIRs more than those who cannot critically evaluate information sources.Therefore, educational institutions, especially universities must promote and enhance students ability to use information appropriately for individual development and lifelong learning.

Findings indicated that social-structural and publishing literacy are also important for postgraduate students in using EIRs.Social-structural and publishing literacy in this information age, is a form of literacy in which researching and communicating information in a digital environment are essential as writing and readingin past decades. The majority 59(51.3%) of the respondents agreed that they understand how information is socially situated with 25(21.7%) who strongly agreed, while 13(11.3%) disagreed and two (1.7%) strongly disagreed. Similarly, 54(47%) of the respondents agreed that they understand how information is socially produced and 29(25.2%) strongly agreed. However, 16(13.9%) disagreed, two (1.7%) strongly disagreed, while 12(10.4%) were neutral. Whilst the internet is essentially used to access information, how information is socially situated and produced has not be fully investigated. The findings revealed that social-structural literacy affects students' interactive nature and use of EIRs. Hence, postgraduate students' use of EIRs is determined by their understanding of how information is socially situated and produced respectively. The ability to understand how information is socially situated and produced relates to the ACRL fifth standard (See Chapter One, section 1.2). The fifth standard propounds that information literate students understands many of the economic, legal, and social issues surrounding the use of information, and accesses and uses information ethically and legally. Moreover, the majority 53(46.1%) of the respondents agreed that they could format and publish ideas electronically in textual form with 22(19.1%) who strongly agreed, while 12(10.4%) disagreed and one (0.9%) strongly disagreed.Similarly, 40(34.8%) and 25(21.7%) of the respondents agreed and strongly agreed respectively that they could format and publish ideas electronically in multimedia form. The ability to create content in blogs, YouTube, and personal webpages recorded affirmative responses with 39(33.9%) who agreed with this ability and 21(18.3%) strongly agreed respectively. This is consistent with the findings in a study by Oyewo and Uwem (2016) on information literacy, research, scholarship and publicationas a comparative of PhD students in Nigerian and South African universities. The study revealed that the participants

were competent in publishing literacy. The study further revealed that participants are mandated to publish a minimum of two papers in journals with a supervisor priorto graduation, and publishing is not very challenging as supervisors and senior colleagues are encouraged to guide students in publishing their research outcomes.Postgraduate students are usually involved in research that contributes to knowledgeand are expected to publish their research findings. For example, UKZN requires postgraduate students to provide proof of an article derived from their thesis, either already published or submitted for publication before graduation. Consequently, postgraduate students are to possessinformation literacy skills which are essentially vital in accessing information for research and publishing the outcome of the research. Derntl (2014:105) noted that "writing up and publishing research results are requisite for progressing scientific view and reaching a wide audience". In publishing research outcomes, students need to acquire information literacy (publishing literacy) skills. Publishing literacy introduces postgraduate students to the electronic public sphere and the electronic community of scholars. The current study indicated that postgraduate students use of EIRs is also determined by their social-structural and publishing literacy skills.

The above findings also corroborated Leung and Lee (2011), who undertook a study on the influences of information literacy, internet addiction and parenting styles on internet risks. The study employed a five-factor information literacy structure, namely tool literacy, critical literacy, publishing literacy, emerging technology literacy, and social-structural literacy. The respondents' understanding of how information is socially situated and produced (social-structural literacy), format and publish ideas electronically in textual form (publishing literacy) and the ability to decide when to adopt continually emerging innovations in information technology (emerging technology literacy) were all rated very highly. These aspects of information literacy are becoming important related to literacy in the 21stcentury. Students in the higher levels of education deserve a broad range of information literacy skills to be thoroughly grounded in the use of information. This is because the current information based society challenges students with over-abundant information of often dubious quality. Therefore, there is an increasingly pressing need for postgraduate students to possessrobust IL (critical literacy skills) not only to recognise when information is needed and can locate the information, but also to evaluate and effectively use the required information. "Exploratory factor analysis successfully confirmed that information literacy

is a multi-dimensional construct" (Leung and Lee, 2011).Suchfindings underpin past research thatinformation literacy goes beyondbeing competent in computer usage but also include having holistic knowledge of all the constructs of IL.Vasudevan (2012:51)noted that information literacy consists of but is not limited to resource literacy or the ability to understand the form, format, location and access methods of information resources.It also include social-structural literacy, or knowing how information is socially situated and produced; publishing literacy or the ability to format and publish research andideas electronically, in textual and multimedia forms (including via the World Wide Web, electronic mail, distribution lists, and CD-ROMs).Other components of information literacy include emerging technology literacy, or the ability to adapt to, understand,evaluate and make use of the continually emerging innovations ininformation technology; critical literacy or the ability to evaluate critically the intellectual,human and social strengths and weaknesses, potentials and limits,benefits and costs of information technologies.

Findings also indicated that the use of EIRs is determined by emerging technology literacy.Fifty-two (45.2%) of the respondents agreed that their use of EIRs is determined by their ability to decide toadopt continually emerging innovations in information technology with 22(19.1%) who strongly agreed, 20(17.4%) were neutral, 16(13.9%) disagreed and two (1.7%) strongly disagreed. Similarly, 46(40%) and 26(22.6%) of the respondents agreed and strongly agreed respectively that they know when to adopt the latest product development in new information technologies. This is consistent with Partridge, Lee, and Munro (2010)whose study identified emerging technology literacy as a fundamental competency needed by librarians. Libraries now leverage on emerging technologies such as the Web 2.0 to provide newresources and services. Therefore, librarians and students (users) must be competent to benefit from these emerging technologies employed by libraries. The importance of emerging technology literacy in using EIRs cannot be over emphasised as technology continues to rapidly evolve, changing the way people communicate and access information. The emergences of advanced technologies have created new avenues for information like online databases, subject portals, wikis, weblogs, social networking sitesand others. These have opened up new forms of literacy, therefore students,especially postgraduate students, need to continually improve on their information literacy skills.With the speedy improvementof information and communication technologies (ICTs), EIRs and services are continually changing as emerging technology is being introduced into information services.

Emerging technology as a social revolution suggests a new version of the World Wide Web which enable and encouragse participation through web-based tools and services that permits easy publication, sharing of ideas and re-use of study content and commentaries and links to relevant information resources. These values associated with emerging technologies could only be exploited by postgraduate students who possess information literacyskills (emerging technology literacy) as indicated in this current study. This finding is very important as libraries explore novel ways of embracing emerging technologies such as Web 2.0 to attract, retain and satisfy users' modern needs for information. Postgraduate students' emerging technology literacy skills become very important in order to use the emerging technologies introduced by libraries to further enhance the provision of access to digital information.

The above results show that ability to locate information in multiple sources, browse online databases, recognise different methods of accessing information resources, compare and evaluate information critically as well as understanding how information is socially situated and producedwere all rated very high as information literacy skills that is required in the use of EIRs. This is an indication that information literacy skills are basic requirements in using EIRs and a reflection of the performance indicators of an information literate student according to ACRL (2000)standard guiding this current study (see Chapter One, section 1.2). This is also closely related to the University of Idaho Information Literacy Portal (2011)who definedinformation literacy as "the ability to identify what information is needed and its appropriate source, evaluate the sources critically,understand how the information is organised, and ability to disseminate information". Mwatela (2013:40) noted that optimal utilisation of e-resources is enhanced by users' knowledge of information resources, familiarity with information identification and retrieval tools, skills in online information search strategies and user efficacy. Toyo(2017)also emphasised that students require IL skills to use electronic information resources. Therefore, the correlation between information literacy skills and the use of EIRs is inevitable. The possible cause for the underutilisation of e-resources by postgraduate students in university libraries, according to Singh *et al*. (2011), includes a lack of linguistic proficiency and IL skills. A study conducted by Muhia (2015) on theeffectiveness of information literacy programmes in promoting the utilisation of electronic information resources by postgraduate students inKenyatta University post- modern libraryinferred that most of the students did not acquire IL skills that would have facilitated them

to utilise electronic information resources; hence, their utilisation of EIRs was low.Therefore, information literacy skills influence the use of EIRs. This is also evident in a study conducted by Azubuike (2016)titled"Information literacy skills and awareness of electronic information resources as influencing factors of their use by postgraduate students in two universities in South-West Nigeria". The study observed that high levels of IL skills are as important as the awareness of the use of electronic information resources. Many studies have illustrated the consequences of IL skills in using EIRs (Spinkand Cole, 2006;Safahieh, 2007;Okello-Oburaand Magara, 2008;Oakleaf and Owen, 2010; Esfahani and Chang, 2012;Desta, 2016). These scholarsestablished that lack of the necessary IT skills and IL skills have an adverse effect on students' information-seeking behaviour, especially in accessing online information.

Results from the interviews also indicated that various aspects of information literacy are required in using EIRs. Two (66.7%) of the respondents specifically noted that information literacy, especially those related to computer literacy, are required to use EIRs. This is because as EIRs are becoming increasingly sophisticated, the need for information literacy skills becomes valuable for postgraduate students to judiciously use these resources. Therefore, it is paramount that postgraduate students develop skills in the various dimensional constructs of IL as indicated in this current study.Librarians and faculty members therefore, must collaborate more than before to instill information literacy skills among students at all levels to ensureefficient use of e-resources.This view was supported by Amalahu, Oluwasina and Laoye's (2009) study of users' e-learning information needs at Tai Solarin University of Education in Nigeria.The study found the need to expand the presence of IL in their curriculum, to encourage academic use of electronic resources available, since many users preferred electronic resources over print resources.

6.4 Link between information literacy self-efficacy and use of EIRs

The rapid development of technology has not only seen the advent of learning in an online environment, but it has also changed those online learners' preferences for how they access information resources (Tang and Tseng, 2013). The use of electronic information resources (EIRs) is necessary for students, mainly because they provide better, faster and easier access to information than information accessed through print media. Therefore, students must possess information literacy self-efficacy skills which involve an individual's confidence regarding their

competence for obtaining, using, and evaluating information.Kurbanoglu and Akkoyunlu (2007) revealed that there is a relationship between information literacy self-efficacy and the use of EIRs. However, there is the need for research which supports this view as few studies have been conducted to research the impact of information literacy self-efficacy on the use of EIRs.In line with the above view, the present study sought to understand the impact of information literacy self-efficacy in the use of EIRs.

The findings of the present study show that information literacy self-efficacy skills have effect on the usage of ICT components, especially those related to the use of EIRs. The results revealed that 91(79.1%) and 24(20.9%) of the respondents strongly agreed and agreed respectively that information literacy self-efficacy have effect on their use of computer. Similarly, 66(57.4%) strongly agreed that information literacy self-efficacy has effect on their use of computer software and applications with 45(39.1%) who agreed, while three (2.6%) were neutral. These findings indicate that ILSE is an important player in today's computerised information based society as it is a meaningful factor that can promote the use of EIRs via the computer and its software and applications through the competence (information literacy) and confidence (self-efficacy) of the users (postgraduate students). The use of EIRs depends heavily on the students' personal conviction of his or her information literacy self-efficacy skills as indicated in this current study.This corroborates a study by Tang and Tseng (2013) on distance learners' self-efficacy and information literacy skills. The study revealed that distance learners with higher self-efficacy for information seeking and proficiency in information manipulation exhibited a lot more confidencefor online learning and the use of digital resources. Information literacy self-efficacy skills enable postgraduate students to retrieve valuable information such as digital or electronic information using the computer, its software and applications. Information literacy self-efficacy has been associated with higher levels of motivation in students (Pintoand Sales, 2010) and also with academic success (Bayram, and Comek, 2009; Pajares, 2003) through the use of information technologies such as the computer and the internet to access a wide range of electronic resources.

Moreover, the majority 59(51.3%) of the respondents strongly agreed that information literacy self-efficacy has effect on their use of social network sites with 50(43.5%) who agreed; however, only one (0.9%) disagreed, while two (1.7%) strongly disagreed.This finding corroborates a study

by Baran and Ata (2014) on university students' informationliteracy self-efficacy perceptions by using the decisiontree method. The study revealed that students'information literacy self-efficacy skills have effect on the use of social network sitessuch as Facebook, Twitter, Instagram, Linkedin and others. The finding is also consistent with Azubuike (2016), who conducted a study on information literacy skills and awareness of electronic information resources as influencing factors of their use by postgraduate students in two universities in south-west Nigeria. The study revealed that social networking such as discussion groups, news and current affairs motivated students to use EIRs. Students can work together on projects using discussion groups to share their thoughts, ideas, and give progress reports to one another. Discussion groups can also be used to address student questions that can benefit the generality of other students in the discussion group. Discussion groups can be used to construct and share knowledge, promote cognitive learning as well as reflect and think critically if the participants are information literate.Social network sites are vital sources of information for students generally, as it is a place where students could engage other students in an intellectual discourse. The library is not left out as it could also create social network sites to establish relationships with its users as well as provide institutional and current information viasocial network sites. For instance, some university libraries such as the Federal University of Technology (FUTO) library, University of Benin (UNIBEN) library and the University of Calabar (UNICAL) library are using Facebook in the library websites for marketing their services and to keep users updated automatically with new information. Therefore, libraries are using social network sites to promote new library digital resources and services that require users to possess information literacy self-efficacy skills to effectively use such social network sites. This finding is important as most library users deliberately restrained themselves from using social network sites due to technophobia; hence, the majority of respondents were affirmative that information literacy self-efficacy has impacted on their use of social network sites. Similarly, 65(56.5%) of the respondents strongly agreed that it has effect on their use of internet search tools, 44(38.3%) of the respondents agreed, two (1.7%) disagreed, while one (0.9%) strongly disagreed. Today, the importance of information literacy self-efficacy cannot be over emphasised as electronic resources increase day by day via the internet. Eastin and LaRose (2000) designated that internet self-efficacy directly predicted internet usage. In other words, information literacy (internet literacy) and self-efficacy are essential in using EIRs.This would help users cope with information from a variety of electronic formats and providestechniques and methods toaccess

digital resources. A study by Owolabi, Idowu, Okocha and Ogundare(2016) on utilisation of electronic information resources by undergraduate students of the University of Ibadan revealed that studentscomputer competencies did not necessarilycorrelate with their usage and familiarity of theelectronic resources either.For students to be able to use internet search tools effectively to access electronic information resources, they must have developed the prerequisite information literacy skills and self-efficacy skills.

Other areas of ICT components that information literacy self-efficacy has effect on include the use of a variety of information at any time with 54(47%) of the respondents who strongly agreed and agreed respectively with this statement. Information from any source recorded 60(52.2%) who strongly agreed and 47(40.9%) agreed respectively. Similarly, 56(48.7%) of the respondents agreed that information literacy self-efficacy has effect on their use of a variety of information systems and formats respectively. Furthermore, 50(43.5%) and 44(38.3%) of the respondents strongly agreed that information literacy self-efficacy has effect on their use of a variety of information systems and formats respectively.This corroborates a study by Ramamurthy, Siridevi and Ramu (2015) on information literacy search skills of students in five selected engineering colleges in Chittoor district of the Indian State of Andhra Pradesh. The study revealed thatthe information literacy function of libraries imbues in users the ability to use a variety of information systems and formats. Postgraduate students' information literacy self-efficacy is the major contributory factor that would enable students to use a variety of information from any source and at anytime. Kimani (2014) noted that information sources are no longer confined to print sources only. Academic libraries have embraced technology and are stocking information both in print and electronic format. With the advancement of information technology, information sources are available in different formats, such as DVD, CD-ROM, online databases, e-books, e-journals, and others. Students are no longer relying on the traditional sources of information. More often than not, they are consulting online resources for academic purposes. Hence, the competence and confidence to use a variety of information formats is important to the overall academic achievement.

Similarly, 57(49.6%) of the respondents agreed that information literacy self-efficacy skills have effect on their use of online catalogues with 41(35.7%) who strongly agreed, eight (7%) who

disagreed, while one (0.9%) strongly disagreed. The use of online catalogues like other EIRs requires competence and confidence on the part of the user. Information literacy self-efficacy skills have alot of effect on students' use of online catalogues as they would not only see themselves as competent but would also be confident in using online catalogues.Mulla and Chandrashekara (2009) in a study on the effective use of online public access catalogues at the libraries of engineering colleges in Karnataka State in the South Western region of Indiafound that information literacy skills enhance students' use of online catalogues. Furthermore, in a studyby Yusuf and Iwu (2010), they attributed the frequent use of online catalogues (OPAC) to the compulsory orientation programmes (information literacy) organised by the library for the first year students of Covenant University, Ota, Nigeria. The importance of information literacy in using online catalogues was re-emphasised in a study by Thanuskodi (2012) where participants were asked to give reasons for never using online catalogues (OPAC). The study revealed that alack ofinformation literacy skills ranked highest among other factors. Moreover, 54(47%) of the respondents strongly agreed on the effect information literacy self-efficacy has on their use of the World Wide Web popularly known as WWW with 53(46.1%) who agreed, five (4.3%) were neutral, while one (0.9%) disagreed and strongly disagreed respectively.This corroborated a study by Obasuyi (2015) on information and communication technology literacy skills and class instruction. The study revealed that information literacy (ICT literacy) and self-efficacy enable students to use computers, software, andthe WWW. In this regard, postgraduate students are not just confident in using the World Wide Web but also evaluate these online resources that are seemingly unlimited via search engines such as the World Wide Web. Catalano (2013) noted that students are often unable to appropriately evaluate the quality of a website, particularly if it is professionally designed and attractive in appearance. Information literacy self-efficacy empowers students to develop the skills and confidence that enable them to assess search results for quality and relevance, evaluating the reliability, validity, authority and timeliness of retrieved information. Information seekers, more than ever before, need certain level of information literacy self-efficacy skills to evaluate and compare information resources such as reference materials, texts, databases, and web sites.

Morever,53(46.1%) of the respondents agreed that information literacy self-efficacy has effect on their navigation of online information, 51(44.3%) strongly agreed, while nine (7.8%) were

neutral.In order to navigate the large amount of information available in electronic format, students require information literacy (technology skills) and the confidence (self-efficacy) to use the technologies associated with EIRs. According to Gui (2007), informational skills include those needed to select, evaluate and and re-use information. Research has examined the effect of self-efficacy on the use of information technology. For example, Park and Chen (2007) argued that self-efficacy influenced peoples' perceptions about how easy new technology was to use and their intention to use it. Kuhlthau's (2004) ISP model focuses on the development of the self-efficacy process from the initiation stage where the information seeker lacks the confidence to the last stage (presentation) where a sense of satisfaction comes in due to increased levels of confidence. This is because the affective component isassociatedwithself-efficacy of an individual in achieving a given task. Therefore, ILSE skillsenable students to handle the changing contents of computers,a variety of information sources and knowing where and how to look for the resources.

Results indicated that information literacy self-efficacy skills have an effect on postgraduate students' use of EIRs. These findings therefore, revealed that there is a strong relationship between information literacy self-efficacy skills and the use of ICT components, especially those highly related to the use of EIRs. The reason for the strong relationship could be as a result of the fact that information literacy (competence) and self-efficacy (confidence) are required to effectively use information in multiple formats, from a wide range of sources when it is presented on computers. This is directly related to the constructs of the ISP theory, especially thecollection stagewhere the interaction between the user (postgraduate students) and the information system (EIRs) functions most effectively and efficiently as the postgraduate students are able to make adequate use of EIRs based on the competence (information literacy) and confidence (self-efficacy)exhibited. The findings from the interviews conducted complement the findings from the survey questionnaire. Results from the interview show that there is a linkbetween information literacy self-efficacy and the use of electronic information resources. All three (100%) participants affirmed that there exists a link between information literacy self-efficacy and the use of EIRs as each affects the other. For instance, one of the participants noted that "a high level of information literacy self-efficacy skills led to high usage of EIRs".

6.5 Usage patterns of EIRs

Electronic information resources have contributed tremendously to the development of higher education. Inthe higher education environment such as the university, postgraduate students usually have access to a wide range of electronic information resources to support their research and study. These electronic information resources include full-text e-journals, e-books, online databases, e-theses and dissertations, e-references, e-newspapers and other resources. The three universities under study provided access to a wide range of electronic information resources. The study sought to determine the usage patterns of EIRs by postgraduate students in the three institutions under study through the frequency and purpose of using EIRs.

Frequency of e-resources usage is an important measurement to establish which e-resources are frequently used. The questionnaire provided a list of e-resources from which respondents had to indicate how frequently they make use of these e-resources. The results show that postgraduate students' frequency of using EIRs is very high. The results from each of the items indicated that the majority of the respondents either use EIRs always or often. This corroborates Azubuike's(2016) findings that information literacy skills and awareness ofelectronic information resources as influencingfactors of their use by postgraduate students in two universities in south-west Nigeria. The study revealed that the majority of postgraduate students utilised EIRs very often. The high frequency of postgraduate students' use of EIRs could be as a result of students' preference for electronic resources to traditional print information (Tao, 2009).

The findings of the present study on individual items depicts that 49(42.6%) of the respondents indicated that they always make use of e-journals, while 42(36.5%) indicated they use e-journals often. None indicated that they never used e-journals, however, 18(15.7%) indicated they use them sometimes, while six (5.2%) rarely use e-journals. The findings indicated that e-journalsare the most frequently used EIRs; it is interesting that none of the respondents indicated that they have never used e-journals. This indicates how valuable e-journals are to postgraduate students. Hence, e-journals are widely and frequently used by postgraduate students. This corroborates Ani (2013), who studiedthe accessibility and utilisation of electronic information resources for research and its effect on the productivity of academic staff in selected Nigerian universities between 2005 and 2012revealed that e-journals were used more frequently. According to the result of the study, e-

journals are significantly useful to academic staff and researchers across disciplines. Similarly, Kumar *et al.* (2015) to a large extent highlighted that both faculty and students use e-journals compared to other e-resources. The frequent usage of e-journals as indicated in this present study is expected as e-journals have provided postgraduate students with excellent opportunities to access scholarly information without geographical constraints. E-journals facilitate new forms of scholarly practice through new relationships to information and knowledge as well as provide access to more articles and content than traditional methods within a single session. E-journals are convenient, time saving, flexible with simple and advanced searching and browsing facilities. The findings indicate increased levels of adoption and the use of e-journals among postgraduate students due to their increasingly important role in research. Hence, there is an increasing demand for subscriptions of more e-journal titles making libraries throughout the world witness a transition phase from print to e-journals.Researchers have argued that the use of electronic resources may vary among patrons from different disciplines. For example, a study bythe Research Information Network (2009)showed differences in information-seeking and usage of e-journals among researchers (graduate students included) across subject disciplines. The frequency of e-journal usage was also reported and varied between doctoral students and master's students. However, Gerke and Maness (2010) reported no correlation in perceptions among patrons from different disciplines towards electronic collections of a university library.LIS postgraduate students obtain more value from e-journals as they contain and support a wide range of information practices in line with the LIS curriculum.

The second most frequently used e-resource is the e-book. E-books were used always and often as it recorded 47(40.9%) and 32(27.8%) respectively in this study.The high frequency use of e-books is consistent with most studies (Sonkar, Singh and Kumar, 2014; Abubakar and Adetimirin, 2015; Manjula and Padmamma, 2016). Sonkar *et al.*(2014) and Manjula and Padmamma (2016) found that e-books and e-journals were the most frequently used digital resources among postgraduate students and faculty members respectively. However, in contradiction, Wilson, D'Ambra and Drunnond(2014)who explored the extent to which e-books meet the needs of academics of the University of New South Wales in the performance of their academic tasks, found that e-book usage by academics was relatively low; however, most of them predicted that they would be using e-books within the next five years. This prediction is evident in this current study as e-books is the

second most frequently used EIRs. Access to computers and awareness could be responsible for the high usage of e-books by the postgraduate students as indicated in this current study. E-books have become one of the most popular and important tools for postgraduate students' due to its easy accessibility as well as its price being relatively lower than a print copy. Hence, in recent years, there has been a consistent increase in the use of e-books among postgraduate students as also indicated in this study.

The third most frequently used e-resource was the e-newspaper. Forty-one(35.7%) of the respondents indicated that they always use e-newspapers. This finding also indicates that postgraduate students are gradually adopting e-newspapersas a source of electronic information for postgraduate studies. This is because e-newspapersplay an important role in disseminating current information and events as well as keeping its readers up-to-date. Access to e-newspapers could be easy and less expensive compared to print newspapers. It could also create a forum where its readers form different opinions concerning the same topics compared to print readers. Moreover, 40(34.8%) of the respondents indicated that they always use e-reference sources, while 25(21.7%) of respondents agreed that they often use it. The high frequency use of e-journals, e-books, e-newspapers and e-reference sources are in line with Abubakar and Adetimirin (2015)a study on the influence of computer literacy on postgraduates' use of e-resources in Nigerian University Libraries. The study revealed that the most frequently used e-resources by postgraduate students included e-journals, e-books, e-newspapers, e-mails, e-reference sources and e-magazines. These e-resources frequently used are expected because postgraduate students worldwide embarked on using them for their scholarly works (Alison and Ruth, 2012).

Results indicated that e-theses are used often with 42(36.5%) affirmative responses, while 28(24.3%) affirmed that they use it always. However, 12(10.4%) of the respondents indicated that they rarely use e-theses and six (5.2%) never used them at all. In contrast, Thanuskodi and Ravi (2011) in a study revealed that the majority of respondents have not used online theses and dissertations. Although, the majority of the respondents in the present study used e-theses often,the statistics show that a lot could still be done to increase its usage especially among postgraduate students and research scholars. The reason for these poor statistics is that most Nigerian universities have failed to create a platform where theses could be submitted online and they are

rather more comfortable with the submission of print copies only. This has an adverse effect on the visibility and usage of e-theses among students.According to Ezema and Ugwu (2013) African research outputs lack wider visibility and readership globally and this is due to limited access to theses and dissertations generated by African universities. To ensure wider visibility and readership globally, there is the urgent need to have theses and dissertationsstored in an electronic format.On e-data archives, 42(36.5%) of respondents indicated that they use it often, while 33(28.7%) said they use it sometimes, 18(15.7%) used it always. However, five (4.3%) never used it. It is interesting to note that e-data archives are used often as indicated in this study (See Table 5.8). This finding shows that LIS postgraduate students know the importance of e-data archives and as such, make use of it. Although, e-data archives are regarded as passive electronic resources, its importance as a source of information in research, especially research that focuses on historical and cultural perspectives cannot be over emphasised. E-data archives act as custodians of human heritage and are exploited for being bearers of knowledge among researchers and scholars. However, the finding contradicts the findings of most previous studies. For instance, Priyadharshini *et al.*(2015) and Adetimirin (2015) in their studies found that e-data archives were the least used e-resources by postgraduate students in terms of frequency of use. A personal visit to the Alan Paton Centre and Struggle archives shows that very few postgraduate students make use of e-data archives. The reasons for the low usage of the e-data archives could be due to their records being digitised very recently and are more useful topostgraduate students embarking on historical research.On the use e-research reports, a lot of the respondents 37(32.2%) affirmed that they use them often. This finding is consistent with Abubakar and Adetimirin (2015), who conducted a study on postgraduate students' use of e-resources in Nigerian university libraries. The study revealed that the majority of the postgraduate students indicated that they use e-research reports once a week. The study further indicated that e-research reports were among the five e-resources that were frequently used with the other three being e-journals, e-newspapers, e-books and e-magazines.

Results further indicated that some of the electronic information resources are not frequently used by respondents. Results show someof the respondents 37(32.2%) use e-manuscripts sometimes, while 33(28.7%) use it often. However, only six (5.2%) of the respondents have never used it. 35(30.4%) of the respondents also indicated that they sometimes use online discussion groups,

while 32(27.8%) indicated that they used them often. However, few of the respondents (5.2%) didn't use them at all. Similarly, 38(33%) of the respondents also affirmed that they sometimes used e-bibliographic databases. E-maps recorded the highest responses on electronic resources never used by respondents with 15(13%) indicating that they have never used them. However, only 16(13.9%) indicated they used it always, while 35(30.4%) indicated that they sometimes used it. Similarly, 13(11.3%) of the respondents indicated that they never used e-tutorials, while 16(13.9%) indicated that they used it always. However, 43(37.4%) of the respondents indicated that they sometimes use e-tutorials, while 13(11.3%) never used them. There could be many factors responsible for these EIRs not frequently used by the respondents. However, inline with these findings, is a study byAbubakar and Adetimirin (2015) on the influence of computer literacy on postgraduates' use of e-resources in Nigerian university libraries.The study revealed that e-data archives, e-tutorials, e-manuscripts and e-maps were not among the top six (6) e-resources frequently used by postgraduate students. In contrast, Kumar *et al.*(2014) in a study on EIRs use pattern by faculty and students of Bangalore institute of dental sciences, revealed that e-tutorials were frequently use by the students. In fact, e-tutorials was the second frequently used e-resource with the first being e-journals.

Similarly, some of the respondents 37(32.2%) indicated that they sometimes use CD-ROMs, 19(16.5%) rarely use them, while four (3.5%) have never used CD-ROMs. However, 29(25.2%) said they used it always, while 26(22.6%) used it often. The finding contradicts a study by Peiris and Peiris (2012) on use of electronic information resources by postgraduate students. The study revealed that CD-ROM databases, CD-ROM multimedia (video/audio), E-mail resources, and web pages were used daily while other resources such as in-house library databases and on-line databases were used weekly. Furthermore, 37(32.2%) of the respondents affirmed that they use online databases sometimes, nine (7.8%) rarely used them, while three (2.6%) never used them. However, 33(28.7%) of the respondents agreed that they often use it. This finding is supported by Bavakutty, Abdul and Mohammed(2013) and Karunarathna (2014). Both studies revealed that online databases were moderately used. A similar study in Nigeria by Edem and Egbe (2016) on the availability and utilisation of electronic resources by postgraduate students in a Nigerian university library also revealed that online databases were the least frequently used e-resources among the postgraduate students. However, some other studies contradicted these findings. For

example, Naqvi (2012) and Alhassan (2015) in their studies revealed that postgraduate students and research scholars were frequently using e-databases to download articles for their research work. On the use of online catalogues, 35(30.4%) of the respondents indicated that they sometimes use them, 29(25.2%) used them often, 26(22.6%) used them always, 14(12.2%) rarely used them, while 11(9.6%) of the respondents never used online catalogues. This confirmed Fabunmi and Asubiojo's(2013:2) observation that many library patrons use manual catalogues most often times while online catalogue such as the OPAC is up and running such as in the case of Obafemi Awolowo University, Ile-Ife. Contrarily, Thanuskodi (2012b) reported that the use of online catalogues at the Annamalai University Library is high as students frequently access library resources using OPAC. The high usage was however as a result of library staff always available to guide library users in using OPAC. Moreover, Yusuf and Iwu's(2010) study indicated that students frequently use OPAC to access library materials. However, they attribute this positive development to the result of compulsory orientation programmes organised by the library for the firstyear students of Covenant University, Ota, Nigeria. Library staff, especially in the institutions under study, need to also employ similar strategies such as information literacy programmes that would equip postgraduate students with the appropriate skills to make frequent use of EIRs not frequently used as indicated in this study.

Results from the structured interview show that postgraduate student' usage of EIRs is low. The majority (66.7%) of the participants indicated that postgraduate students' usage of EIRs is low. However, one (33.3%) of the respondents noted that the usage is high. This finding is supported by Hamutumwa's(2014) study on electronic resources use by distance learners at the University of Namibia. It was evident in the study that very few learners, approximately 75 (31%) used electronic resources 'most of the time' and 'sometimes' respectively. The study further revealed that learners had low levels of electronic resource use and that they also did not make use of electronic resources subscribed to by the University of Namibia's (UNAM) library. The findings from the interview contradict the findings from the survey questionnaire. This contradiction could be that participants (postgraduate students) overestimated their usage of EIRs. For instance, the overestimating behaviour of self assessment was evident in university students' logical reasoning ability, specialist physicians' clinical practice, and salesmen's ability to sell (Hubka, 2015). The landmark study of Kruger and Dunning (1999) has been widely quoted by subsequent literature on

the subject. In the area of information literacy, Gross and Latham (2007; 2009, 2012)replicated the research of Kruger and Dunning; in two out of three studies, they identified a disconnect between students' self-assessments of their information literacy skills and their actual skill level. Therefore, the results suggest more targeted instructional interventions for postgraduate students, especially in their use of electronic information resources independently. The disparity between the data from survey questionnaires and the interview calls for collaboration between librarians and faculty members to bridge the gap between self perceived usage of EIRs and the actual usage.

6.5.1 Postgraduate students' purpose of using EIRs.

Electronic information resources offer various opportunities to students through facilitation of access to needed information in an easy and speedy manner. EIRs have the potential for enhancing postgraduates' learning, as the resources provide postgraduate students with wide range of information in an easily accessible format. According to Negahban and Talawar (2009), EIRs have become the backbone of many academic institutions. Electronic information resources are mainly used for academic purposes (Thanuskodi, 2010). Postgraduate students often use EIRs for various reasons, and among these reasons are doing research on specific topics, assignments, writing reports, preparation of dissertation/theses etc. Therefore, the function of e-resources in research and learning is rapidlybecoming one of the most important and widely discussed issues in the present educationpolicy.

Findings revealed that the majority 112(97.4%) of the respondents use EIRs for theses and dissertations preparation, 110(95.7%) of the respondents used EIRs for research work. These findings corroborates a study by Dhanavandan and Esmail (2012) on the use of electronic resources at Krishnasamy College of Engineering and Technology Library, Cuddalore district in the Indian State of Tamil Nadu. The study indicated that most of the students are using electronic resources for study and research. Similarly, a study by Olorongbe and Ibrahim(2011) showed that the majority of the respondents are using electronic resources for doing research work.Electronic information resources are used for academic and research activities in higher educational institutions (Iwehabura, 2009). Postgraduate students depend on the availability of e-resources for meeting many of their academicneeds, especially in the area of research.Postgraduate students access a wide range of EIRs at one stage or the other in writing research theses/dissertations. For

instance, postgraduate students access electronic information in reviewing literature in order to develop a clear understanding of the research topic; establish what has already been researched on the topic, and identify gaps, which the researcher's own study can fill (Nengomasha, 2009:51).Hence, Edem and Egbe(2016)noted that postgraduate students made use of e-resources mainly for research work and for reviewing literature.This current study revealed that postgraduate students sought for EIRs mainly for theses and dissertation preparation and research purposes. This is expectedas writing of theses or dissertations or research requires current literature which could beassessed via the use of EIRs.

Similarly, the majority 108(93.9%) of the respondents used EIRs for writing reports and preparing for assignments respectively. The finding is also consistent with a study by Edem and Egbe(2016) on the availability and utilisation of electronic resources by postgraduate students in a Nigerian university library. The study revealed that the majority of respondents use e-resources in completing assignments. This was ranked next to using e-resources for research work in the study. Postgraduate students in Nigeria where course work is compulsory in most cases for master and doctoral students, rely on e-resources for writing reports and assignments. During the period of course work, a series of assignments are usually given and it is expected that postgraduate students access EIRs to gain relevant knowledge on the assignment topic as well as to express existing views through literature reviewed. Similarly, 105(91.3%) of the respondents used EIRs for reference purposes. This is consistent with various studies. For instance, Karunarathna(2014), who conducted a study on the use of electronic resources by law degree students at Anuradhapura regional centre of the Open University of Sri Lanka also revealed that the majority of respondents highly used e-resources to further reference studies. This could be possible due to the nature of the law discipline that is well served in terms of indexing and alerting systems.Also, a study by Hadagali, Kumbar, Nelogal and Bachalapur,(2012) on the use of electronic resources by postgraduate students in different universities of Karnataka State revealed that most of the users access e-resources to search bibliographical information.The majority 104(90.4%) of the respondents also indicated that they use EIRs to update knowledge. This corroborates a study by Sethi and Panda (2011) on the use of e-resources by life scientists. The study found that more than 70%of respondents use e-resources with the aim of keeping up-to-date on the subject, while 64.6%of respondents use e-resources for completion of assignments and seminar presentations.

Similarly, a study by Manjula and Padmamma (2016) found that the majority of the participants use e-resources to keep abreast of the latest developments in their area of interest and to write research papers. This finding is very important to postgraduate studies because at this stage of education, ones must be proficient and current in terms of developments in that area or field of study. Results also indicated that the majority 103(89.6%) of the respondents used EIRs for seminar presentation. Postgraduate students are expected to present seminars as a requirement in postgraduate studies. This finding corroboratesIvwighreghweta and Oyeniran's(2013) study in two selected Nigerian universities. The study found that the use of e-resources for seminar presentation ranked high.

Results show that postgraduate students use EIRs for multiple academic purposes, as 81(70.4%) of the respondents also indicated that they use EIRs to complement class notes and augment class work. Seventy-five (65.2%) of the respondents used EIRs for checking bibliographic details and 80(69.6%) of the respondents indicated that they used EIRs for revision. The least response was 61(53.0%) which is more than half of the study population which indicated that they used EIRs to assist someone else. These findings corroborated a study by Ukachi (2013) on accessibility and students variables as correlates of the use of electronic information resources in university libraries in south-west, Nigeria. Her study further revealed that out of the sixteen (16) academic purposes listed, thevarious purposes for which students often patronised the use of e-resources include to source materials for research/writing projects, toretrieve current literature for studies, to augment class work, to updateknowledge in subject areas of interest and, to generally source material andinformation.Similarly, a study by Dolo-Ndlwana (2013) on the use and value of the library's electronic resources by academics and postgraduate students at the Cape Peninsula University of Technology (CPUT) revealed that academics and postgraduates made use of e-resourcesfor various purposes and these included gathering information on aspecific topic; doing a literature review; obtaining answers to specific questions, andgaining general information. However, the most common reason was to retrieveinformation for academic purposes.Peiris and Peiris (2012) who studiedthe use of electronic information resources by postgraduate students also revealed that postgraduate students use of EIRs for different academic purposes. A further analysis indicated that postgraduate students mainly used EIRs for writing reports and secondly for general work followed by preparation of assignments. The only difference is that the use of EIRs for theses and

dissertations came first; then, using EIRs for research work came second, while for assignment and writing reports came third in this present study.The findings suggest that postgraduate students are motivated to use EIRs for research and other academic related purposes. Azubuike (2016) noted that postgraduate students are a category of students that engage themselves mainly in research (theoretical and practical) in every higher institutions of learning in the world that offers postgraduate studies. Similarly, Okiki and Asiru (2011)found that the strongest factor that influenced postgraduate students' use of EIRs is the need to carry out a research.

Similarly, results from the interviews with subject librarians regarding postgraduate students' purpose of using EIRs also indicated that postgraduate students mainly use EIRs for academic purposes. All three (100%) respondents opined that postgraduate students mainly use EIRs for academic purposes. Although two (66.7%) of the respondents noted that there are no statistical records on their purposes of using EIRs; however, the usage is usually high during examination periods. This indicates that they use it mainly for academic purpose. This is because electronic information resources have the potential for enhancing postgraduates' learning, as the resources provide postgraduate students with a wide range of information in an easily accessible format. Hence, EIRs have become a major part of a library's collection in this 21stcentury. Therefore, it is important that librarians understand the purposes for whichpostgraduate students use EIRs because libraries are under pressure to demonstrate the value of their collection (Tenopirand King, 2010:1). Thus, universities offering postgraduate programmes must acquire resources that would provide returns on investments through adequate use, especially for academic purposes as indicated in this present study.

6.6 Information literacy related barriers hindering the use of EIRs

The growth of electronic information resources has become a global phenomenon, most especially in developed countries due to technological advancement in information technology. The emergence of electronic information resources (EIRs) has greatly transformed informationhandling and management in Nigerian university communities(Adelekeand Emeahara, 2016), especially in the area of research. Academic libraries over the years have focused on acquiring electronic information resources, organising and presenting it for easy accessibility to users. Therefore, it becomes a majorpart of the academic library's collection in the fulfillment of

its role of teaching, learning, research, and services to the academic community. Postgraduate students' in developed countries are getting access and using electronic information resources effectively. However, the situation is different in most African countries.In order to utilise the growing range of electronic information sources, students must acquire and practice the skills (information literacy skills) necessary to exploit these resources. Hence this study sought to establish information literacy related barriers hindering the use of EIRs.

In Nigeria, most studies focused on the physical barriers faced by postgraduate students while using EIRs. For instance, studies byChimah and Nwokocha (2013) and Omeluzor, Madukome, Banidele and Ogbuiyi(2014)opined that lack of personal computers and erratic power supply among others are major constraints that inhibit the use of electronic information resources by postgraduate students in Nigerian universities which invariably affects their research output. However, this present study is unique in the sense that it focused on information literacy related barriers since information retrieval skills are crucial for retrieving information in this era of technology and that most of theinformation needed for research can be retrieved from electronic sources. This research question is guided by the collection stage of the ISP model. During this stage, the interaction between the user and the information system functions most effectively and efficiently as the seeker is able to collect pertinent information and experiences a sense of direction and clarity (Kim, 2006). However, theuser's interaction with information systems such as databases, internet, librarians, experts, friends and so forth at this stage is usually not free from barriers.

The results indicate information literacy related barriers encountered by postgraduate students while using electronic information resources. Details of the findings revealed that information overload was recorded with 59(51.3%) who agreed and 42(36.5%) who strongly agreed by respondents acknowledging it as a major barrier in using EIRs. This finding corroborates a study by Hamutumwa (2014)on electronic resources used by distance learners at University of Namibia. The study revealed that information overload was a major problem in the use of EIRs. Although, his study was done in Namibia, findings have also shown that it is a major problem in Nigeria as indicated in this study. Postgraduate students are part of the general society that also witnessesinformation overload. The large mass of irrelevant information usually results in

difficulties in navigating through electronic resources to find information. Therefore, increased mental effort and skills (information literacy skills) to effectively process information is required as some information could be from unreliable sources as well as incomplete which might lead to poor research output. Research has found that information overload is associated with adverse effects (Pandey and Pandey, 2015) such as stress and anxiety which are major challenges in society.This is related to the exploration stageof the ISP model adopted for this study, where students generally could experience anxiety and frustration as they encounter information from many different perspectives, much of which may not be compatible with their specific constructs and personal knowledge.Information overload can mean being burdened with a large supply of unsolicited information; users must develop the skills to identify which may be relevant. However, the present study contradicts Karunarathna (2014) whose study on the use of electronic resources by law degree students at Anuradhapura regional centre of the Open University of Sri Lankaindicated that information overload was not a major problem in the use electronic resources.

The second highest response was difficulties in downloading with 53(46.1%) of the respondents agreed, while 37(32.2%) strongly agreed that it is a barrier to the use of EIRs. Good internet connectivity is essential for the easy accessibility of EIRs by postgraduate students. Poor network infrastructure could lead to difficulties in downloading which is one of the major barriers in using EIRs as indicated in this current study. The problem of downloading challenges, if not addressed technically, could have an adverse effect on postgraduate students whom depend so much on downloading of EIRs for academic purposes. However, it constitutes a personal barrier as indicated in this study when the postgraduate student lacks basic knowledge such as installing a Portable Document Format (PDF) reader like Adobe Acrobat Reader to download pdf files. Some students are usually confused when downloading as some programmes could offer the chance to run it or save it. Also, postgraduate students must be knowledgeable on the appropriate version for their computer and operating system to avoid difficulties in downloading.Olasore and Adekunmisi (2015) also ranked downloading challenges as one the major barriers in a study on the use of library electronic information resources by academic staff in Olabisi Onabanjo University, Nigeria.A couple of other information literacy related barriers could lead to downloading challenges. A study by Wu and Chen (2012)on how graduate students perceive, use, and manage electronic resources revealed that most students reported ease of use for library electronic

resources. However, they encountered some major problems such as inability to retrieve relevant materials, especially when searching by keywords, user limits on some databases resulting in delays.The problem with the credibility of information was also rated very high as a barrier with 55(47.8%) of respondents who agreed with the statement, while 33(28.7%) strongly agreed. The problem of establishing credibility is a major issue especially in this era of the proliferation of so much information online; users, especially postgraduate students are called upon to exercise those skills and abilities (information literacy skills) to evaluate the credibility of information. Similarly, 50(43.5%) respondents agreed and 34(29.6%) strongly agreed that lack of adequate knowledge of IT is one of the barriers faced using EIRs. Fifty-three (46.1%) of the respondents also agreed with thelack of adequate internet navigating skills as a barrier, 29(25.2%) strongly agreed, 16(13.9%) of respondents disagreed, while only three (2.6%) strongly disagreed. More than half 60(52.2%) of the respondents also agreed on the difficulties in navigation of some websites as a barrier encountered while using EIRs with 20(17.4%) who strongly agreed, 11(9.6%) who disagreed, while five (4.3%) strongly disagreed.Lack of the adequate knowledge of IT, lack of adequate internet navigating skills as well as difficulties in navigation of some websites are all as a result of personal limitations in techniques of searching electronic information. This is because training on searching techniques is not included in most Nigerian university course outlines. Even, when included, such training is not accorded enough attention as other academic courses.These findings are in corroboration with some studies. For instance, Fyneman, Idiedo and Ebhomeya(2014), in a study noted that students are faced with a number of challenges while using EIRs which include restriction to some databases, lack of IT skills and knowledge, inappropriate search termsand so forth. Similarly, Somers'(2015)study on the use of electronic resources by postgraduate students and academics at the Graduate School of Business and Leadership, Westville Campus, University of KwaZulu-Natal ranked difficulties in searching as the most serious problem faced by postgraduate students while using EIRs.

Forty-four (38.3%) of the respondents also agreed that lack of awareness about the availability of EIRs/electronic information services in the libraries hinders the use of EIRs, while 30(26.1%) strongly agree. This finding conforms with Olorunfemi and Mostert's(2013)study on the ability of academic law libraries in Nigeria to provide access to ICTs and e-resources as part of their information service delivery. The study found out that e-resources were available, but that the

information on the availability is insufficient in most of the libraries. Hence, lack of awareness of and easy access to e-resources was a major barrier.The findings of this current study haveconfirmed once more that lack of awareness about the availability of EIRs/electronic information services is a major barrier that hinder postgraduate students use of EIRs.Awareness is as important as availability because it indicates the extent to which users have information and knowledge of electronic resources that are available. When users have adequate information on the electronic resources available, they are encouraged to use them. Madukoma, Onuoha and Ikonne(2014) identified lack of awareness as a major contributing factor to non-use of e-resources.Similarly, Peiris and Peiris (2012) identified a lack of IT infrastructure, lack of awareness and poor skills in appropriate terminology among the primary reasons for under-utilisation of EIRs. Kumar *et al.* (2014) also indicated awareness as a factor regarding the availability of EIRs as a major barrier as respondents indicated that they are aware of newly acquired EIRs through personal communication with friends. Okiki (2012)also found that awareness among respondents was low for most of the library's electronic resources.Lack of knowledge about the resources, lack of publicity, insufficient time to use the services and lack of computer training, coupled with inadequate training to use online resources and services were other reasons that contributed to low usage of EIRs.

Similarly, lack of knowledge on search terms as a barrier recorded 46(40%) who agreed, while 28(24.3%) strongly agreed. Also, 41(35.7%) of the respondents agreed that lack of search skills hinder the use of EIRs, and 28(24.3%) strongly agreed. Access to limited information as a barrier also got 43(37.4%) agreed responses, while 22(19.1%) strongly agreed. Various studies have identified lack of search skills to be a major barrier in the use of EIRs (Egberongbe, 2011; Gilbert, 2015; Omosekejimi, Eghworo and Ogo,2015). Most students, research scholars and staff lack search skills and knowledge on terminology for effective search, retrieval and evaluation of information (Baro *et al.,* 2013). However, it seems not to be the major problem in this study. Lack of search skills and access to limited information were regarded as the least problematic barriers with 41(35.7%) and 43(37.4%) who agreed respectively, while 28(24.3%) and 22(19.1%) who strongly agreed respectively.Results from the interview also affirmed several information literacy related barriers in the use of EIRs. The barriers as indicted by the majority two (66.7%) of the respondents (subject librarians) were in line with the barriers as indicated in the survey questionnaire. These barriers according to two (66.7%) of the participants (subject librarians)

includeddigital divide, lack of information search skills,technophobia, information overload, language barriers, lack of adequate knowledge of IT and difficulties in downloading.The term "digital divide" originated to describe the gap between those who had access to technology and the internet versus those who did not. However, the concept of digital divide is gradually shifting as the gap has lessened since technology and the internet have become more prevalent and accessible. The complexity of technology has become more of the norm for creating the digital divide that hinders postgraduate students from using EIRs. Lack of information search skills has adversely affected postgraduate students' ability to retrieve EIRs to further enhance research. Technophobia which is the fear associated with the use of technologies as well as information overload and others outlined above were major barriers as indicated by the Subject Librarians as IL related barriers affecting postgraduate students' use of EIRs. This is because postgraduate students' lack adequate training on IL skills as the only form of training is through library education which in most universities is limited to undergraduate students and it is optional to the students as it is not examined at the end of the semester. The findings are very important as over the years there is this general belief that the major barriers hindering the use of EIRs were physical which includes inadequate computers, epileptic power supply and others. The findings indicated that information literacy related barriers are major barriers hindering postgraduate students' usage of EIRs. Therefore, there is the urgent need to introduce information literacy into universities curriculum where librarians and lecturers would collaborate to teach information literacy related courses.

6.7 Strategies to enhance information literacy self-efficacy.

Given the pivotal role of ILSE in this information jet age, it is important to understand strategies that would enhance it. This is because enhancing students' ILSE sustains their motivation and promotes learning that will enable them to be more competent. In order to enhance students' information literacy self-efficacy, a number of strategies which involves building their level of competence and confidence are required. The strategies to enhance information literacy self-efficacy in this section were guided by the ACRL standards adopted for this study. The ACRL framework lays out five standards which colleges and universities could adopt to shape and assess their information literacy programs. The ACRL standards have gained wide acceptance by librarians in colleges and universities. Hence, it is appropriate for this study.

Findings from the survey questionnaire revealed that majority of respondents attest to different strategies that could enhance ILSE (See Table 5.10). Details of the findings revealed that all items are capable of enhancing information literacy self-efficacy of postgraduate students.Fifty-seven(49.6%) of the respondents agreed that one of the strategies is the introduction of ILSE related courses, 48(41.7%) of the respondents also strongly agreed with this statement. In line with this finding is a study byAmalahu, Oluwasina and Laoye's (2009) on users' e-learning information needs at Tai Solarin University of Education in Nigeria. The study found the need to increase the presence of IL in their curriculum. The study suggested that users need to be equipped with skills and knowledge that would enable them to succeed in their academic endeavours and beyond, where lifelong learning is embraced; hence there is the need to introduce information literacy as a stand-alone course. Similarly, a study by Ramamurthy*et al.*(2015) on information literacy search skills of students in five selected engineering colleges in Chittoor District of the Indian State of Andhra Pradesh found that information literacy skills related courses should be integrated into the secondary and tertiary schools'curriculum to underscore the seriousness and utmost relevance of the programme. This is because educational institutions such as the universities have key roles in the development of ILS among students. The Association of the College Research Libraries (2007) noted with key interest that information literacy is a vital part of university education. Although IL for decades has been championed by librarians through users' education; it has recently drawn the interest of educators, administrators and other role-players in higher education on the need to introduce IL related courses. In Nigeria, despite the importance of ILSE, the vast majority of it seems to be one-shot-sessions delivered by a librarian and integrated into an existing subject-related course such as general studies. A one-shot session is not enough to cover IL and self-efficacy comprehensively.The need to mainstream information literacy into individual subject curricula has been recognised (Lupton, 2004; Nordlund, 2013), alongside the growing need for lecturer-librarian collaboration (Allner, 2010; Saunders, 2012). Kuhlthau's ISP model adopted for this study (See Chapter Two, section 2.3) had a major influence on IL research especially with respect to issues of pedagogy and curriculum development: this is evident in the various ways in which it has been employed as a useful conceptual framework for developing programmes of user-centred information services and systems in higher education institutions (Sundin, 2008:28).

Rasaki (2008) stated that relevant IL course content allows students to acquire the requisite skills for lifelong learning. Such skills may include the ability to formulate search strategies, and analyse data collected for value, relevancy, quality, suitability, and then turn the information into knowledge. However, it is sad to note that most African countries are yet to introduce information literacy courses into their curriculum either at the school or higher education level. In Nigeria, the Nigerian Library Association (NLA) has made an effort to integrate information literacy courses into Nigerian university curriculum over the years but yet to be approved by the National Universities Commission (NUC) which is a government regulatory agency. In South Africa, the Library and Information Association of South Africa (LIASA) during the 2016 annual conference held at the International Conference Centre (ICC) in Durban, noted that it has since started to address how best to lobby for the integration of IL in the curriculum. This has yielded some positive results as some universities such as University of South Africa (UNISA), Cape Peninsula University of Technology (CPUT), University of Cape Town (UCT), University of Pretoria (UP) and others have integrated information literacy courses into their curriculum. South Africa has also made some significant steps towards IL development. According to Underwood (2002), in South Africa, the information literacy discussion list (INFOLIT) project was aimed at promoting IL in higher education, secondary and primary schools as well as in communities across the Western Cape region. The primary objectives of the project are among others, to investigate IL models, programmes and initiatives in other countries that could be adapted to local conditions and launching a series of pilot projects to explore and establish a means of spreading IL education in the region. The finding of this current study is very important in the advancement of ILSE skills among postgraduate students in Nigeria. The introduction of ILSE related courses into the curriculum as indicated in this current study will give librarians and faculty members the opportunity through course content to practically expose students to information skills, encourage students to become more self-directed and become active learners in acquiring ILSE skills. Collaboration between librarians and faculty members is desirable in order to embed the learning of these skills into the curriculum timely and make them relevant to subject studies.

Similarly, 54(47%) respondents also agreed that getting adequate orientation to the library and its resources would enhance their ILSE, 47(40.9%) of the respondents also strongly agreed. Librarians have always setinformation literacy as one of their major goals (Pinto, Cordón and Diaz, 2010).

Accordingly, the evolution of information literacy is associated and mixed with library usereducation and bibliographic instruction programs; in the form of short orientations on howto use library and information resources (Pinto *et al.,* 2010).In Nigeria, library orientation remains the most common strategy to enhance students' information literacy and their confidence to use library resources. However, this in most cases is limited to undergraduate students and it is not mandatory since it is not in the curriculum. Onwibiko and Asogwa (2011) noted that programmes to develop the information competence of Nigerian undergraduates has been limited to the library user education and/or library orientation conducted in academic libraries but not reinforced in the curriculum of the academic department. Library user education or library orientation should be extended to postgraduate students and should be included into course content of universities. Library orientation or user education should be mandatory for first year undergraduate students as well as postgraduate students as a means of introducing them to the library environment. This would help to enhance their competence (information literacy) and confidence (self-efficacy) to use library resources.According to Kavulya (2003), library orientation is aimed at making students aware of the available library facilities, information resources and services. It includes activities such as the distribution of informational material that describes the library system and the resources and services, introductory lectures, staff contacted tours and demonstrations on how to find and retrieve information using different tools such as catalogues, and journal indexes. Library orientation has been the library's traditional way of enhancing students, especially the first-year students'information literacy and self-confidence to make use of library resources. Even with the call to integrate information literacy into the course curriculum, Ossen, Ismail and Yu(2016:19) noted that both traditional methods(library orientation) and 21st-century methods(introduction of information literacy courses) should be combined as it may become a good strategy to increase information literacy self-efficacy skills.Therefore, as indicated in this current study, postgraduate studentsgetting adequate orientation to the library and its resources would enhance their ILSE.

Most of the respondents 59(51.3%) agreed that mastery experience (the use of personal past experience to a particular task) is capable of enhancing ILSE and 38(33%) of the respondents strongly agreed with this statement.In consonance with this finding is a study by Van-Dinther (2014) on student teachers' self-efficacy and students' perception of assessment in competence based education. The study confirmed the role of mastery experiences, social persuasion,

physiological and affective experiences as important sources of self-efficacy that could impact on student teacher's competence.Mastery experience is very influential in enhancing information literacy self-efficacy of students through subjective evaluation of past experience with regards to a particular task or skill. Van-Dinther (2014:14) noted that enactive mastery experience is the indicator of an individual's capability with reference to previous success. Mastery experiences are seen as the most effective way of developing self-efficacy and occur when a student is given the opportunity of mastering an idea or concept (Chowdhury,Endres and Lanis, 2002). Prior studies have used service learning as a form of education to facilitate a mastery experience for students, so students were able to practice the skills they had been taught in class (Tuckerand McCarthy, 2001).Mastery experience is very important in enhancing postgraduate students' information literacy self-efficacy as students formed their self-efficacy beliefs by interpreting information primarily from their previous experience. Students interpret the results of their actions and use the interpretations to develop beliefs about their capabilities to engage in subsequent activities.Students who judge their own past academic results as being successful often develop an increased sense of confidence about their abilities while those who view their academic outcomes as unsuccessful are likely to experience feelings of doubts and uncertainty about their own effectiveness (Zimmerman, 2000).

Sharing experiences relating to information literacy skills was also considered as a strategy that could enhance ILSE with 65(56.5%) of the respondents who agreed, while 31(27%) strongly agreed. This implies that sharing experiences relating to information literacy skills could be used as a desirable strategy by teachers or instructors in instilling a positive perception of self-efficacy in applying information literacy skills among students. Students could gain from the experiences of their teachers or instructors to develop new skills (information literacy skills) and be confident (self-efficacy) as experiences shared could stimulate independent learning (Wurdinger, 2005). Experiences can provide a natural and meaningful learning context to learn about particular content such as learning information literacy self-efficacy skills. Experiences are powerful teaching tools because of their potential to stimulate students. In higher levels of education, sharing experiences could instill the needed confidence (self-efficacy) in applying a given skill (information literacy skill) to an information related task. The experiences shared among postgraduate students could be a motivation of contextual learning that would enhance their ILSE skills. However, for the

experiences to make an impact students must establish a connection between knowledge gained from such experiences and the current information related task. Teachers and instructors could develop new approachs to instilling ILSE skills by sharing their experiences among students. Students could explore such experience with similar tasks and at a deeper level through the combination of their personal experiences.

Fifty-five(47.8%) of the respondents also agreed that strategic training on information literacy self-efficacy would enhance ILSE, 40(34.8%) strongly agreed. This finding is very important because strategic training in the form of seminars, workshops and conferences are important components in inculcating information literacy self-efficacy skills in postgraduate students. It provides benefits of discussing individual questions to the collective knowledge of the attendees. Strategic training can be used to guide postgraduate students on the various dimensional constructs of IL and instill the confidence needed in using information.The finding is in corroboration with various studies on the use of strategic training to promote information literacy (Wenand Shih, 2008; Duke and Ward, 2009; Emmons, Keefe, Moore, Sánchez, Mals and Neely, 2009; Engel, 2010; Kiliç-Çakmak, 2010; Kraussand Fourie, 2010; Kingsley, Galbraith, Herring, Stowers, Stewart and Kingsley, 2011; Tuncer, 2013; De-Meulemeester, 2013; Demireland Akkoyunlu, 2017). Over the years, classroom instruction remains predominantly teacher-centered and authoritarian methodswith passive students' engagement in learning (Polelo, 2005; Krauss and Fourie, 2010). This has negatively affected student's level of information literacy self-efficacy. Onen (2015) found in her study that delivery of IL skills should adopt a multi-pronged strategic training that is predicated on student-centered approaches but also integrated into individual courses. The strategic training must be done from the constructivism perspective (as indicated in Chapter Two) with the student being in the centre of the learning process or environment. The studentshould be actively involved in the learning process(Callisonand Preddy, 2006:334). Thomas (2004) stated that educational goals and teaching strategies should be shaped by the constructivist theoretical framework. Through constructivism, students are empowered to evaluate information resources and take control of their learning (Sundin, 2008) thereby enhancing their competency and confidence.

Similarly, 67(58.3%) of the respondents agreed that constructive feedback (getting clear, concrete and positive feedback) would enhance ILSE, 28(24.3%) strongly agreed. To enhance students'

information literacy self-efficacy skills, teachers or instructors must engage students meaningfully to promote critical thinking, self-evaluation, and integration of knowledge across core subject areas (Vavrus, Thomas and Bartlett, 2011). Giving students clear and constructive feedback may be the most over-looked strategy that an instructor can utilise (SchrawandBrooks, 2001) to enhance students' information literacy self-efficacy. Information literacy self-efficacy can be developed and enhanced through learning, experience and feedback (Subramaniamand Freudenberg, 2007:98).Most forms of feedback can be powerful incentives for learning and for becoming a more autonomous learner (Hawkand Shah, 2008; Fisher and Frey, 2009) which information literacy promotes. Positive and narrative feedback, which is supportive and non-judgmental, can encourage teacher-student dialogue and foster positive motivation for enhancing self-confidence(Hawkand Shah, 2008).Feedback can be very powerful as it addressed both cognitive and motivational factors that are responsible for students' success in the information seeking process.Good feedback in which students see constructive criticism as a good thing and understand that learning cannot occur without practice is capable of enhancing confidence and motivation to learn from such repeated practices especially in acquiring information search skills. Therefore, the finding of this current study is essential in enhancing postgraduate students' information literacy self-efficacy skills as good feedback will provide an insight into how to improve and apply positive aspects of their initial knowledge to different dimension of information literacy as well as instill confidence in future information related task or skills.

Fifty-seven (49.6%) of the respondents agreed that goal setting (setting a proximal goal) would enhance ILSE, 37(32.2%) strongly agreed with this statement. This corroborates Muñoz and Jojoa's(2014) study on how setting goals enhances learners' self-efficacy beliefs in listening comprehension. The study found that learner's self-efficacy (self-confidence) increases through goal setting. Similarly, previous research conducted by Barca-Lozano(2012) found that academic goals and the learning strategies as well as self-efficacy are indicators of and decisive factors for academic achievement. Jeng and Shih (2008), also found that self-efficacy positively correlates with goal setting; the higher the level of self-efficacy, the higher the level of future achievement to be set.When students are trained in specific skills such as information literacy skills, those with specific high-performance goals would be more likely to use those skills than students without high-performance goals. Goals that are specific, not too difficult, and short-term usually lead to

higher self-efficacy (Yailagh, Lloyd and Walsh, 2009). Goals have a pervasive influence on students' behaviour and performance in the application of specific skills such as information literacy skills in a task. It has been widely accepted as a means to improve and sustain performance (DuBrin, 2012). Similarly, 56(48.7%) of the respondents agreed that another strategy to enhance ILSE is through rewards, with 34(29.6%) who strongly agreed. Rewards can lead to strong development of self-efficacy in the application of information literacy skills when they are tied to accomplishments, because rewards symbolise progress. Jacobsen and Andersen (2014) reported in their study that the use of rewards strengthens self-efficacy. Studies have shown that rewards can lead to motivation that directly enhances or sustains students' self-efficacy in a specific task. For instance, Alci (2015) found that people lacking self-efficacy have problems with motivating themselves to carry out tasks. Motivation could be through many other factors than extrinsic rewards (Perry, Engbers and Yun, 2009). For instance, Raes and Schellens (2012) observed that intrinsic motivation is the most self-determined style of motivation with respect to self-efficacy. In this regard, being intrinsically motivated requires perceptions of control and competence (Schunk, 2012:391).Results from interviews also indicated that a number of strategies could be employed to enhance information literacy self-efficacy. The interviewees outlined various strategies which include the introduction of IL courses, creating awareness on the need to be information literate, workshop/seminars, feedback mechanisms, collaboration between lecturers and librarians, strategic training in information literacy self-efficacyand so forth. These strategies were in line with the strategies as indicated in the survey questionnaire.

6.8 Summary

This chapter discussed the research findings as analysed and presented in chapter five. Discussion of findings was done around data from the five research questions and was supported by literature and theory adopted for the study. The interpretations and discussions showed how the findings support or differ from previous studies.

The findings of the present study revealed that the use of EIRs is determined by the competency in information literacy. Tool literacy and critical literacy were rated very high as information literacy required in using EIRs.Findings also revealed that there is a link between information literacy self-efficacy skills and the use of EIRs.Results indicated that information literacy self-

efficacy skills have an impact on all items in the research instrument.The study revealed that e-journals, e-books, e-newspapers and e-reference sources were the most frequently used e-resources by the postgraduate students. Further analysis on postgraduate students' usage patterns of EIRs shows that e-resources were used for academic purposes such as theses and dissertation preparation, for research work, writing reports and preparing for assignments. The study provides new insight into barriers faced by students while using EIRs. In Nigeria, most studies focused on physical barriers. However, this present study is unique in the sense that it focused on information literacy related barriers.Details of the findings revealed that information overload, difficulties in downloading, credibility of information and lack of adequate knowledge of IT were rated very high as information literacy related barriers encountered by postgraduate students while using EIRs.

Finally, the study revealed that a number of strategies could be employed to enhance information literacy self-efficacy which include introduction of IL courses, adequate orientation to the library and its resources, mastery experience (the use of personal past experience to a particular task), sharing experiences relating to information literacy, strategic training on information literacy self-efficacy and constructive feedback.

The next chapter discusses the summary of findings, conclusion and recommendations.

CHAPTER SEVEN

SUMMARY, CONCLUSION AND RECOMMENDATIONS

7.1 Introduction

This chapter presents the summary of the findings, conclusions and recommendations of the study. The main objective of this study is to investigate information literacy self-efficacy in theuse of electronic information resources among library and information science postgraduate students in South-South Nigeria. The study addressed the following research questions:

- What information literacy skills do postgraduate students haveto use electronic information resources?
- What is the link between postgraduate students' information literacy self-efficacy and their use of electronic information resources?
- What are students' usage patterns of electronic information resources?
- What are the barriers related to information literacy that hinder postgraduate students from using electronic information resources?
- How can information literacy self-efficacy be enhanced amongst library and information science postgraduate students?

The study is guided by the Association of College and Research Libraries' (ACRL) information literacy competency standards for higher education. In addition, Kuhlthau's(2004) Information Search Process Model as discussed in the details of Chapter Two was used to underpin the study. The study employed a post-positivist research paradigm and combined quantitative and qualitative methodologies. A post-positivism approach offers a practical approach to collecting data using more than one method and legitimises the potential for using mixed methods. The post-positivist paradigm enabled the use of qualitative and quantitative approaches, known as mixed methods (Creswell, 2003;Bryman, 2004; Krauss, 2005). The population for this study was 115 postgraduate students admitted for the 2016/2017 academic year and three subject librarians in the various universities under study.The researcher used questionnaire and structured interviews to collect quantitative and qualitative data for the current study. Quantitative data was analysed using SPSS, while qualitative data was analysed using thematic content analysis. Other sections of this chapter present a summary of the chapters and a summary of the findings, conclusion, recommendations, originality and contributions of the study and suggestions for further research.

7.2 Summary of chapters in the thesis

Chapter One provided a background understanding of this research work. It covered the IL standards guiding this study, a statement of the problem, the objectives of the study, the research questions, the significance of the study and the scope and limitations of the study.The chapter provided the basis and foundation upon which the study was formulated.

Chapter Two of the study presented the theoretical framework. The chapter focused on the Kuhlthau's (2004) ISP Model adopted for this study. The social constructivism approach in which the ISP model is anchored in was further discussed in this chapter. The application of the model to the context of this study was justified in this chapter.

Chapter Three focuses on the review of related literature for this study. The purpose of this chapter is to establish a relationship between what has been researched and the current study. The literature review covered the research questions and key variables which include information literacy and education, links between self-efficacy and information literacy, electronic information resources, information literacy skills in the use of electronic information resources, use of electronic information resources, information literacy related barriers in using electronic information resources and strategies to enhance information literacy self-efficacy.

The research methodology is presented in Chapter Four.The study adopted the post-positivism paradigm that combined both quantitative and qualitative approaches known as mixed methods. This chapter also covers the research design, population of the study, data collection techniques, pre-testing of the research instruments, validity and reliability of instruments, data processing and analysis, and theethical considerations of the study. The purpose of this chapter is to ensure that essential methodological apparatus is put in place to address the issues within the research.

Chapter Five presented the data analysis and presentation of findings from the two research instruments (questionnaire and interview). The quantitative and qualitative data gathered from both postgraduate students and subject librarians respectively were analysed and presented in charts and tables. The findings gathered through the questionnaire for the postgraduate students were presented first in this chapter followed by findings gathered from the interviews.

Chapter Six presented a discussion of the findings. A discussion of findings was undertaken around data from the five research questions and was supported by literature and theory adopted for the study. The interpretations and discussions showed how the findings support or differ from previous studies. The chapter provides new insightsinto the body of knowledge.

Chapter Seven presented a summary, conclusion and recommendations for the study. The chapter also focused on the contributions of the study to a policy, practice, theory and suggestion for further research.

7.3 Summary of findings

This section presents a summary of the research findings. The summary is organised and presented according to the research questions as epitomised in Chapter One section 1.5.The first research question sought to determine information literacy skills in the use of electronic information resources. The findings revealed that the use of EIRs is determined by competency in information literacy. Findings further showed that tool literacy, critical literacy, social-structural literacy, emerging technology literacy, and publishing literacy determine postgraduate students' use of EIRs. However, publishing literacy had the least responses. These competencies relate to the ACRL standards guiding this study (See Chapter One, section 1.2). These findings show that postgraduate students deserve a wide range of information literacy skills to be thoroughly grounded in the use of EIRs.

The second research question sought to determine the link between information literacy self-efficacy and use of EIRs. The findings showed that information literacy self-efficacy skills have effect on postgraduate students' usage of ICT components, especially those related to the use of EIRs. For instance, the results revealed that all respondents agreed that information literacy self-efficacy has effect on their use of computers. Similarly,the majority of respondents affirmed that information literacy self-efficacy has effect on their use of computer software and applications as well as their use of social network sites. The least affirmative response of 57(49.6%) and 41(35.7%) also agreed and strongly agreed respectively that information literacy self-efficacy skills have effect on their use of online catalogues. These findings therefore, revealed that there is

a link between information literacy self-efficacy skills and the use EIRs. The reason for this link could be as a result of the fact that information literacy (competence) and self-efficacy (confidence) is required to effectively use information in multiple formats, from a wide range of sources when it is presented via computers. This is directly related to the constructs of the ISP Model,especially the collection stagewhere the interaction between the user (postgraduate students) and the information system (EIRs) functions most effectively and efficiently as the postgraduate students are able to make adequate use of EIRs based on the competence (information literacy) and confidence (self-efficacy) exhibited.

The third research question sought to ascertain postgraduate students' usage pattern of EIRs. The usage patterns of EIRs were determined through the frequency and purposeof using EIRs. Findings showed that e-journals, e-books, e-newspapers and e-reference sources were the most frequently used EIRs by the postgraduate students. The inclusion of e-newspapers among the top three EIRs frequently used by postgraduate students as indicated in this study is worthy of mention. This is an indication that postgraduate students are gradually adopting e-newspapers as a source of electronic information for postgraduate studies since it plays an important role in disseminating current information and events as well as keeps its readers up-to-date. However, results indicated that some of the electronic information resources are not frequently used by respondents. For example, the majority of respondents indicated that they sometimes use CD-ROMs, e-tutorials, e-bibliographic databases, online catalogues, e-maps, and online databases. Results also indicated that EIRs were used for different academic purposes. For instance, findings revealed the majority of the respondents 112(97.4%) use of EIRs for theses and dissertation preparation. Moreover, the majority 110(95.7%) of the respondents indicated that they used EIRs for research work. Similarly, the majority 108(93.9%) of the respondents used EIRs for writing reports and preparing for assignments respectively. Results from the interview with subject librarians regarding postgraduate students' purpose of using EIRs also indicated that postgraduate students mainly use EIRs for academic purposes.

The fourth research question sought to identify the information literacy related barriers hindering the use of EIRs. In this regard, the study provides new insight into barriers faced by postgraduate students while using EIRs. In Nigeria, most studies focused on physical barriers. For instance,

Omeluzor*et al.*(2014)argued that lack of a personal computer and erratic power supplies among others were the major constraints that inhibit the use of EIRs by postgraduate students in Nigerian universities which invariably affects their research output. However, this present study is unique in the sense that it focused on information literacy related barriers. Details of the findings revealed that information overload, difficulties in downloading, credibility of information and lack of adequate knowledge of IT were rated very highly as information literacy related barriers encountered by postgraduate students while using EIRs.Lack of search skills and access to limited information as barriers got the least affirmative responses with more than half of the respondents respectively indicating both as barriers hindering postgraduate use of EIRs.This finding is significant as each affects the other. The lack of search skills will certainly result in access to limited information, while access to limited information is an indication that the seeker lacks the search skills to broaden the information search to satisfy the specific information need.Various studies have identified lack of search skills to be a major barrier in the use of EIRs (Egberongbe, 2011; Gilbert, 2015; Omosekejimi *et al.,* 2015). Most students, research scholars and staff lack search skills and knowledge for effective search, retrieval and evaluation of information (Baro *et al.,* 2013). However, it seems not to be the major problem in this study. Lack of search skills and access to limited information were regarded as the least affected barriers which is quite different from most studies.

The fifth research question sought to establishstrategies that would enhance information literacy self-efficacy. This study revealed important strategies that would enhance ILSE among postgraduate students in Nigerian universities and beyond. Details of the findings revealed that majority of the respondents attested to different strategies that could enhance information literacy self-efficacy skills (See Table 5.10). The strategies include the introduction of information literacy self-efficacy related courses; getting adequate orientation to the library and its resources; mastery experience (the use of personal past experience to a particular task); sharing experiences relating to information literacy; strategic training on information literacy self-efficacy; constructive feedback (getting clear, concrete and positive feedback); vicarious experience (observing others performing a similar information task); goal setting (setting a proximal goal); verbal persuasions (positive comments and encouragement)as well as rewards.

7.4 Conclusions

The conclusions are based on the findings from each of the research questions of the study. From the results, it can be concluded that information literacy skills are essential in the use of EIRs. Findings revealed that tool literacy, critical literacy, social-structural literacy, emerging technology literacy and publishing literacy determine postgraduate students' use of EIRs. The importance of IL cannot be over emphasised as information literacy skills are important in the use of EIRs because of the proliferation of information in the 21stcentury. The complexity of the electronic environment requires that one possesses information literacy for effective and efficient use of EIRs. Therefore, there is the need to ensure postgraduate students possess information literacy skills to encourage better use of EIRs.

The results from this study suggest that there is a link between information literacy self-efficacy skills and the use of EIRs. The results revealed that information literacy self-efficacy haseffect on the use of computers and their software and application respectively. Information literacy self-efficacy skills enable postgraduate students to retrieve valuable information such as digital or electronic information using computers and its software and applications. Similarly, results indicated that information literacy self-efficacy has effect on postgraduate students' use of social network sites. Students who possess information literacy self-efficacy skills could work together on projects using discussion groups to share their thoughts, ideas, and update each other. They could also use discussion groups to address questions that can benefit other students in the discussion groups. Discussion groups can be used to construct and share knowledge as well as promote cognitive learning. Results indicated that information literacy self-efficacy skills have positive effect on postgraduate students' use of EIRs. This is directly related to the constructs of the ISP model, especially the collection stagewhere the interaction between the user (postgraduate students) and the information system (EIRs) functions most effectively and efficiently as the postgraduate students are able to make adequate use of EIRs based on the competence (information literacy) and confidence (self-efficacy) exhibited.

Frequency of EIR usage is an important measurement to establish where e-resources are frequently used. The findings on postgraduate students' usage patterns of EIRs suggest that some of the e-resources are more frequently used than others. The results showed that the frequently used e-resources include e-journals and e-books, e-newspapers and e-reference sources. Results also

indicated that some of the electronic information resources are not frequently used by postgraduate students. These include CD-ROMs, e-tutorials, e-bibliographic databases, online catalogues, e-maps, and online databases. Further analysis indicated that postgraduate students used EIRs for various academic purposes. Results showed thatpostgraduate students use EIRs for theses and dissertation preparation and research work respectively. Other purposes include preparing for assignments and writing reports; references and to update knowledge as well as for seminar presentations.

The present study provides new insight into barriers faced by postgraduate students while using EIRs. Most studies in Nigeria have identified physical barriers such as lack of personal computers, erratic power supply, a lack of computer labs, a lack of campus computer networks and poor internet connectivity as factorsnegatively influencing the use of EIRs. However, this present study is unique in the sense that it focused on information literacy related barriers. The study found that information literacy related barriers are major factors that negatively influence the use of EIRs. Results showed that information overload, difficulties in downloading, credibility of information, lack of adequate knowledge of IT, and lack of adequate internet navigation skills were the major barriers hindering the use of EIRs.

The results from the study also suggest strategies that would enhance postgraduate students' information literacy self-efficacy skills. Findings showed that several strategies could be employed to enhance information literacy self-efficacy skills which include the introduction of information literacy self-efficacy related courses; obtaining adequate orientation to the library and its resources; mastery experience (the use of personal past experience to a particular task); sharing experiences relating to information literacy as well as strategic training on information literacy self-efficacy. These strategies are very important, especially in Nigeria where library orientation remains the only strategy to enhance students' information literacy and their confidence to use library resources (Onwibuko and Asogwa, 2011). Although, there have been calls to integrate information literacy into course curricula, it is sad to note that most African countries including Nigeria,are yet to introduce information literacy courses into their curriculum either at the school or higher education level. The introduction of ILSE related courses into the curriculum as indicated in this current study will give librarians and faculty members the opportunity through course

content, to expose postgraduate students to various dimensional constructs of information literacy skills and instill in them confidence to become more self-directed.

7.5 Recommendations

Based on the findings of the study, the following recommendations are made:

1. The current study revealed that the use of EIRs is determined by the competency in information literacy. Findings further showed that tool literacy, critical literacy,social-structural literacy, emerging technology literacy and publishing literacy determine postgraduate students' use of EIRs. Therefore, the researcher recommends that the universities introduce programmes such as IL certificate programmes, workshops, seminars and othersthat would increase information literacy of postgraduate students to ensure effective and efficient utilization of EIRs. This is because postgraduate student deserves a wide range of information literacy skills to be thoroughly grounded in the use of information.
2. Findings revealed that publishing literacy had the least responses. The researcher recommends that emphasis should be given to publishing literacy as the ability to publish research work is crucial for postgraduate students to communicate their scientific thoughts and ideas to a broad audience as well as becoming a member of the electronic community of scholars. This will lead to wider access and global visibility of theses and dissertations generated by African universities and particularly in Nigerian universities.
3. The study established that there is a link between information literacy self-efficacy and the use of EIRs. The findings of the present study showed that information literacy self-efficacy skills have effect on the usage of ICT components, especially those related to the use of EIRs. Hence, the researcher recommends that universities should deliberately engage postgraduate students in activities that would enhance their information literacy self-efficacy skills. This is very important as the use of EIRs depends heavily on the students' personal conviction of his or her information literacy self-efficacy skills
4. The study observed that e-manuscripts, online discussion groups, e-bibliographic databases, e-tutorials, e-maps, online catalogues,online database and CD-ROMs were not frequently used by the postgraduate students. The researcher recommends that adequate

trainingon the use of EIRs should be given to the postgraduate students since they depend on EIRs for numerous academic purposes**.**

5. This study revealed that postgraduate students depend on EIRs for academic purposes. Therefore, the researcher recommends adequate provision and access to EIRsas postgraduate students depend on the availability of e-resources for meeting many of their academic needs, especially in the area of research.
6. The barriers hindering postgraduate students in using EIRs as indicated in this current study are mainly information literacy related barriers. Therefore, the researcher recommends that IL training be made a mandatory requirement in universities.Information literacy courses should be developed for undergraduate and postgraduatestudents, especially during their first year to overcome these barriers.
7. The study recommends a number of strategies that could be employed to enhance information literacy self-efficacy which include the introduction of information literacy self-efficacy related courses; obtaining adequate orientation to the library and its resources; mastery experience (the use of personal past experience to a particular task); sharing of experiences relating to information literacy and strategic training on information literacy self-efficacy.These strategies have the potential to enhance postgraduate students' ILSE skills. Therefore, higher institutions of learning such as the universities should implement these strategies, especially the introduction of ILSE related courses into curricula and strategic training on information literacy self-efficacy such as seminars, workshops and conferences to promote ILSE skills among students.
8. The study strongly recommends that the Nigerian Library Association (NLA) like their counterpart in South Africa,the Library and Information Association of South Africa (LIASA) should be involved in advocacy for IL as well as lobby for the integration of IL in the curriculum. This has yielded some positive results as some South African universities have integrated information literacy courses into their curriculum. The integration of IL into the curriculum is very important given the pivotal role of information literacy in this information jet age. It will give librarians and faculty members the opportunity through course content to enhance information literacy in the university environment.

7.6 Originality and contributions of the study

This study was conducted to investigate information literacy self-efficacy in the use of electronic information resources by library and information science postgraduate students in South-South, Nigeria.Although, several empirical studies have been conducted on information literacy and self-efficacy (Adetoro and Oyefuga, 2010; Tang and Tseng, 2013; TuncerandBalci, 2013; Zinn, 2013; Baran and Ata, 2014; Ilogho and Nkiko, 2014), however, those who studiedpostgraduate students' information literacy self-efficacy in the context of using EIRs are very few in number. In this regard, no study was found to have been conducted in Nigeria or specifically, in the South-South region of Nigeria. Therefore, the study makes an important contribution in the application of information literacy self-efficacy to the use EIRs which is yet to be widely exploited. The study is unique as the research questions were valuable in addressing the low usage of EIRs in Nigerian libraries, despite all the numerous advantages associated with the use of EIRs (As indicated in Chapter One, section 1.3) and the huge resources spent on subscriptions. Most studies have focused on information literacy (competence) with little attention on self-efficacy (confidence). This current study brings a different understanding by combining two variables; information literacy (competence) and self-efficacy (confidence) in the use of EIRs. This would not have come at a better time than now where most students deliberately restrain themselves from accessing EIRs via the internet due to technophobia (fear associated with the use of technology) and lack of information literacy. This study demonstrates the importance of information literacy self-efficacy in the use of EIRs and suggests possible strategies to enhance ILSE of postgraduate students to effectively and efficiently use EIRs. The study further contributes to the body of knowledge by providing new insight into barriers faced by postgraduate students while using EIRs. Most studies in Nigeria have identified physical barriers; however, this current study identified information literacy related barriers in the use of EIRs. This study focused on postgraduate students; however, subject librarians were also interviewed to allow for in-depth information into the concept under investigation. The study also made contributions to policy, practice and theory as presented below.

7.6.1 Contribution of the study to policy

This study provided knowledge on the importance of information literacy self-efficacy in the use of EIRs. This knowledge is valuable to policy makers in their quest to encourage the use of EIRs through ensuring that students possess the needed skills (information literacy) and the confidence

(self-efficacy) in using EIRs that are available in most university libraries. The study also provided new insight into barriers faced by students while using EIRs and several strategies that could be employed to enhance information literacy self-efficacy skills which are critical to the development of policies directed towards increasing the use of EIRs among postgraduate students. Therefore, the findings created an awareness of the importance of information literacy self-efficacy skills in the use of EIRs and provided policy direction to university regulatory bodies such as the Nigerian Universities Commission on the appropriate strategies to adopt in enhancing students' information literacy self-efficacy skills to effectively and efficiently use EIRs. Policy makers and university management can also apply a set of recommendations from this research study to formulate policies that would be beneficial not only for the enhancement of information literacy self-efficacy skills among postgraduate students, but also for students in general.

7.6.2Contribution of the study to practice

The results of this study suggest and recommend practical areas for improvement. For instance, there is the need to examine the various dimensional constructs of IL to ensure that postgraduate students possess the needed skills in using EIRs.The study presents empirical data on postgraduate students' usage patterns of EIRs. This will enable librarians to acquire EIRs that would provide a return on investments through adequate use as indicated in this study. Furthermore, librarians need to re-evaluate their roles in promoting information literacy; they must therefore be more active in the task of inculcating the principles of information literacy and ensuring that students are able to apply the various aspects of IL in appropriate situations. Librarians should deliberately be involved in advocacy for IL as such advocacy would bring key university management on board by making them understand the importance of IL in university education. This is very important as the support of university management is critical to successful IL initiatives. Librarians' collaboration with faculty members in teaching IL courses would enable students acquire information skills in a more effective and efficient way. Therefore, the researcher proposed a template for teaching IL courses in Nigerian Universities (See Appendix 12).

7.6.3 Contribution of the study to theory

The current study contributes to the body of knowledge from the perspective of postgraduate students' ILSE in the use of EIRs. The study is unique as it combined two important variables to

assess students' use of EIRs. Most studies seem to concentrate on information literacy skills required in using EIRs. However, this study brought in a different perspective by introducing a variable (self-efficacy) that has been exploited in other disciplines such as medicine. The importance of self-efficacy in information literacy cannot be over emphasised as both variables are meant to influence each other at any given time, yet few studies consider information literacy and self-efficacy together. The study was guided by the Association of College and Research Libraries' (ACRL) information literacy competency standards for higher education. However, the study adopted Kuhlthau's(2004)ISP model in investigating the research problems. The ISP model is one of the major models used to understand and examine the search process from the perspective of the searcher (postgraduate students). The model is located within the constructivist paradigm and addresses complex tasks that require information seeking and interpretation over an extended period of time. It presents information seeking as a process of construction with uncertainty decreasing as understanding increases. Consequently, the application of the model was anchored in the social constructivist approach. The constructs of the ISP model adopted for this current study were able to adequately address all research problems (See Table 2.1) thereby re-affirming the strength of the model.

7.7 Suggestions for further research

Literature has established a relationship between information literacy and self-efficacy, yet few studies consider information literacy and self-efficacy together. Information literacy self-efficacy constructs have been associatedwithhigher levels of motivation in students (Pintoand Sales, 2010)and further with academic success (Bayramand Comek, 2009).Therefore, the following recommendations were made for further study

1. The concept of information literacy self-efficacy has been of growing concern in the education sector in recent years. Initially, the researcher was to assess postgraduate students' information literacy self-efficacy skills using the 28-item information literacy self-efficacy scale (Kurbanoglu *et al*, 2004) to measure information problem solving skills among postgraduate students. Hence, the researcher recommends a comparative study of different institutions designed to assess postgraduate students' information literacy self-efficacy skills.

2. Information literacy self-efficacy is associated with higher levels of student's academic motivation. However, little is known about the interrelated relationships that exist between both constructs. Therefore, the researcher recommends a study on academic motivation and information literacy self-efficacy.
3. The importance of information literacy and self-efficacy to lifelong learning cannot be over emphasised. Both variables are common to all disciplines. Therefore, the researcher recommends studies on the relationship between the tendency of lifelong learning and information literacy self-efficacy of students.
4. Information literacy self-efficacy skills are essential mechanisms in all aspects of academic endeavours as those with the skills have the potential to overcome the challenges associated with the on-going proliferation of electronic information resources. Therefore, the researcher recommends a study on information literacy self-efficacy of students as a correlate of their use of electronic information resources.
5. The role of information literacy self-efficacy in different tasks and organisational settings such as the library has been a major issue in academic discourse in recent years. Therefore, the researcher recommends a study on the role of perceived information literacy self-efficacy in searching information from the web.

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APPENDICES

Appendix 1: Letter of introduction (DELSU)

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

Dr Monday Ogobomo
The Head of Department
Department of Library and Information Science
Delta State University
Abraka

17 December 2015

RE: Introducing Mr Israel Odede – PhD Student at University of KwaZulu Natal

This letter serves to introduce and confirm that Mr Israel Odede is a duly registered PhD (Information Studies) candidate at the University of KwaZulu Natal. The title of his PhD research is 'Information Literacy Self Efficacy in the use of Electronic Information Resources by Library and Information Science Postgraduate Students in South-South, Nigeria'.

The outcome from the study is expected to improve practice, inform policy and extent theory in this field of study. As part of the requirements for the award of a PhD degree he is expected to undertake original research in an environment and place of his choice. The UKZN ethical compliance regulations require him to provide proof that the relevant authority where the research is to be undertaken has given approval.

We appreciate your support and understanding to grant Mr Israel Odede permission to carry out research in your organisation(s). Should you need any further clarification, do not hesitate to contact me.

Thank you in advance for your understanding

ZNsibirwa

Dr Zawedde Nsibirwa
Supervisor and Lecturer
Information Studies Programme
University of KwaZulu Natal
Private Bag X01 Scottsville 3209
Pietermaritzburg
Email: Nsibirwaz @ukzn.ac.za
Tel: +27 33 260 5685

Appendix 2: Gatekeepers letter (DELSU)

DELTA STATE UNIVERSITY

P.M.B. 1, ABRAKA, NIGERIA.

DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE

Our Ref:

Your Ref:

19th Feb. 2016
Date:

Dr. Zawedde Nsibirwa
Information Studies Programme
University of KwaZulu Natal
Private Bag X01 Scottsville 3209
Pietermaritzbeg.

Re: Introducing Mr. Israel Odede- Ph. D Student at University of KwaZulu Natal

I write to inform you that Mr. Israel Odede a Ph. D student in your Department has been granted the permission to conduct his research using our Postgraduate students as respondents.

This privilege is subject to the fact that Mr Israel Odede will keep to the ethical issues involved in research investigation.

Yours sincerely

SIGN 19/2/16

Dr. M. O. Ogbomo

DATE

Delta State University, Abraka
DEPT. OF LIBRARY & INFORMATION SCIENCE

Appendix 3: Letter of introduction (UNICAL)

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

Dr Aniebiet Ntui
The Head of Department
Department of Library and Information Science
University of Calabar
Calabar

17 December 2015

RE: Introducing Mr Israel Odede – PhD Student at University of KwaZulu Natal

This letter serves to introduce and confirm that Mr Israel Odede is a duly registered PhD (Information Studies) candidate at the University of KwaZulu Natal. The title of his PhD research is 'Information Literacy Self Efficacy in the use of Electronic Information Resources by Library and Information Science Postgraduate Students in South-South, Nigeria'.

The outcome from the study is expected to improve practice, inform policy and extent theory in this field of study. As part of the requirements for the award of a PhD degree he is expected to undertake original research in an environment and place of his choice. The UKZN ethical compliance regulations require him to provide proof that the relevant authority where the research is to be undertaken has given approval.

We appreciate your support and understanding to grant Mr Israel Odede permission to carry out research in your organisation(s). Should you need any further clarification, do not hesitate to contact me.

Thank you in advance for your understanding

ZNsibirwa

Dr Zawedde Nsibirwa
Supervisor and Lecturer
Information Studies Programme
University of KwaZulu Natal
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Pietermaritzburg
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Tel: +27 33 260 5685

Appendix 4: Gatekeepers letter (UNICAL)

UNIVERSITY OF CALABAR

DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE

FACULTY OF EDUCATION

P.M.B. 1115, CALABAR - NIGERIA

Vice-Chancellor
Prof. Zana Itiunbe Akpagu
B.A. (Hons), M.A. (Cal.), Ph.D. (Benin City), PGDE (Cal.)
e-mail: zeeakpagu@yahoo.co.uk.
Telex: 65103 Unical, Calabar
Telegram: Unical, Calabar

Head of Department
Dr. (Mrs). A. I. Ntui
B.Sc.(Ed), MEd, MLS, Ph.D.
e-mail: ntuinju@yahoo.com
Tel: 08027690717

OFFICE OF THE HEAD OF DEPARTMENT

24th February, 2016

Dr. Zawedde Nsibirwa,
Supervisor and Lecturer,
Information Studies Programme,
University of KwaZulu Natal,
Private Bag X01 Scottsville 3209,
Pietermaritzburg.

RE: INTRODUCING MR. ISRAEL ODEDE – PhD STUDENT AT UNIVERSITY OF KWAZULU NATAL

Your letter dated 17th December, 2015 on the above subject matters refers.

This is to inform you that permission has been granted to the above PhD student to undertake his research in the Department of Library and Information Science, Faculty of Education, University of Calabar.

Thank you.

Dr. (Mrs.) A. I. Ntui
Head of Department

Appendix 5: Letter of introduction (UNIUYO)

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

Dr Henry Okon
The Head of Department
Department of Library and Information Science
University of Uyo
Uyo

17 December 2015

RE: Introducing Mr Israel Odede – PhD Student at University of KwaZulu Natal

This letter serves to introduce and confirm that Mr Israel Odede is a duly registered PhD (Information Studies) candidate at the University of KwaZulu Natal. The title of his PhD research is 'Information Literacy Self Efficacy in the use of Electronic Information Resources by Library and Information Science Postgraduate Students in South-South, Nigeria'.

The outcome from the study is expected to improve practice, inform policy and extent theory in this field of study. As part of the requirements for the award of a PhD degree he is expected to undertake original research in an environment and place of his choice. The UKZN ethical compliance regulations require him to provide proof that the relevant authority where the research is to be undertaken has given approval.

We appreciate your support and understanding to grant Mr Israel Odede permission to carry out research in your organisation(s). Should you need any further clarification, do not hesitate to contact me.

Thank you in advance for your understanding

ZNsibirwa

Dr Zawedde Nsibirwa
Supervisor and Lecturer
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Private Bag X01 Scottsville 3209
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Email: Nsibirwaz @ukzn.ac.za
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Appendix 6: Gatekeepers letter (UNIUYO)

DEPARTMENT OF EDUCATIONAL TECHNOLOGY AND LIBRARY SCIENCE
UNIVERSITY OF UYO
P.M.B. 1017, UYO
AKWA IBOM STATE
NIGERIA

Your Ref:

TELEGRAM: - UNIUYO
TELEPHONE: - 085-202693&694

Our Ref:
UU/FE/EDT/25/Vol. 1/437

29th January, 2016

Dr. Zawedde Nsibirwa
Information Studies Programme
University of KwaZulu Natal
South Africa

Sir,

RE-INTRODUCING MR. ISRAEL ODEDE-Ph.D STUDENT AT UNIVERSITY OF KWAZULU NATAL

Your letter of introduction of your Ph.D student dated 17th December, 2015 refers.

We acknowledge receipt of this information and do grant **Israel Odede** permission to carry out research in our department.

DEPT. OF EDUCATIONAL TECH. & LIBRARY SCIENCE

Dr. Thelma U. Ekukinam
Head of Department

Appendix 7: Informed consent form for postgraduate students

8th March,2016.

Dear Respondent,

Covering letter for the questionnaire for collecting information on information literacy self-efficacy in the use of electronic information resources by library and information science postgraduate students in South-South, Nigeria.

INVITATION TO PARTICIPATE IN A SURVEY

My name is Odede Israel. I am a PhD student at the University of KwaZulu-Natal, Pietermaritzburg Campus, South Africa. I wish to invite you to participate in a study entitled: Information Literacy Self Efficacy in the use of Electronic Information Resources by Library and Information Science Postgraduate Students in South-South, Nigeria.

The research study is undertaken as part of the requirements for PhD in Information Studies programme at the University of KwaZulu-Natal. This study aims to investigate self-efficacy in information literacy with regard to the use of electronic information resources among library and information science postgraduate students in South-South, Nigeria.

Participation is voluntary; you may refuse to participate or withdraw from the study at any point without having to explain your reasons for such withdrawal or non participation. There will be no monetary gain from participating in this research project. Both the researcher and the Information Studies Programme in the School of Social Sciences within the College of Humanities, University of KwaZulu-Natal will maintain confidentiality and anonymity of records identifying you as a participant.

It should take you about 10 minutes to complete the questionnaire. You are requested to kindly answer all questions to the best of your ability.

If you have any questions or concerns about participating in this study, please feel free to contact me or my supervisor by email or telephone.
Thank you for participating in this study.

Supervisor: Dr. Zawedde Nsibirwa,
Institution: University of KwaZulu-Natal, Pmb
Telephone number: +27332605685
Email address: Nsibirwaz@ukzn.ac.za

Researcher: Odede Israel
Institution: University of KwaZulu-Natal, Pmb
Telephone number: +27635146353
Email address: 214583729@stu.ukzn.ac.za

The College of Humanities Research Ethics Officer: PhumeleleXimba
Office: Humanities Research Ethics Office
Institution: University of KwaZulu-Natal, Pmb
Telephone number: +27312603587
Email address: ximbap@ukzn.ac.za

Appendix 8: Questionnaire for postgraduate students

Questionnaire for LIS Postgraduate Students

Please indicate your answers by ticking the relevant box (es) and providing further explanation where required.

Section 1: Background information

Question 1.1: Gender

1	Male	
2	Female	

Question 1.2: Age group

3	21-30 years	
4	31-40 years	
5	41-50 years	
6	51-60 years	

Question 1.3: Programme of study

7	Masters	
8	PhD	

Question 1.4: Institution of study

9	Delta State University	
10	University of Calabar	
11	University of Uyo	

Section 2: Information literacy skills in the use of electronic information resources.

Please tick in the appropriate box/es, those options that are applicable to you using the rating scale:

SA - Strongly agree; **A** - Agree; **N**- Neutral**, D** – Disagree and **SD** - Strongly disagree.

S/N	My use of use of electronic information resources is determined by my ability to:	SA	A	N	D	SD
12	Locate information in multiple sources					
13	Browse online databases to locate pertinent information					
14	Recognise different methods of accessing information resources					
15	Compare and evaluate critically whether the information collected is credible and relevant					
16	Judge critically whether information on websites is authentic and accurate					
17	Compare and evaluate critically whether the information is timely and appropriate					
18	Format and publish ideas electronically in textual form					
19	Create content in blogs, YouTube , and personal webpages for different audiences					
20	Format and publish ideas electronically in multimedia form (information presented through audio, video and animation in addition to traditional media)					
21	Decide when to adopt the continually emerging innovations in information technology					
22	Know when to adopt latest product development in new information technologies					
23	Understand how information is socially situated					
24	Understand how information is socially produced					

Section 3: Link between information literacy self-efficacy and their use of electronic information resources.

Please tick in the appropriate box, as many that are applicable to you using the rating scale:

SA - Strongly agree; **A** - Agree; **N** – Neutral; **D** – Disagree and **SD** - Strongly disagree.

My use of electronic information resources is determined by my competence and confidence in handling:

S/N	Information literacy self-efficacy skills have effect on my usage of the following:	SA	A	N	D	SD
25	Computer					
26	Computer software and applications					
27	Information from any source					
28	Variety of information at any time					
29	Variety of information systems					
30	Variety of information formats					
31	Information systems user interfaces					
32	Navigation of online information					
33	Online catalogue					
34	World Wide Web					
35	Internet search tools					
36	Social networking sites					

Section 4: Usage patterns of electronic information resources.

Section 4:1: Frequency of use of electronic information resources.

Please tick in the appropriate box/es, all those that are applicable to you.

S/N	Frequency of using electronic information resources	Always	Often	Sometimes	Rarely	Never
37	E-journals					
38	E-data archives					
39	E-manuscripts					
40	E-books					
41	Online discussion group					
42	E-theses					
43	E-newspapers					
44	E- research reports					

45	E-bibliographic databases					
46	E-maps					
47	CD-ROM					
48	E-reference sources					
49	E-tutorials					
50	Online databases					
51	Online catalogue					

Section 4.2: Purpose for using electronic information resources.

Please tick in the appropriate box/es, those that are applicable to you using the rating scale:

SA - Strongly Agree; **A** - Agree; **N –** Neutral;**D**– Disagree; and **SD** - Strongly disagree.

S/N	**Purpose for using electronic information resources**	**SA**	**A**	**N**	**D**	**SD**
52	For Writing Reports					
53	For preparing assignments					
54	For research work					
55	For preparation of theses and dissertations					
56	For reference					
57	For seminar presentations					
58	For up to date knowledge					
59	For project work					
60	For job search					
61	To complement class notes					
62	To augment class work					
63	For checking bibliographic details					
64	For revision					
65	For someone else					
66	For internship opportunities					

For other purpose (s), please, specify----------

Section 5: Information literacy related barriers hindering the use of electronic information resources.

Please tick in the appropriate box/es, those that are applicable to you using the rating scale:

SA - Strongly agree; **A** - Agree; **N** –Neutral; **D** – Disagree; and **SD**- Strongly disagree.

I usually encounter the following barriers while using electronic information resources

S/N	Barriers encountered while using electronic information resources	SA	A	N	D	SD
67	Information overload					
68	Problem with credibility of information					
69	Lack of search skills					
70	Lack of awareness about availability of EIR/electronic information services in the libraries					
71	Lack of adequate knowledge of IT					
72	Failure to find specific information					
73	Inaccessibility of some websites					
74	Difficulties in navigation of some websites					
75	Difficulties in downloading					
76	Lack of knowledge on terminology					
77	Access to limited information					
78	Lack of adequate Internet navigating skills					
79	The interface to the resources are not user friendly					

Section 6: Strategies to enhance information literacy self-efficacy.

Please tick in the appropriate box/es, those that are applicable to you using the rating scale:

SA - Strongly agree; **A** - Agree; **N** –Neutral; **D** – Disagree; and **SD** - Strongly disagree.

My information literacy self-efficacy is usually enhanced through the following strategies:

S/N	Strategies to enhance information literacy self-efficacy.	SA	A	N	D	SD
80	Mastery experience (the use of personal past experience to a particular task)					
81	Vicarious experience (observing others performing a similar information task)					
82	Verbal persuasions (positive comments and encouragement)					
83	Physiological state (being in a general more relaxed state that is free from anxiety, fear, fatigue etc)					
84	Modeling (demonstrating and describing the process of mastery a new information skills to a novice)					
85	Constructive feedback (getting clear, concrete and positive feedback)					
86	Goal setting (setting a proximal goal)					
87	Rewards					
88	Strategy training on information literacy self-efficacy					
89	Sharing experiences relating to information literacy					
90	By getting adequate orientation to the library and its resources					
91	Introduction of information literacy self-efficacy related courses					

Appendix 9: Informed consent form for subject librarians

8th March, 2016.

Dear Respondent,

Covering letter for interview for collecting information on information literacy self-efficacy in the use of electronic information resources by library and information science postgraduate students in South-South, Nigeria.

INVITATION TO PARTICIPATE IN A SURVEY

My name is Odede Israel. I am a PhD student at the University of KwaZulu-Natal, Pietermaritzburg Campus, South Africa. I wish to invite you to participate in a studyentitled: Information Literacy Self Efficacy in the use of Electronic Information Resources by Library and Information Science Postgraduate Students in South-South, Nigeria.

The research study is undertaken as part of the requirements for PhD in Information Studies programme at the University of KwaZulu-Natal.

This study aims to investigate self-efficacy in information literacy with regard to the use of electronic information resources among library and information science postgraduate students in South-South, Nigeria.

Participation is voluntary; you may refuse to participate or withdraw from the study at any point without having to explain your reasons for such withdrawal or non participation. There will be no monetary gain from participating in this research project. Both the researcher and the Information Studies Programme in the School of Social Sciences within the College of Humanities, University of KwaZulu-Natal will maintain confidentiality and anonymity of records identifying you as a participant.

If you have any questions or concerns about participating in this study, please feel free to contact me or my supervisor by email or telephone.

Thank you for participating in this study.

Supervisor: Dr.ZaweddeNsibirwa,

Institution: University of KwaZulu-Natal, Pmb

Telephone number: +27332605685

Email address: Nsibirwaz@ukzn.ac.za

Researcher: Odede Israel

Institution: University of KwaZulu-Natal, Pmb

Telephone number: +27635146353

Email address: 214583729@stu.ukzn.ac.za

The College of Humanities Research Ethics Officer: Phumelele Ximba

Office: Humanities Research Ethics Office

Institution: University of KwaZulu-Natal, Pmb

Telephone number: +27312603587

Email address: ximbap@ukzn.ac.za

Informed Consent form for recording interview

Please complete this form

Title of study:Information Literacy Self-Efficacy in the use of Electronic Information Resources by Library and Information Science Postgraduate Students in South-South, Nigeria.

I, ……., hereby consent to participate in the study as outlined in the document about the study/ as explained to me by the researcher.

I acknowledge that I have been informed of the purpose of this survey. I am aware that participation in the study is voluntary and I may refuse to participate or withdraw from the study at any stage and for any reason without any form of disadvantage. I acknowledge that I understand the contents of this form and freely consented to participating in the study.

Participant

Signed.....… Date:……

Researcher

Signed …… Date: ……..

Appendix 10: Subject librarians' interview schedule

INTERVIEW SCHEDULE FOR SUBJECT LIBRARIANS

A) Background information on subject librarians

1. Gender?
2. Age group?
3. Level of education?
4. Years of work experience

B) Information literacy skills

1. What information literacy skills are required to make effective use of electronic information resources?
2. Do you think that library users (postgraduate students in particular) are information literate in using electronic information resources?
3. Do they independently make use of electronic information resources without necessary asking for assistance?

C) Link between postgraduate students' information self-efficacy and their use of electronic information resources

1. From your experiences as a subject librarian, is there a link between postgraduate students' information literacy self-efficacy and their use of electronic information resources?

D) Students' usage patterns of electronic information resources

1. How frequently do postgraduate students make use of electronic information resources?
2. Could you ascertain their purpose or purposes for using electronic information resources?

E) Information literacy related barriers in the use of electronic information resources

1. What information literacy related barriers do you think postgraduate students are facing while using electronic information resources?
2. What can be done to alleviate these barriers?

F) Strategies to enhance postgraduate students' information literacy self-efficacy.

1. Do you think that students' information literacy self-efficacy could be enhanced?
2. If yes, what are the strategies that could be employed to enhance students' information literacy self-efficacy?

Appendix 11: Ethical clearance

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

20 May 2016

Mr Israel Odede 214583729
School of Social Sciences
Pietermaritzburg Campus

Dear Mr Odede

Protocol reference number: HSS/0527/016D
Project title: Information Literacy Self Efficacy in the use of Electronic Information Resources by Library and Information Sciences Postgraduate Students in South-South, Nigeria.

Expedited Approval

In response to your application dated 09 May 2016, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol have been granted **FULL APPROVAL.**

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number. Please note: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

.....
Dr Shamila Naidoo (Deputy Chair)

/px

cc Supervisor: Dr Zawede Nsibirwa
cc Academic Leader Research: Professor Sabine Marschall
cc School Administrator: Ms Nancy Mudau

Humanities & Social Sciences Research Ethics Committee
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Appendix 12: IL course template

PROPOSED TEMPLATE FOR INFORMATION LITERACY COURSE IN NIGERIAN UNIVERSITIES

COURSE OVERVIEW

1. Course title
Information literacy

2. Course code
LIS 200 for undergraduate and LIS 800 for postgraduate

3. Programmes targeted
Undergraduate Programmes

Postgraduate programmes

4. Discipline
The course is open to students from all disciplines

5. Course semester
First semester

6. Credit value
Three (3) units

7. Instructors
Librarians and Teaching staff

8. Teaching approach
The teaching approach in this course would be multi-facetted as it includes:

- Formal lectures on key concepts and issues
- Practical exercises
- Instructor mediated class discussion

9. Instructor expertise
It is imperative that instructors are well grounded in their field of study and the teaching of information literacy is not exceptional. Hence, the instructors must be well grounded in librarianship, information literacy, information management and other related areas of specialisation.

10. Department
The course is to be domicile in Library and Information Science Department

11. Aim of the course

The aim of this course is to develop knowledge and understanding of information among students to ensure critical skills especially in this era where information technology is rapidly evolving as well as advancement in electronic information resources. The course will provide students the needed information skills to access, evaluate and increase students' ability to use information resources for learning. Information literacy has become the new approach in addressing the lack of competency in using information resources globally.

12. Course status

The course should be made compulsory for all students irrespective of their discipline. Therefore, it should be regarded as a core course

13. Course content for undergraduate

The course shall cover the following areas:

- Concept of Information literacy
- Types of information literacy
- Information sources and resources
- Portals, gateways and library websites
- Organising and retrieving information on your computer
- Referencing and referencing techniques
- Electronic databases of libraries
- Electronic catalogues and search strategies
- Internet and databases searching
- Intellectual property and copyright
- Information literacy framework and standards
- Social networking sites

14. Course content for postgraduate

The course shall cover the following areas:

- Concept of Information literacy
- Dimensional constructs of information literacy
- Critical information sources and resources
- Information Retrieval/Information Problem Solving
- 21st Century communication
- Information management and research skills
- Reference management software
- Collaboration for information literacy
- Ethical and fair use of information
- Research writing
- Advanced information literacy skills
- Theories and models of information literacy
- The wider information literacy landscape
- Information literacy and cyberspace

- Information literacy and digital divide
- Bibliometrics
- Web 2.0 tools

15. Mode of assessment

The mode of assessment shall include assignments, presentation and examination. The assessment will be based on continuous assessment and final examination. The continuous assessment will constitute 30% while the final examination will constitute 70%.

16. Moderation of assessment

Moderation could be done internally. However, external moderation would be applicable to postgraduate studies as per the policy of the institution.

17. Course quality assurance

- Collaboration between librarians and faculty members to effectively teach the course
- Compulsory evaluation of the course and instructors by students which is analysed and reported through existing mechanism of the institution
- Internal periodic evaluation
- Course evaluation by external examiners or moderators