CHAPTER ONE

INTRODUCTION

Background to the Study

The most salient characteristic of today's societies is the advancement in Information and Communication Technologies (ICT) which have created a revolution in every aspect of knowledge. This revolution is obvious in information packaging and dissemination. Till the latter part of the 20th century, information was mainly packaged and disseminated on the printed platforms and housed in the library for easy accessibility. As a result of the nature of information packaging and dissemination in the 20th century, students and scholars depended on print sources. However, 21st century brought revolutionary changes in the information sector.With changes in the 21st century, students and scholars are now faced with numerous electronic resources and databases which can be accessed anywhere provided there is internet connectivity.On daily basis huge amount of information is being generated in a variety of formats, all over the world, raising questions on its credibility, reliability, and authenticity. As a result,individuals are puzzled by the abundance of information and the diversified resources available for finding solutions to their problems(Shelar, 2011).

In such an environment of information overload, the acquisition, organization, retrieval and dissemination of information have not only become essential but information stakeholders needskills and knowledge to find, access, evaluates and effectively use information. In other words, the sheer abundance of information will not in itself create an informed citizenry without a complementary cluster of abilities necessary to use information effectively. Hof, Sluijs, Asamoah-Hassan and Agyen-Gyasi (2010) opined that the abundance

of information is not enough to build the information society but what is more important is to acquire skills to effectively use information.Although there has always been a need to find, evaluate, and effectively use information, the abilities needed to do so have grown larger, more complex, and more important in the ICT environment.

The idea of developing skills and knowledge to find, access and use information effectively, which evolved in the early 1970s has grown, taken shape and strengthened to become recognized as the critical literacy for the 21st century (Bruce, 2002). Librarians led the way in the early 1970s in conceptualizing this idea and its relationship to lifelong learning. As the environments of Library and Information Science (LIS) professionals and academic libraries have changed, the abilities to find, access and effectively use information have also changed and broadened. What started as library orientation grew to be library instruction and bibliographic instruction and finally became information literacy. Shenton (2009) concluded that:

> Information literacy has certainly expanded greatly in scope from its antecedents as user education or bibliographic instruction, which emphasized the exploitation of library tools, such as indexes, catalogues and classification schemes, and the use of particular types of sources, to expansive skills sets that are today permeated by a more widely applicable problem-solving perspective (p. 226).

Information literacy has been identified to include the capability of individuals to think critically and make balanced judgments about any information they find and use (Charted Institute of Library and Information Professionals, 2018).It encompasses the strategies, skills, knowledge and adoption of appropriate information behaviour needed to define information needs, and to locate, evaluate, synthesize, organize, use and communicate information in ethical manner (Society of College, National and University Libraries, 2011).

For the purpose of this study, information literacytherefore, may simply be defined asthe identification of what time information is needed, why information is needed, where to look for information needed, how to access and evaluate, use and share the kind of information found in an ethical manner.

The importance of Information literacy to students cannot be overemphasized. Information literacy promotes development of critical thinking, helps individual to become more self-directed, and presume greater control over their own learning.Information literacy as noted by University of Liverpool Learning and Teaching Committee (2007), allows students to develop the capacity for independent critical analysis that is the hallmark of a university education, and equips them with the capability to update their knowledge and skills after graduation. Bundy (2004) stated that an information literate person is the one who is able to: recognise a need for information; determine the extent of information needed; access information efficiently; critically evaluate information and its sources; classify, store, manipulate and redraft information collected or generated; incorporate selected information into their knowledge base; use information effectively to learn, create new knowledge, solve problems and make decisions; understand economic, legal, social, political and cultural issues in the use of information; access and use information ethically and legally; use information and knowledge for participative citizenship and social responsibility; and experience information literacy as part of independent learning and lifelong learning.

The aforementioned attribute of information literate individuals as enunciated by Council of Australian University Librarians are expected from students in order to attain information literacy skills.Information literacy skillsrefer to an individual's ability to locate, access, evaluate and use information effectively for needed information purposes which will also

make the individual to have a continuous learning process (Kovalik, Jesen, Schloman& Tipton, 2010; Nayda& Rankin, 2008).In other words, information literacy skills deal with capability of individual to identify, locate, evaluate, organize, and effectively use information to address general and personal issues and problems especially using the existing information to produce new ones.

The importance of information literacy has attracted growing recognition and as a result, many countries have recognized its relevance among their citizens and have implemented programme to inculcate the necessary skills among students at all levels. Hence, development of information literacy skills will multiply the opportunities for student's self-directed learning, as they become more engaged in using a wide variety of information sources to expand their knowledge, ask informed questions, and sharpen their critical thinking for still further self-directed learning. Information literacy skills, as noted by Adetoro (2010), will enable students especially those undergoing postgraduateeducation to perceive, encode, decode, retain and remember information or learning materials as they interact with different information sources.

Postgraduate education is an educational process that enables graduate students to specialize in masters or doctoral education in any field. Library and Information Science (LIS) postgraduate students who are students pursuing advanced study (Masters or PhD) in the Department of LIS, are expected to be grounded in LIS courses especially the information literacy courses. In other words, they are expected to have acquired information literacy skillsduring their undergraduate days which will enable them to find and use information, synthesize, evaluate and communicate it in an ethical way. Information literacy skills are very important for postgraduate students to gain research skills. Senel, Vildiz and Sahan (2017)

observed that postgraduate education process is a period when individuals take an eager interest in academic studies especially in research process in comparison with the other parts of their educational lives. In other words, postgraduate education programme is a period where postgraduate students are seriously involved in research activities.

Research as observed by Dumanand Ertem(2016) is a scientific questioning process that helps identify unknown factors and events, ameliorate established knowledge in order to find a solution to a problem and accordingly establishes concepts, theories and laws. In other words, research is the systematic process of collecting and analyzing data to increase a human understanding of the phenomenon under study in order to find solutions to a problem. Faculty members and postgraduate students are two main groups who are seriously engaged in research activities in universities.

As a result of the education process in universities and need to carry out in-depth research (especially theses and dissertation) that will effect change in the society and solve societal problems, postgraduate students are seriously involved in research process.In this regard,Koh and Zawi (2014) stated that basic research knowledge is essential for postgraduate students in a research university where the production of a well written thesis or dissertation is one of the major requirements of a postgraduate (masters or PhD.) conferment.Moreover, postgraduate students should be equipped with knowledge, skills and other competencies related to the field of research (Saracaloğlu, Varol&Ercan, 2005). Although equipping individuals with these features as pointed out by Saracaloğlu et al. are very necessary, it may not enough to do research. Affective features of individuals such as research self-efficacy and research anxietyas noted by Ocak and Ataseven (2016) also govern their research process.

Research self-efficacy can be referred to as the degree to which students are confident in performing different research tasks (Jones, 2012; Rezaei&Zamani-Miandasshti, 2013; Westhuizen, 2014). Kareshki and Bahmanabadi, (2013) defined research self-efficacy as the confidence of students in their ability to accomplish various research activities, ranging from library research to designing and completing scientific projects. For the purpose of this study, research self-efficacy therefore, may simply be defined as belief in one's capabilities to accomplish various research activities.Research self-efficacy has been found to predict students' interest in conducting research and is related to research productivity among students. Researcherssuch as Razavi, Shahrabi, and Siamian, (2017); Love, Bahne, Jones, &Nilson, (2007)have shown that low research self-efficacy can interfere with students' research training and their willingness to conduct research while high research self-efficacy is an important factor related to students successfully conducting research and pursuing research beyond graduate study. Also, researchers have shown thatstudents who have low levels of research self-efficacy have also been found to rate their own research anxiety to be high, which can impact one's ability to carry out research (Finney &Schraw, 2003).In other words, research self-efficacy has also been found to be associated with research related issues such as research anxiety.

Research anxiety, as noted by Erfanmanesh andDidgah (2012), can be defined as feelings of fear and uncertainty associated with authentic scientific research and production. Çokluk-Bökeoğlu andYılmaz (2005) viewed research anxiety as an inability to do research without feeling any force, feeling bored while doing research, feeling uncomfortable and worried while doing research, and feeling uncomfortable to do research. For the purpose of this study, research anxiety can be defined as a performance characterized by extensive worry, distress,

intrusive thoughts, mental disorganization, tension, and physiological arousal when an individual is exposed to research activities. Research anxiety can also be referred to as the characteristics which a student/an individual perceives as uneasy about research process, to the extent that productivity may be reduced.

Individuals who have research anxiety normally avoiddoing research and have a negative attitude towards it. McGrath (as cited in Rezaei, &Zamani-Miandashti, 2013) noted that fear and anxiety are often the causes of students failing to complete their dissertations and some students face considerable anxiety toward the dissertation process. Students with more confidence in their abilities to perform the dissertation task are less likely to react in a detrimental way to stress related to the dissertation process, have less trepidation for the dissertation, and are therefore more likely to demonstrate greater perseverance on the dissertation (Griffin, n.d).

Research anxiety is closely linked together to research self-efficacy in the way that both concepts are factors that foretell student attainment (Sevidy-Benton & O'Kelly, 2015), and both research anxiety and self-efficacy (especially low self-efficacy)may lead to catastrophic consequences for graduate students in their effort to successfully complete their programmes (Onwuegbuzie& Jiao as cited in Merc, 2016). In other words, research anxiety and research self-efficacy are two significantly related concepts to the extent that students' levels of research anxiety decrease while their research self-efficacy increases (Rezaei&Zamani-Miandashti, 2013). In this regard, Hebert, KulkinandAhn, (2014) stated that research anxiety level of students with high research self-efficacy is low and critical thinking skills of students with low research anxiety level is high.

Some researchers have observed that one of the reasons for research anxiety is the inability of individuals to access, evaluate, synthesize and use information needed for research purposes. This is because the problems to examine literature and underpin the research which is the first step of a qualified research according to McMillan and Schumacher (2001) cause individuals to avoid doing research and feeling anxious about it.In this regard, Onwuegbuzie and Wilson (2003) indicated that research anxiety is derived from individuals' lack of background knowledge about a subject while Wilensky (as cited in Ocak&Ataseven, 2016) stated that individuals' incomprehension of the meaning, purpose, source and validity of the information they use is among the reasons of research anxiety. In other words, lack of information literacy skills is one of the reasons for research anxiety which can also contribute to a low research self-efficacy. On the contrary, acquisition of information literacy skills and a high research self-efficacy will lead to a low or no research anxiety.

Researches such as Ocak and Ataseven, (2016) study have shown that acquisition of information literacy skills is very important to gain research skills. Library and Information Science postgraduate students are expected to be experts in research strategies since they have acquired information literacy skills especially the basic skills of literature search. Although acquisition of information literacy skills is very necessary for library and information science postgraduate students' research activities, it may not be enough to do research. Affective features of individuals such as research self-efficacy and research anxiety also govern their research activities.However, little has been done to ascertain if any connection exists among information literacy skills acquisition, research self-efficacy and research anxiety of LIS postgraduate students. It is therefore necessary to investigate the relationship among library

and information science postgraduate students' information literacy skills acquisition, research self-efficacy and research anxiety.

Statement of the Problem

One of the major objectives of university education is to produce graduates with lifelong learning abilities. Information literacy skill acquisition is recognized lifelong learning ability and graduate attribute. Furthermore, university undergraduate's LIS curriculum is developed to ensure that the students acquire information literacy skillson or before graduation. Acquisition ofinformation literacy skillsis expected to enable LIS graduateidentify, locate, evaluate, organize, and effectively use information to address personal issues and problems especially in carrying out academic research.In other words, library and information science postgraduate students are expected to be experts in research activities since they ought to have acquired information literacy skills.

However, the researcher's preliminary observations and interaction with LIS graduate students from different universities in Nigeria raise some doubt on their ability to utilize the information literacy skills they are supposed to have acquired for their research activities. Some of these postgraduate students do abandon their postgraduate programme immediately after their course work; some find it very difficult to get a researchable topic, some also abandon their thesis or dissertation half way while many as a result of procrastination spend more than the required year to finish the programme. Presently, there is a strong indication that many postgraduate students arenow depending on research consultants to write their thesis and dissertation. It has become worrisome that after acquisition of information literacy skills,some postgraduate students of LIS still find it difficult to produce a well written thesis or dissertation which is one of the major requirements of a postgraduate (masters or Ph.D.)

conferment. No wonder, researches have shown that acquisition of information literacy skills alone may not be enough to do research. Affective features of individuals such as research self-efficacy and research anxiety also govern their research activities.

However, from the researcher's best of knowledge, nothing has been done to ascertain if any correlation exists among library and information science postgraduate students' information literacy skills acquisition, research self-efficacy and research anxiety. It is therefore pertinent to carry out such a research to determine the relationship among library and information science postgraduate students' information literacy skills acquisition, research self-efficacy and research anxiety in Nigerian Universities. Hence, the question then is what relationship exists among library and information science postgraduate students' information literacy skills acquisition, research self-efficacy and research anxiety in Nigerian Universities?

Purpose of the Study

The purpose of the study is to determine the relationships among information literacy skills acquisition, research self-efficacy and research anxiety of Library and Information Science (LIS) postgraduate students in Southeast Nigerian Universities. Specifically, the study is designed to determine:

1. The relationship between information literacy skills acquisition and research self-efficacy ofLIS postgraduate students in Southeast Nigerian Universities.

2. The relationship between information literacy skills acquisition and research anxiety ofLIS postgraduate students in Southeast Nigerian Universities.

3. The relationship between research self-efficacy and research anxiety ofLIS postgraduate students in Southeast Nigerian Universities.

4. Therelationship between information literacy skills acquisition and research anxiety after controlling research self-efficacy of LIS postgraduate students in Southeast Nigerian Universities.

5. The relationship between information literacy skills acquisition and research self-efficacy after controlling research anxiety of LIS postgraduate students in Southeast Nigerian Universities.

6. The relationship between research self-efficacy and research anxiety after controlling information literacy skills acquisition of LIS postgraduate students in Southeast Nigerian Universities.

7. Whether significant relationship exists between information literacy skills acquisition and research self-efficacy of LIS postgraduate students in Southeast Nigerian Universities.

8. Whether significant relationship exists between information literacy skills acquisition and research anxiety of LIS postgraduate students in Southeast Nigerian Universities.

9. Whether significant relationship exists between research self-efficacy and research anxiety of LIS postgraduate students in Southeast Nigerian Universities.

10. Whether significant relationship exists between information literacy skills acquisition and research anxiety after controlling research self-efficacy of LIS postgraduate students in Southeast Nigerian Universities.

11. Whether significant relationship exists between information literacy skills acquisition and research self-efficacy after controlling research anxiety of LIS postgraduate students in Southeast Nigerian Universities.

12. Whether significant relationship exists between research self-efficacy and research anxiety after controlling information literacy skills acquisition of LIS postgraduate students in Southeast Nigerian Universities.

Significance of the Study

This work will be beneficial to three major stake-holders in Library and Information Science (LIS) namely; the LIS educators, LIS department and LIS postgraduate students. It will also be beneficial to the future researchers on the relationship among postgraduate students' information literacy skills acquisition, research self-efficacy and research anxiety. It will also be of immense benefit to the university as a whole.

LIS educators will be beneficiaries of the study as it will expose how postgraduate students' information literacy skills acquisition, research self-efficacy and research anxiety correlate among each other. It may sensitize the LIS educators who teach information literacy courses in undergraduate and postgraduate programmes to use the research findings to help students cultivate their affective domain in information literacy so as to make the students less anxious, develop high self-efficacy towards research. The findings may also help to encourage collaboration amongst LIS educators to ensure that information literacy is being taught in a way that it will help the students' future research activities.

It is believed that the findings of this study will identify the students' information literacy skills acquisitionand its relationship to research self-efficacy and research anxiety. Where it is not encouraging, LIS departments are expected to review the undergraduate information literacy curriculum and redesign it to influence research activities.

Postgraduate students of LIS will benefit from the study through the LIS educators' efforts to incorporate affective contents in the classroom. It is believed that the findings of the

study will expose how postgraduate students' information literacy skills acquisition, research self-efficacy and research anxiety correlate among each other and as a result, LIS educators are expected to incorporate the affective contents when teaching the postgraduate students.

The present study will provide valuable information to researchers who may wish to carry out further studies on the issues of relationship among postgraduate students' information literacy skills acquisition, research self-efficacy and research anxiety. It is also expected that this study would be a source of literature for further research or provide adequate ground for replication of the study in other higher institutions especially in Nigeria and other African countries. Moreover, the study will also add to the knowledge poll of information literacy skills, research self-efficacy and research anxiety. Furthermore, it will help both students and LIS professionals to increase their knowledge of information literacy skills, research self-efficacy and research anxiety.

Lastly, the university will benefit from the study as it will expose how postgraduate students' information literacy skills acquisition correlates with their research self-efficacy and research anxiety. Postgraduate students' Information literacy skills acquisition correlating with their research self-efficacy and research anxiety will make the university management to see the need to incorporate information literacy in the programme of all the disciplines in the university especially in postgraduate programme.

Scope of the Study

This study ascertainedthe relationships among information literacy skills acquisition, research self-efficacy and research anxiety of Library and Information Science (LIS) postgraduate students in Southeast Nigerian Universities. This study focuses on determining the: relationship between information literacy skills acquisition and research self-efficacy;

relationship between information literacy skills acquisition and research anxiety; and relationship between research self-efficacy and research anxiety among LIS postgraduate students. It also ascertainedhow research self-efficacy moderates the relationship between information literacy skills acquisition and research anxiety. The study covers all the federal and state universities in Southeast Nigeria that offer LIS at the postgraduate level.Only masters and PhD students enrolled in 2017/2018 and 2018/2019 academic session were involved in the study. Postgraduate diploma students were not involved in the study because many of them did not do their first degree in LIS and as a result, they are not grounded in information literacy courses.

Research Questions

The following research questions are formulated to guide the study:

1. What is the relationship between information literacy skills and research self-efficacy scores of LIS postgraduate students in Southeast Nigerian Universities?

2. What is the relationship between information literacy skills and research anxiety scores of LIS postgraduate students in Southeast Nigerian Universities?

3. What is the relationship between research self-efficacy and research anxiety scores of LIS postgraduate students in Southeast Nigerian Universities?

4. What is the relationship between information literacy skills and research anxiety scores after controlling research self-efficacy scores of LIS postgraduate students in Southeast Nigerian Universities?

5. What is the relationship between information literacy skills and research self-efficacy scores after controlling research anxiety scores of LIS postgraduate students in Southeast Nigerian Universities?

6. What is the relationship between research self-efficacy and research anxiety scores after controlling information literacy skills scores of LIS postgraduate students in Southeast Nigerian Universities?

Hypotheses

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

1. There is no significant relationship between information literacy skills and research self-efficacy scores of LIS postgraduate students in Southeast Nigerian Universities.

2. There is no significant relationship between information literacy skills and research anxiety scores of LIS postgraduate students in Southeast Nigerian Universities.

3. There is no significant relationship between research self-efficacy and research anxiety scores of LIS postgraduate students in Southeast Nigerian Universities.

4. There is no significant relationship between information literacy skills and research anxiety scores after controlling research self-efficacy scores of LIS postgraduate students in Southeast Nigerian Universities.

5. There is no significant relationship between information literacy skills and research self-efficacy scores after controlling research anxiety scores of LIS postgraduate students in Southeast Nigerian Universities.

6. There is no significant relationship between research self-efficacy and research anxiety scores after controlling information literacy skills scores of LIS postgraduate students in Southeast Nigerian Universities.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

The review of related literature is discussed under the following subheadings.

Conceptual Framework

Information literacy

Information literacy skills

Research self-efficacy

Research anxiety

Theoretical Framework

SCONUL's seven pillars of information literacy model

Bandura's self-efficacy theory

The inverted -U- principle theory by Galvin

Theoretical Studies

Information literacy skills acquisition of postgraduate students

Research self-efficacy of postgraduate students

Research anxiety of postgraduate students

Empirical Studies

Studies on relationshipbetween research self-efficacy and research anxiety of postgraduate students

Studies on relationship between information literacy skills and research anxiety of postgraduate students

Studies on information literacy skills of postgraduate students

Summary of Literature Review

Conceptual Framework

Information literacy

Information literacy is a term that is widely used across many disciplines and, in particular, the field of library science. Information literacy concept across the globe evolved from precursors such as library instruction, bibliographic instruction and user /reader education (Mittermeyer&Quirion, 2003; Pinto & Sales, 2006; Tolonen, 2006; Virkus, 2003). The Middle States Commission on Higher Education (2003) opined that the term information literacy has evolved over the past two decades in response to the changing requirements of higher education. From its beginnings as a form of library instruction, the concept now has been extended to describe a more comprehensive vision of teaching and learning in the academic world. In this regard, Al-Issa (2013) observed that:

> The development of Information literacy beginning with library instruction in its earliest form can be traced through the various techniques and strategies of basic bibliographic instruction. Being "synchronous" face-to-face instruction or "asynchronous" remote instructions, bibliographic instruction is at the heart of information literacy (p. 26).

The term information literacy was first introduced in 1974 by Paul Zurkowski, former president of the United States Industry Association, in a paper prepared for the National Commission for Libraries and Information Science (NCLIS), in which he opined that the people trained in the application of information resources to their work can be called information literates because they have learnt techniques and skills for using the wide range of information tools as well as primary sources in moulding information solutions to their problems (Al-Issa, 2013; Igwe, Emezie&Uzuegbu, 2014; Thomas, 2004). From its inception in 1974, the concept has gained national and international attention across the universe. And as a result, several alternative definitions have emerged from professional organizations,

educational institutions, and individuals to explain the concept better. These alternative definitions came about in response to the dynamic growth of information available and to the increasingly difficult navigation through this information overload to be more meaningful. In the 1980s when computers and their technologies became more widespread, there was a stronger need for knowledge in the organization, retrieval and manipulation of information (Al-Issa, 2013). As a result of widespread of computers and their technologies in 1980, Association of College and Research Libraries(ACRL, 2000) in their attempt to provide universally accepted definition of information literacy, defined information literacy as a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information. This definition and explanation given by ACRL according to Ranaweera, (2010) is considered as the foundation for the worldwide concept of information literacy. Bundy (2004), in line with ACRL definition, referred to information literacy as the broad set of skills and understandings that enable a person to recognize information needs, decide which resources will best answer those needs, know how to use the resources effectively, and evaluate the information they found.

In addition, Information Literacy Meeting of Experts (2003), looking at information literacy in the context of problem solving and information society stated that:

> Information Literacy encompasses knowledge of one's information concerns and needs, and the ability to identify, locate, evaluate, organize and effectively create, use and communicate information to address issues or problems at hand; it is a prerequisite for participating effectively in the Information Society, and is part of the basic human right of lifelong learning (p. 1).

Information literacy according to Johnston and Webber (2003) is the "adoption of appropriate information behaviour to obtain, through whatever channel or medium, information well fitted to information needs, together with critical awareness of the importance of wise and ethical

use of information in society" (p. 335). Webber (2006) expanded on the definition by acknowledging that:

1. "Appropriate information behavior" means that information literate person is aware of what his/her information habits are and is able to adapt his/her information behavior depending on the nature of the information need;

2. "Whatever channels or medium" acknowledges that people need many different kinds of information. For example, people are sometimes a good source of information, books may be best in other circumstance, numeric data may sometimes be appropriate;

3. "Wise and ethical use of information society" means that information literate people are aware of the way in which information may be culturally sensitive, or politically meaningful.

On this regard, the Chartered Institute of Library and Information professionals (CILIP, 2004) defined information literacy as recognition of when and why you need information, where to find it, and how to evaluate, use and communicate it in an ethical manner. The Middle States Commission on Higher Education, in the 2002 edition of Characteristics of Excellence in Higher Education: Eligibility Requirements and Standards for Accreditation define information literacy as:

> An intellectual framework for identifying, finding, understanding, evaluating and using information. It includes determining the nature and extent of needed information; accessing information effectively and efficiently; evaluating critically information and its sources; incorporating selected information in the learner's knowledge base and value system; using information effectively to accomplish a specific purpose; understanding the economic, legal and social issues surrounding the use of information and information technology; and observing laws, regulations, and institutional policies related to the access and use of information (The Middle States Commission on Higher Education, 2003. p. 1).

Association of College and Research Libraries (2016) in their more recent framework provides a broader, more theoretical description on information literacy, including taking into consideration creating and using information through collaboration with others and understanding the context in which information is created. They concluded that Information literacy is the set of integrated abilities encompassing the reflective discovery of information, the understanding of how information is produced and valued, and the use of information in creating new knowledge and participating ethically in communities of learning.

Boekhorst (2003) summarises the definitions and description which have been presented over many years into three concepts:

1. The Information and Communication Technologies (ICT) concepts: the information literacy refers to the competence to use ICT to retrieve and disseminate information;

2. The information (re)sources concept: information literacy refers to the competence to find and use information independently or with the aid of intermediaries;

3. The information process concept: this concept includes both the ICT and the information and the information (re)sources concept and persons are considered as information systems that retrieve, evaluate, process and disseminate information to make decisions to survive for self – actualization and development.

The above explanation of information literacy concepts from different researchers shows that information literacy cannot be understood in standalone terms. Webb and Powis (2005), for example, discussed the area from the perspective of learning styles and Eisenberg, Lowe and

Spitzer (2004) make connections in relation to information literacy, digital literacy and network literacy. Boekhorst (as cited in Virkus, Boekhorst, Gome – Hernandez, Skov& Webber, 2005) stated that:

> All these literacies (basic literacy, scientific literacy, technological literacy, visual literacy, cultural literacy) can be considered as specific competences that belong under the information literacy umbrella. Therefore information literacy should be considered as a container concept, which refers to competencies of people to recognize the need for information and to satisfy their information needs for survival, self-actualisation and development (p. 66).

Montgomery (as cited in Thomas, 2004), expanded on this theme by acknowledging that information literacy has become an umbrella term encompassing electronic searching and information retrieval skills, library skills, media skills, research skills, reference skills. Eisenberg and Berkowitz, (as cited in Langfford, 1998) stated that information literacy is not library skills, nor is it computer skills, nor even information problem solving skills, but all of these are necessary enhancers of information literacy. Audunson and Nordlie, (as cited in Virkus, 2003) also highlighted three main categories of information literacy as; technical capabilities (also known as computer literacy); intellectual capabilities related to traditional literacy; and communicative competency that presupposes technical as well as intellectual capabilities and at the same time transcends them. Ferguson (2003) opined that a complete picture of information literacy must include five essential components; basic literacy, library literacy, media literacy, technology literacy and visual literacy. On this regard, the Standing Conference of National and University Libraries, (SCOUNL, 2011) concluded that "information literacy is an umbrella term which encompasses concepts such as digital, visual and media literacy, academic literacy, information handling, information skills, data curation and data management" (p. 3).

From the foregoing discussion, it can be synthesize that information literacy which evolved from precursors such as library orientation, library instruction, bibliographic instruction and user/reader education deals with recognition of when and why information is needed, where to find it, and how to access and evaluate, use and communicate it in an ethical manner. It is an umbrella term which encompasses concepts such as computer literacy, technology literacy, digital literacy, library literacy, visual and media literacy, academic literacy, information handling, information skills, and data management.

Information literacy skills

The concept of information literacy skills have been widely discussed by different scholars.Information literacy skills as pointed out by Kovalik, Jesen, Schloman and Tipton (2010) refers to an individual's ability to recognize when there is a need for information, and to be able to identify, locate, evaluate, and effectively use that information for the issue or problem at hand. Also, Okpala, Benneh, Sefu and Kalule (2017) noted that Information literacy skills deals with the ability of a person to search, locate, evaluate, disseminate and use the right information to solve a given problem.Ojedokun and Lumade (2015) described information literacy skills as the ability to locate, evaluate, manage and use information from a range of sources not only for problem-solving but also for decision making and research. Bothma, Cosijn, Fourie and Penzhorn (2014) defined information literacy skills as the ability to find, retrieve, analyse and use information. Lin (2010) opined that information literacy skills deals with a set of abilities which enable people to access, evaluate and utilize information resources and the creation of effective information solutions to address problems. SCONUL (2011) suggested that information literacy skills deal with the ability to gather, use, manage, synthesize and create information and data in an ethical manner.

Furthermore, Mutongi and Chiwanza (2016)averred that information literacy skills are the integrated set of skills pertaining to research strategy, evaluation and knowledge of tools and resource that are developed through the acquisition of attributes relating to persistence, attention to detail caution in accepting sources. On this regard, Bruce (2003) pointed out that information literacy skills deal with the ability to access, evaluate, organize and use information in order to learn, solve problem, and make decisions in formal and informal learning contexts, at work, at home and educational settings. Williams and Wavell (2007) concluded that Information literacy skills deals with an individual confidence and ability to draw on a range of strategies at a variety of cognitive levels and an ability to be creative and flexible enough to adapt to ever-changing contexts as well as the dynamic process of interpreting and transforming information into new knowledge.

From the foregoing discussion, it can be synthesize that information literacy skills have to do with the ability to: determine the extent of information needed; access information efficiently; critically evaluate information and its sources; classify, store, manipulate and redraft information collected or generated; use information effectively to learn, create new knowledge, solve problems and make decisions; access and use information ethically and legally; use information and knowledge for participative citizenship and social responsibility.

Research self-efficacy

Self-efficacy is a psychological construct developed in the late 1970s and extended over the next two decades by social cognitive theorist Albert Bandura. The Bandura's construct of self-efficacy has been widely used in research on human motivation and goal attainment. According to Bandura (2005) self-efficacy deals with beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments. In other

words, self-efficacy concept as observed by Bandura deals with the belief in one's capacity to fulfill a certain task successfully through organising the actions necessary for one to demonstrate a certain performance. In line with Bandura's definition of self-efficacy, Ekizoglu andOzcinar (2010) defined self-efficacy as self-judgment of individuals organizing required activities to show a definite performance, and the capacity of doing these activities successfully. In this regard, Jones (2008) presented a more technical definition of self-efficacy, as "composed of confidence in the ability to accomplish particular tasks and perform particular skill and it is also composed of confidence in self-regulatory strategies to accomplish those tasks" (p. 230). In general, self-efficacy term represents one's confidence in being able to perform a given behavior. It involves a personal judgment or belief regarding the capability to complete an assignment and the self-confidence in having the skills to do so. In other words, self-efficacy is a person's judgment about being able to perform a particular activity which can be any task such as research related tasks. Considering the fact that self-efficacy beliefs have been examined in different scientific fields and researches have shown that self-efficacy beliefs are effective in most scientific fields, researchers have focused on the impact of these beliefs on research and this has caused a new concept entitled research self-efficacy (Garavand, Kareshki&Ahanchian, 2014; Salehi, Kareshk&Ahanchian, 2013).

The concept of self-efficacy as applied to research can be defined as confidence in carrying out research activities from organizing a research plan to carrying out the research process, ranging from library research to designing and completing scientific projects (Baltes, Lynn &Weltzer-ward 2010; Kareshki&Bahmanabadi, 2013). Similarly, research self-efficacy can be seen as a form of self-efficacy defined by one's confidence in one's ability to execute research-related tasks successfully (Hemmings&kay, 2010). These tasks could include items

such as data collection, completing literature reviews, and data analysis. In this regard, Forester, Kahn and Hesson-McInnis (2004) therefore stated that research self-efficacy, deals with an individual's confidence in his or her ability to successfully perform the tasks involved in conducting research. Jones, (2012) opined that research self-efficacy deals with the individual's perception and belief about his ability to organize and implement a series of actions to achieve certain research functions. It could be said that the individual's perception of research capability plays an important role in conducting research, successfully.In the same manner, Westhuizen (2014) defined research self-efficacy as the degree to which students are confident in performing different research tasks. Brancolini and Kennedy (2017) concluded that one of the individual attributes that is a documented predictor of research success is research self-efficacy, which is conceptualized as the degree to which an individual believes he or she has the ability to complete various research tasks (example, conceptualization, analysis, writing).

Researchers identified four dimensions for research self-efficacy to include: data analysis (that is, confidence in one's ability to work with and analyze data), research integration (that is, confidence in one's ability to integrate one's research ideas with the existing literature), data collection (that is, confidence in one's ability to complete data collections tasks such as training raters and keeping accurate records), and technical writing (that is, one's ability to write research articles for publication) (Forester, Kahn &Hesson-McInnis, 2004).

From the foregoing discussion, it can be synthesized that research self-efficacy deals with an individual's beliefs or perceptions with respect to his or her abilities in carrying out research activities. In other words, research self-efficacy deals with an individual estimation

of how well he/she can carry out research related task successfully. That is, an individual's research self-efficacy is his or her confidence about completing a variety of research related tasks successfully, ranging from library research to designing and completing research projects.

Research anxiety

Anxiety is a psychological and physiological state characterized by physical, emotional, cognitive, and behavioural components. Anxiety as observed by Rachel and Chidsey (2005) is one of the wide varieties of emotional and behaviour disorders. Anxiety is defined by Putman (2010) and American Psychiatric Association (2000) as a complex psychological and behavioural condition. Vitasari, Wahab, Othman, Herawan and Sinnadurai (2010) opined that anxiety is a subjective feeling of tension, apprehension, nervousness, and worry associated with arousal of the nervous system. Generally, anxiety as noted by Lee (2011) can be categorized into two which include; trait anxiety (an individual's inherent tendency to view the world as threatening or dangerous) and state anxiety (specific to a particular situation or stimulus that can vary in intensity depending on the situation). In other words, trait anxiety is a stable characteristic or trait of the person. State anxiety is one which is aroused by some temporary condition of the environment such as research, examination, accident, punishment and others.

Research anxiety as opined by Higgins and Kotrlik (2006) refers to the characteristics which a student perceives as discomforting, to the extent that productivity may be reduced. Senel, Yildiz, Lilas and Sahan (2015) defined research anxiety as "behaviors such as feeling the boredom of the opinion of doing research, not doing research unless obliged, feeling anxious while doing research, lack of confidence about doing research" (p. 2).

Onwuegbuzie(as cited in Merc, 2016) stated that research anxiety can simply be defined as the anxiety that students experience in courses on research methodology. In his pioneer study on research anxiety, Onwuegbuzie (1997) conjectured that research anxiety is multidimensional mechanism which includes library anxiety (literature search anxiety), statistical anxiety, composition anxiety, and research process anxiety. In line with Onwuegbuzie assertion, Erfanmanesh andDidgah (2012) defined research anxiety as feelings of fear and uncertainty associated with authentic scientific research and production. Research anxiety can affect the quality and quantity of scientific production, influence researcher job satisfaction, personal life and physical or emotional health, contribute to burnout, and may cause high levels of anxiety and long-term physical, physiological and behavioral problems (Robert, 2006).

From the foregoing discussion, it can be symphonized that research anxiety includes any feeling of fear and distress during the research process such as choosing a research topic, getting a feedback from supervisor/mentor, conducting a literature search, formulating a hypothesis or problem statement, selecting research design, measuring variables and gathering data, analyzing data and drawing a conclusion.

Theoretical Framework

Three theories that propel this study are:

SCONUL'S seven pillars of information literacy model by the United Kingdom'sSociety of College, National and University Libraries (1999)

Bandura self-efficacy theory by Albert Bandura (1977)

The inverted -U- principle theory by Robert Yerkes and John Dodson (1908)

SCONUL'S seven pillars of information literacy model by the United Kingdom's Society of College, National and University Libraries (1999)

Seven pillars of information literacy modelwas developed by the United Kingdom's Society of College, National and University Libraries (SCONUL) in 1999.In 2011, the SCONUL working Group on Information Literacy updated and expanded the model in order to reflect more clearly the range of different terminologies and concepts which are now understood as information literacy. Information literate researchers according to SCONUL (2011) will demonstrate an awareness of how they gather, use, manage, synthesize and create information and data in an ethical manner and will have the information skills to do so effectively. In other words, this new model defines the core competencies that are the goals of information literacy development in higher education, with each core competency called a "pillar". Within each "pillar" a researcher can develop from "novice" to "expert" as they progress through their research life, although, as the information world itself is constantly changing and developing, it is possible to move down a pillar as well as progress up it. The pillars are envisioned as a circle or cycle, rather than a sequence, and individuals can achieve different levels of complexity within each pillar. The circular nature of the model demonstrates that becoming information literate is not a linear process; a person can be developing within several pillars simultaneously and independently, although in practice they are often closely linked.

The seven pillars are:

Identify: A researcher is able to identify a need for information

Scope: A researcher can assess current knowledge and identify gaps

Plan: A researcher can construct strategies for locating information and data

Gather: A researcher can locate and access the information and data they need

Evaluate: A researcher can review the research process and compare and evaluate information and data

Manage: A researcher can organize information professionally and ethically

Present: A researcher can apply the knowledge gained: presenting the results of their research, synthesizing new and old information and data to create new knowledge and disseminating it in a variety of ways.
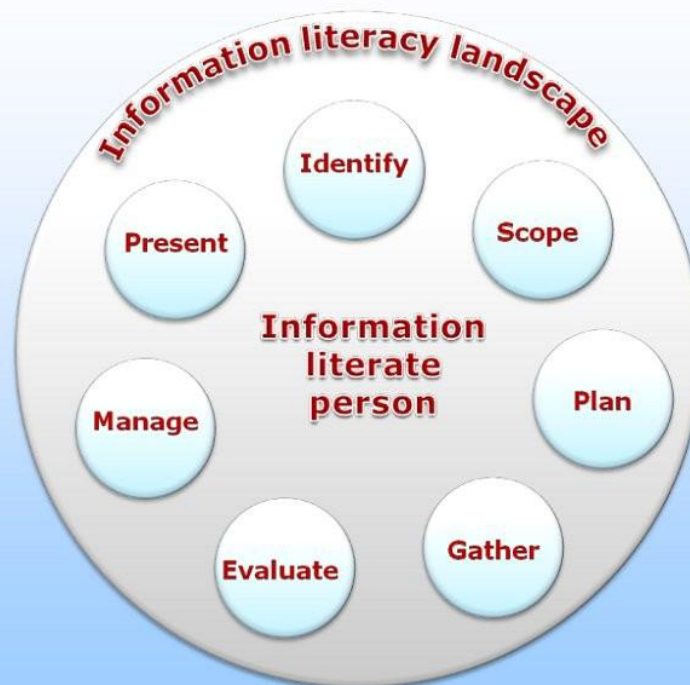
Each pillar according to SCONUL (2011) is further described by a series of statements relating to a set of competencies. In other words, each pillar deals with necessary skills and attitudes which will enable a researcheridentify a need for information; assessing current knowledge and identifying gaps; constructing strategies for locating information and data;

locating and accessing the information and data needed; reviewing the research process and comparing and evaluating information and data; and organizing information professionally and ethically. The skills and attitudes are also expected to enable a researcher to apply the knowledge gained: presenting the results of their research, synthesizing new and old information and data to create new knowledge and disseminating it in a variety of ways.

This theoretical model of information literacy by SCONUL (2011) is related to the present study because it explained different stages of information literacy skills which a researcher needs to acquire in order to be able to carry out research effectively. In other words, a researcher who has acquired information literacy skills is expected to develop a right attitude towards research and also possesses the ability to carry out research effectively and efficiently. Right attitude and acquisition of information literacy skills can actually affect research self-efficacy and research anxiety. When a researcher has acquired information literacy skills with right attitude, it is expected that the researcher will have confidence in his/her ability to carry out research and as well, will not have any issue towards research anxiety.Thistheoretical model failed to capture the variable of research self-efficacy and research anxiety; hence the need for another theory.

Bandura self-efficacy theory by Albert Bandura (1977)

Self-efficacy theory was propounded by Albert Bandura in 1977. The theory stated that psychological procedures, whatever their form, alter the level and strength of self-efficacy (Bandura, 1977).The theory hypothesized that expectations of personal mastery affect both initiation and persistence of coping behavior. The strength of people's convictions in their own effectiveness is likely to affect whether they will even try to cope with given situations. In other words, Bandura proposed that perceived self-efficacy influences what

coping behavior is initiated when an individual is met with stress and challenges, along with determining how much effort will be expended to reach one's goals and for how long those goals will be pursued. People fear and tend to avoid threatening situations they believe exceed their coping skills, whereas they get involved in activities and behave assuredly when they judge themselves capable of handling situations that would otherwise be intimidating. Efficacy expectations determine how much effort people will expend and how long they will persist in the face of obstacles and aversive experiences. Those who persist in subjectively threatening activities that are in fact relatively safe will gain corrective experiences that reinforce their sense of efficacy, thereby eventually eliminating their defensive behavior. Those who cease their coping efforts prematurely will retain their self-debilitating expectations and fears for a long time. Bandura further stated that the preceding analysis of how perceived self-efficacy influences performance is not meant to imply that expectation is the sole determinant of behavior. Expectation alone will not produce desired performance if the component capabilities are lacking. Given appropriate skills and adequate incentives, however, efficacy expectations are a major determinant of people's choice of activities, how much effort they will expend, and of how long they will sustain effort in dealing with stressful situations.

The theory further introduces the idea that perception of self-efficacy is influenced by four factors: Mastery experiences, vicarious experience, verbal or social persuasion, somatic and emotional state (Bandura, 1994).

Mastery experiences: These are actual experiences that develop cognitive, social, linguistic and physical abilities. They help individual to gauge the effects of their actions, and this helps them to create self-efficacy with regard to the actions they have performed. The

perception of success in these activities increases self-efficacy, while that of failure lowers it. Mastery experiences are the most effective way to boost self-efficacy because people are more likely to believe they can do something new if it is similar to something they have already done well (Bandura, 1994).

Vicarious experience: People do not rely on experienced mastery as the sole source of information concerning their level of self-efficacy. Many expectations are derived from vicarious experience. Seeing others perform threatening activities without adverse consequences can generate expectations in observers that they too will improve if they intensify and persist in their efforts.

Verbal persuasion: In attempts to influence human behavior, verbal persuasion is widely used because of its ease and ready availability. People are led, through suggestion, into believing they can cope successfully with what has overwhelmed them in the past.

Somatic and emotional arousal: The physical and emotional states that occur when someone contemplates doing something provide clues as to the likelihood of success or failure. Physiological states such as anxiety, stress, worry and fear all affect self-efficacy and can lead to a self-fulfilling prophecy of failure or inability to perform the feared tasks. Stressful situation create emotional arousal which in turn affects a person's perceived self-efficacy in coping with the situation (Pajares, 2002).

The central theme of Bandura self-efficacy theory is that people generally will only attempt things they believe they can accomplish and won't attempt things they believe they will fail. In relation to this work, postgraduate students who believed they can actually carry out research effectively can accomplish that while those who do not believe will not try or even when they try will fail. Postgraduate students with a strong sense of research self-

efficacy are expected to believe they can accomplish even difficult research tasks. This is because efficacious people set challenging goals and maintain strong commitments to them. In the face of impending failure, they increase and sustain their efforts to be successful. They approach difficult or threatening situations with confidence that they have control over them. Having this type of outlook as noted by Bandura, (1994) reduces anxiety, stress and lowers the risk of depression. In other words, postgraduate students with a strong sense of research self-efficacy will not be affected by research anxiety. Based on the above proposition, it is believed that postgraduate students of library and information science who have acquired information literacy skills and research skills will have confidence to carry out research effectively and therefore will not be affected with research anxiety.

Conversely, postgraduate students who doubt their ability to accomplish difficult research tasks, see these tasks as threats. They will definitely avoid them based on their own personal weaknesses or on the obstacles preventing them from being successful. These kind of postgraduate students give up quickly in the face of difficulties or failure, and it does not take much for them to lose faith in their abilities. An outlook like this as noted by Bandura (1994) increases anxiety, stress and risk of depression. In other words, postgraduate students who doubt their ability to accomplish research related tasks will develop research anxiety. However, postgraduate students of library and information science who have acquired information literacy skills and research skills are not expected to doubt their ability to accomplish research related task. And as a result, will not be affected with research anxiety.

The inverted -U- principle theory by Robert Yerkes and John Dodson (1908)

The Inverted -U-Principle theory was derived from Yerkes-Dodson's Law of Drive Theory and refined by Galvin in 1994 (Syokwaa, Aloka&Ndunge, 2014). The theory links arousal to

performance, and it is also referred to as the theory of 'Arousal and Performance. Arousal is the level of excitement or activation generated in the central nervous system to trigger production of the energy required to perform a desired task. The level of arousal of energy experienced by the individual determines the effectiveness of that individual's performance of the task at hand. The Uprinciple theory's argument is that if arousal increases, performance would increase as well, but if arousal became too great and continuously, then performance would deteriorate (Galvin, 1994). In simpler terms, increase in arousal to a certain level can help to boost performance but once the arousal crosses the optimal level, performance of the individual starts to diminish. This means that during onset of the arousal state, the individual would still feel confident in his/her ability to control the arousal pressure, and performance would continue to improve. However, once the arousal becomes too great, the individual would start to doubt his/her ability to cope, and her/his performance would automatically begin to drop. There is therefore a progressive relationship between a person's level of arousal and the ability to function effectively. However, when the person is too anxious, the anxiety may interfere with performance because his/her concentration tends to focus too much on his/her anxiety build-up process to the extent that he/she loses focus of the task at hand. The shift of attention gives a leeway to continue rising levels of anxiety, leading to the person's inability to maintain the balance that would enable them perform effectively. The arousal performance process progresses gradually, beginning from a lower level, to optimum (top of the U) and to high levels. At each level the individual's functioning capacity is altered to conform to the arousal-performance interaction. As arousal increases, so too does the quality of performance which gradually improves until it reaches the optimum point (top of the inverted 'U'). If the arousal is increased beyond this point, then performance begins to

decline, and when the arousal is too high that the individual is "psyched up", performance almost diminishes.

Following the theory therefore, one can logically observe that an easy or simple task such as adding simple math numbers does not require focusing on several factors simultaneously, and is usually facilitated by high levels of arousal. On the other hand a complex task such as solving a math problem with many steps requires attending to many factors at once. For this reason, complex tasks are usually carried out better at lower levels of arousal. Both over arousal and under arousal can have negative effects on performance. The optima levels vary between people doing the same task and one person doing different tasks. A basic assumption of the hypothesis is that arousal is un-dimensional and that there is consequently a very close correlation between indicators of arousal. In an attempt to explain the existence of individual differences in individual ability to cope with varied anxiety levels, Hanin, (1999) came up with the concept of individualized zones ofoptimal functioning. Hanin stated thatthere are individual differences in the way people react to anxiety. Some tend to succeed when anxiety is low while others tend to succeed when anxiety is high. Skill level of an individual also effects his/her performance (a highly trained individual, confident in his skill, is more likely to cope well in high pressure situations, as the person would be able to rely on his well-rehearsed responses). Person's self-confidence also affects how he/she handles any situations. If a person's confidence is high and he/she doesn't question himself/herself repeatedly over their own abilities, then they are more likely to maintain composure in pressurized situations.

In relation to the Inverted -Uprinciple therefore, this study assumed that in a normal situation a postgraduate student would need some level of anxiety to positively energize him/her to attend to research activities. At mild and moderate anxiety levels, their performance ability is likely to bring forth desirable results. But once the anxiety escalates and remains beyond optimum level, the possibility is that the postgraduate student's performance in conducting research would drop. The inverted U-principle also states thatthere are individual differences in the way people react to anxiety. People tend to react to anxiety based on their personality, skill level and level of confidence. LIS postgraduate students who possessed information literacy skills, is more likely to cope well in high pressure research situations, as such students would be able to rely on his/herwell-rehearsed responses. If LIS postgraduate students' confidence is high and he/she doesn't question himself/herself repeatedly over their own abilities, then they are more likely to maintain composure in pressurized research situations.

Theoretical Studies

Information literacy skills acquisition

The amount of information available to students especially postgraduate who are into research necessitates that each individual acquire the skills to select, access, evaluate, and use information appropriately and effectively. Sasikala and Dhanraju (2011) argued that information literacy skills are necessary and very useful in every aspect of a person's life. Ani and Bassey (2008) stated that acquisition of information literacy skills will enable library users' especially postgraduate students to engage in a holistic interactive learning which in turn enable the user to recognize the need for information and know how to find, evaluate, use and subsequently communicate information effectively to solve problems or to make

decisions. Acquisition of information literacy skills as noted by Ukachi (2013) requires being able to define a subject or area of investigation; selecting appropriate terminology that expresses the concept under investigation; formulating a search strategy that takes into consideration different information sources and the various ways information is organized; analyzing the data collected for value, relevancy, quality and suitability; and subsequently turn them into knowledge. Similarly, Council of Australian University Librarians, (2001) stated that acquisition of information literacy skills will enable students to: recognize a need for information; determine the extent of information needed; access the needed information efficiently; evaluate the information and its sources; incorporate selected information into their knowledge base; use information effectively to accomplish a purpose; understand economic, legal, social and cultural issues in the use of information; access and use information ethically and legally; classify, store, manipulate and redraft information collected or generated; and recognize information literacy as a prerequisite for lifelong learning.

Possession of information literacy skills as observed by Shapiro and Hughes (2006) gives library users especially postgraduate students the practical skills needed in the effective use of information technology and print or electronic information resources. They further opined that information literacy skills acquisition extends beyond technical skills as it is a user's critical reflection on the nature of information itself, its technical infrastructure and its social, cultural, and even philosophical context and impact. Doyle (2002) asserted that students need some level of information literacy skills to make decisions about academic matters and other aspects of their daily lives. Likewise, University of South Carolina (n.d) averred that acquisition of information literacy skills will help students to locate, correctly evaluate, successfully use and clearly communicate information in its various formats.

Ranaweera (2008) opined that "information literacy skills empower the people with critical skills which will help them to become independent lifelong learners. These skills will enable people to apply their knowledge from familiar environment to the unfamiliar" (p. 2). Similarly, Clarke (2009) noted that an individual who possesses information literacy skills often end up being an independent lifelong learner and also possesses another set of skills or literacy such as: tool literacy which entails the ability to use print and electronic resources including software and online resources;resource literacy which covers ability to understand the form, format, location and methods for accessing information resources; social-structural literacy which deals with knowledge of how information is socially situated and produced; research literacy which also deals with the ability to understand and use information technology tools to carry out research, including the use of discipline-related software and online resources; publishing literacy covers the ability to produce a text or multimedia report of research results.

The acquisition of information literacy skills as pointed out by Ilogho and Nkiko (2014) is imperative to the students' ability to search, evaluate and use information effectively. Ukpebor and Emojorho (2012) stated that possession of relevant information literacy skills and equitable access to learning resources will help the students to overcome barriers to academic achievement. In that regard, Grafstein (2002) stated that information literacy skills will equip students with knowledge about specific subjects, contents, research practices and information retrieval systems that apply generally across disciplines. Brown and Mokgele (2007) identified three basic steps needed in the acquisition of information literacy skills to include; orientation, interaction and internalisation. Orientation as observed by Jager and Nassimbeni (2003) involves users familiarising themselves with the information sources

available to them, and defining their specific information needs, while interaction suggests that information-seekers make active use of the various information sources and refine their information needs as they go along, retrieving the most relevant material and analysing the information contained in it. The last stage, internalisation, indicates that they finally absorb the information obtained, and apply it usefully to a given situation. At the end of these three stages, true information literacy as pointed out by Jager and Nassimbeni should have been achieved. Similarly, Andretta, Hernon and Dungan (as cited in King, 2007) opined that the attribute of information literacy skills belongs in three groups, the first being information skill, that is, to employ traditional and modern information technology to retrieve, manage and present information in an ever widening array of information sources. The second is being the cognitive skills of analyzing, problem solving, critically thinking, critically evaluating, synthesizing, organizing and communicating information. The third is embanked in the values and beliefs resulting in using information wisely and ethically as well as with social responsibility and community participation.

Mitchell (n.d) indicated that Information literacy skills are exemplified by ideas such as the ability to discover, retrieve, and use information, the ability to manage information, and the ability to make critical choices about information resources. Ojedokun (2007) posited that information literacy skills in all disciples requires an individual to be able to define problem; initiate a plan to find information; locate and access resources; use the information; synthesize information; and carry out some forms of evaluation. On this regard, Andretta (2005) study of information literacy skills identifies higher and lower order thinking associated with information literacy skills. Lower order thinking according to Andretta involves activities such as the identification of keywords, synonyms and related terms when a search strategy is

formulated. Higher-order thinking at the other end of the scale involves abstraction to develop a new hypothesis. Lock (2003) noted that there are two ways of looking at information literacy skills in institutions of higher learning. The first strand relates to study skills which includes skills such as being able to use a library and its resources for advancing one's studies, being able to perform literature searches to whatever depth and complexity required for a particular curriculum or discipline area, and being able to demonstrate this to the satisfaction of tutors and assessors in whatever form necessary by means of citations and references to reading and information gathering. The second strand includes attributes of awareness and understanding of the way in which information is produced, some practical ideas of how information is acquired, managed, disseminated and exploited, particularly with knowledge of how appropriate professional groups use information in the workplace, in business, and in the world of culture and the arts. It also includes the critical appraisal of the content and validity of the information.

Information literacy skills were summarized byDeMars, Cameron and Erwin (2003) into the following sequential stages:

1. Define, formulate and analyse the task or problem;

2. Describe services typically available in libraries;

3. Choose appropriate reference sources for a particular information need;

4. Employ an efficient search strategy for a research paper or speech;

5. Search library catalogues, research data bases and the Internet effectively;

6. Locate, access and extract relevant information in sources;

7. Evaluate sources in terms of accuracy, authority, bias and relevance;

8. Record and store collected information;

9. Organize and synthesize information in the required format from multiple sources; and

10. Apply information ethics by citing sources appropriately and observing copyright.

The International Federation of Library Associations and Institutions (IFLA)'s information literacy standards as noted by Lau (2006) grouped information literacy skills under three basic information literacy components which include; access, evaluate and use. The three basic information literacy components are further categorized with some features. 1. Access:the user accesses information effectively and efficiently; this covers the following: Defines or recognizes the need for information; decides to do something to find the information; expresses and defines the information need; initiates the search process; identifies, and evaluates potential sources of information; develops search strategies; accesses the selected information sources; and selects and retrieves the located information. 2. Evaluation:the user evaluates information critically and competently; this focuses the following: Analyzes, and examines, extracting information; generalizes and interprets information; evaluates accuracy and relevance of the retrieved information, organization of information, arranges and categorizes information; groups and organizes the retrieved information; and determines which information is the best and most useful. 3. Use:the user applies/uses information accurately and creatively in the following ways: Finds new ways to communicate, present and use information; applies the retrieved information; learns, or internalizes information as a personal knowledge; presents the information product; understands ethical use of information; respects the legal use of information; and communicates the learning product with acknowledgement of intellectual property. Armstrong, Boden, Town, woolley, Webber and

Angela (2004) stated that information literacy implies several skills. The skills which are required if an individual is to be information literate necessitate an understanding of: a need for information; the resource available; how to find information; the need to evaluate results; how to work with or exploit results; ethics and responsibility of use; how to communicate or share your findings and how to manage your findings.

Likewise, University of South Carolina (n.d) identified top 10 information literacy skills to include the ability to: know when information is required; know how to write a research question, know where to find information, determine the sources of information, select the best sources, use the information, organize information, present information, evaluate information, and use information in an ethical manner. In attempt to narrow information literacy skills to research process, Dunn (2002) report on assessment of information literacy skills in the California State University identified six core skills that are needed for an information literate person. These include to

1. Formulate and state a research question, problem, or issue not only within the conceptual framework of a discipline, but also in a manner in which others can readily understand and cooperatively engage in the search.

2. Determine the information requirements for a research question, problem or issue in order to formulate a search strategy that will use a variety of resources.

3. Locate and retrieve relevant information, in all its various formats, using, when appropriate, technological tools.

4. Organize information in a manner that permits analysis, evaluation, synthesis, and understanding.

5. Create and communicate information effectively using various media

6. Understand the ethical, legal and sociopolitical issues surrounding information

7. Understand the techniques, points of view and practices employed in the presentation of information from all sources.

From the foregoing discussion, it can be synthesize that information literacy skills has to do with the ability to: determine the extent of information needed; access information efficiently; critically evaluate information and its sources; classify, store, manipulate and redraft information collected or generated; use information effectively to learn, create new knowledge, solve problems and make decisions; access and use information ethically and legally; use information and knowledge for participative citizenship and social responsibility.

Research self-efficacy of Postgraduate students

Self-efficacy is an important psychological construct in understanding the reason people choose to pursue particular activities and the extent of effort they devote to these. Self-efficacy is a result or outcome of the belief that one has the confidence and the ability to execute the courses of actions required to deal with a given situation in which they are trained. Vaccaro (2009) posited that self-efficacy encompasses more than the ability to execute a task, rather it involves the person's thought processes, motivation, affective and psychological states. From studies of different researches on the self-efficacy, Snyder and Lopez (2002) observed that there is evidence that the self-efficacy is not observable skill. In other words, self-efficacy cannot be defined as a skill. Nevertheless, the self-efficacy has effects on the cognitive, behavioral, affective and choosing processes. Pajares (2002) opined that self-efficacy does not actually relate to ability but rather a belief of what can be achieved with it, and hence is a pivotal factor for success through self-encouragement. In this regard, Gawith (as cited in Büyüköztürk, Atalay, Sozgun&Kebapçı, 2011) observed that a person would not

be able to carry out a certain task for which he has the ability to unless he has the confidence to do so. Self-efficacy as recorded by Mullikin, Bakken, and Betz (2007) is a good predictor of behavior and research self-efficacy is particularly useful in identifying the forces at work in career choices for graduate students regarding whether or not they will engage in research formally in their work.

Research self-efficacy as noted by Lev, Kolassa, and Bakken (2010) is very important for doing or not doing a research. Similarly, Onwuegbuzie (2003) asserted that research self-efficacy is believed to influence students' choices of behaviour, effort invested, persistence and consequently task success. Several studies as observed by Niehaus, Garcia and Reading (2018) have pointed to the importance of research self-efficacy in the development of independent researchers. Evans (2011) noted the importance of internal perceptions like self-efficacy in the attitudinal development of researchers. Likewise, Akerlind (2008) noted the importance of developing confidence as one way of understanding researcher development, especially in doctoral students and early career researchers. Evans concluded that confidence was a foundation for other more complex ways of understanding one's development as a researcher. Chesnut, Siwatu, Young, and Tong (2015) noted that the confidence that one maintain about one's ability to design studies, collect and analyze data, and write a well-organized manuscript might further influence one's research-oriented goals, expectations of performing research, and the effort expended during the process. Furthermore,Akerlind (2008) asserted that confidence involved not just development of skills, but also a sense of belief that you are on the right track with your research. Research self-efficacy is not just important in development of one's research identity; it is also a key predictor of future research productivity.

Furthermore, Forester, Kahn and Hesson-McInnis (2004) argued that research self-efficacy may foster students' research interest and productivity. Büyüköztürk (1997) opined that apart from one's knowledge of research methods, his interest in the subject of research, his values and whether or not he perceives the research process as a threat further impact upon the conduct of his research. In this regard, Büyüköztürk ,et al. (2011) observed that self-efficacy is a meaningful identifier of research interest and output. Büyüköztürk, et al. further noted that research self-efficacy is central to education strategies in encouraging student research interests and output. Similarly,Deemer (2010) asserted that research productivity and research interest are positively correlated with research self-efficacy. Lei (2008) observed that individuals who show high research self-efficacy often become productive researchers, and that self-efficacy is significantly and positively related to skills acquisition. In line with Lei assertion, Lev, Kolassa and Bakken (2010) who equated research self-efficacy as confidence of students in their ability and perception of their research skills, observed that research self-efficacy plays a key role in predicting an individual's research.

Students who have low research self-efficacy are not sure about their ability to perform a research and do not believe that their attempt will lead to success and are often anxious, especially when they are evaluated they feel a lack of competence. Instead, the students who have higher self-efficacy believe in their competence, have the ability to investigate and are more successful in research (Bierer, Prayson&Dannefer, 2015; Garavand, Kareshki&Ahanchian, 2014). Similarly, research has shown that low research self-efficacy can interfere with students' research training and practitioners' willingness to conduct research and add scholarly contributions to their field of study (Love, Bahner, Jones, &Nilson, 2007). Research has also shown that high research self-efficacy is an important factor related

to students successfully conducting research and pursuing research beyond graduate study (Forester, Kahn, &Hesson-McInnis, 2004). Baltes, Hoffman-Kipp, Lynn, and Weltzer-Ward (2010) opined that increased research self-efficacy leads to the improvement of performance in various fields and low self-efficacy causes unwillingness to do research and participate in scientific projects, low learning, and poor performance. In other words, people with higher research self-efficacy are expected to show more effort and insist in performing research and research related tasks than those with low research self-efficacy.

Research self-efficacy as noted by Garavand, Kareshki and Ahachian (2014) is the milestone of success during the postgraduate period and enhances the performance of academic students. According to Chesnut, Siwatu, Young, and Tong (2015) postgraduate students' research self-efficacy beliefs have been examined and have even been able to account for the variability in postgraduate student research productivity. As postgraduate students master various aspects of research, their levels of confidence to successfully engage and maintain a research project also increase. The increase in research self-efficacy beliefs subsequently influences the attitudes that postgraduate students hold toward research and the extent to which they engage in research. High research self-efficacy as noted by Kahn (2001) is expected to orient graduate students to establish more challenging research goals, maintain positive expectancies for their engagements, and increase the frequency of productive research behaviors. In line with Kahn's assertion, Brancolini and Kennedy (2017) opined that research self-efficacy has been found to be a predictor of postgraduate students' research interest and productivity. Similarly, Rezaei and Zamani-Miandasshti, (2013) noted that research self-efficacy has been found to predict students' interest in conducting research and is related to research productivity among students especially postgraduate. Research self-

efficacy, has also been linked with motivation. It has been established that postgraduate students with higher levels of research self-efficacy tend to be more motivated to carry out research related activities than their peers and are more likely to persist when presented with challenges. Thus, the results of their persistence will actually lead to research productivity.

Research Anxiety of Postgraduate students

Anxiety is a common phenomenon in every day's life. It plays a crucial role in human life because according to Nadam, Akhtar, Maqbool and Zaidi (2012) everybody is the victims of anxiety in different ways. Anxiety is considered to be a normal response to stress. It may help an individual to cope with the demands of life but in excess it may be considered as anxiety disorder (National Institution of Mental Health, 2008). Similarly, Mallow, Kastrup, Bryant, Hislop, Shefner and Udo (2010) opined that though anxiety may be help in the learning process to some extent, optimum performance is affected by high levels of anxiety. Students with anxiety disorder exhibit a passive attitude in their studies such as lack of interest in research and learning, poor performance in exams or in research conduct, and also do poorly on assignments. McGrath (2002) noted that fear and anxiety are often the causes of students failing to complete their dissertations and some students face considerable anxiety toward the dissertation process. Anxiety and doubt can greatly interfere with students' ability to learn and master research concepts (Baltes, Hoffman-Kipp, Lynn &Weltzer-word, 2010).

One of the variables that affect research conduct as opined by Duman and Ertem, (2016) is the research anxiety. This is in line with opinions of many scholars who have tried to identify barriers and factors affecting research and increasing research production at universities (Kareshki&Bahmanabadi, 2013; Salehi, Kareshki&Ahanchian, 2013). One of the main barriers for many postgraduate students as observed by many researches is anxiety and

doubts in research abilities (Baltes, Hoffman‑ Kipp, Lynn &Weltzer‑ Ward, 2010; Ghadampour, Garavand&Sabzian, 2015). Research anxiety, as noted by Ashrafi-rizi, et al.,(2014), can affect the quality and quantity of scientific production, influence researcher job satisfaction, personal life and physical or emotional health, contribute to burnout, and may cause high levels of anxiety and long-term physical, physiological and behavioral problems. Research anxiety as observed by Rezaei and Zamani-Miandashti, (2013) is an important reason why graduate students fail to carry out their thesis and why they have some problems in the process. Also, because of anxiety, some graduate students can procrastinate to complete their thesis. In this regard, Çokluk, Bökeoğlu and Yılmaz (2005) ; Yılmaz and Çokluk (2010) stated that research anxiety manifest itself with one's behaviors such as abstaining from doing research unless it is necessary, feeling embarrassed when set on research, displaying reluctance when bothered with the idea of doing research, and experiencing discomfort and self-distrust in the course of research. In this context, Ocak and Ataseven, (2016) noted that individuals having anxiety towards research avoid both doing research and having a negative attitude towards it. Bard, Bieschke, Herbert and Eberz, (2000) reported that students' research anxiety and doubts can greatly affect their ability to master research concepts.

Research anxiety as noted by Onwuegbuzie (2013) represents a multidimensional phenomenon. Specifically, using quantitative and qualitative analyses, Onwuegbuzie asserted that the anxiety experienced by students when they are engaged in developing a research proposal (that is, researchproposal writing anxiety) comprises the following four components: (a) library anxiety (comprising interpersonal anxiety, perceived library competence, perceived comfort with the library, location anxiety, mechanical anxiety, and resource anxiety); (b) statistics anxiety (consisting of perceived usefulness of statistics, fear of statistical language,

fear of application of statistics knowledge, and interpersonal anxiety); (c) composition anxiety (comprising content anxiety, format and organizational anxiety, mechanical anxiety, and fear of negative evaluation); and (d) research process anxiety (consisting of fear of research language, fear of application of research knowledge, and interpersonal anxiety). Some researchers attributed the reasons for research anxiety in the inability to obtain, use, synthesize and evaluate the information of the research. Onwuegbuzie and Wilson (2003) state that research anxiety is derived from individuals' lack of background knowledge about a subject while Wilensky (1997) state that individuals' incomprehension of the meaning, purpose, source and validity of the information they use is among the reasons of research anxiety.

Empirical Studies

Studies on relationship between research self-efficacy and research anxiety of postgraduate students

Some researchers have conducted studies on relationship between research self-efficacy and research anxiety among graduate students in Universities. One of them is correlation study carried out by Rezaei and Zamani-Miandashti (2013) to ascertain the relationship among agricultural graduate students' research self-efficacy, research anxiety and attitude toward research in Shiraz University,Iran. Thepopulation of the study was 604 of graduate agricultural students (M.Sc. and Ph.D.) at Shiraz University,Iran. A sample of 210 students was selected using a proportional stratified sampling technique. A questionnaire was used to collect data for the study. The content validity of the instrument was assessed by the experts of the agricultural education regarding the relevance of the items and the unambiguity of their formulation. Validity and reliability were estimated basedon opinions of a panel of

experts and Cronbach's alpha coefficient, respectively. Data were described using frequencies, percentages, means, and standard deviations. The Pearson product-moment correlation was employed to find relationships between the variables of the research including research self-efficacy, research anxiety, attitude toward research, and personal and professional characteristics. Results revealed that therespondents had a moderate level of research anxiety, high level of research self-efficacy and positive attitudetoward research. The t-test revealed that there was a significant difference between research self-efficacylevels of M.Sc. students with those of Ph.D. students, and Ph.D. students had higher levels of research self- efficacythan did M.Sc. students. Further, results indicated that the relationship between research anxiety and research self-efficacy was negative.

Though Rezaei and Zamani-Miandashti research deals with relationship among agricultural graduate students' research self-efficacy, research anxiety and attitude toward research, the present study will derive from it because it covered research self-efficacy and research anxiety among graduate students. In other words, despite the fact that Rezaei and Zamani-Miandashti study brought in another variable (attitude towards research) and did not include information literacy skills acquisition which is one of the focus of the present study, it is still related to the present study because, they covered research self-efficacy and research anxiety among graduate students though in Iran not Nigeria. It is also related to the present research in some other areas such as research design, instrument and population but the present study is interested in postgraduate (Masters and Ph. D) students of library and information science not agricultural graduate students. However,Rezaei and Zamani-Miandashtistudy did not cover information literacy skills acquisition of which the present study intends to ascertain how it correlates with research self-efficacy and research anxiety

among postgraduate students of Library and Information Science. It also differs in scope of coverage, Rezaei and Zamani-Miandashtiwas carried out in a foreign country.

Also, Razavi, Shahrabi andSiamian(2017)investigatedthe relationship between research anxiety and self-efficacy among graduate students of Islamic Azad University. The study adopted a survey research design and was done by descriptive approach. The population of 1662 which included all graduate students in master's and doctorate at Islamic Azad University (Babol Branch) was used for the study. The sample size of 312 was used and was selected through Stratified randomness. The instrument used for data collection, included two standard questionnaires, general self-efficacy questionnaire and research anxiety Inventory. Data were analysed using linear regression test and analysis of variance. Findings showed that multiple correlation coefficient between the variables is equal to R=0.385, which represents the correlation between variables (self-efficacy and research anxiety). The significance level for research anxiety was calculated, less than the error rate is calculated, and therefore, it can be considered a good predictor for efficacy. The study concluded that there is a significant negative relationship between research anxiety and self-efficacy.

The present study will derive from this research because it deals with the relationship between research anxiety and research self-efficacy among graduate students. In other word, Razavi, Shahrabi and Siamian study is related to the present research because it investigated the relationship between research anxiety and self-efficacy among graduate students.It is also related to the present research in some other facets such as instrument and population but the present study is only interested in postgraduate (Masters and Ph. D) students of library and information science not all the postgraduate students of a particular university. However,Razavi, Shahrabi and Siamian study did not cover information literacy skills

acquisition of which the present study intends to see how it correlates with research self-efficacy and research anxiety among postgraduate students of Library and Information Science. It also differs in research design (although, Razavi, Shahrabi andSiamian did not specify the type of survey research design used but they stated that it was done by descriptive approach) and scope of coverage, Razavi, Shahrabi andSiamian was carried out in a foreign country.

Furthermore, Merç (2016) investigated level and predictors of research-related anxiety among graduate English Language Teaching (ELT) students in the Turkish context. 81 MA and PhD students from 14 universities offering graduate programs in ELT responded to a background questionnaire, a research anxiety scale, and a research self-efficacy survey. The analysis of the data revealed that graduate students were moderately anxious about conducting research. It was also found out that self-efficacy beliefs of graduate students were able to explain a certain portion of the research anxiety. Furthermore, while gender and having a publication experience do not affect the level of research anxiety, MA students were found to be having more research-related anxiety than PhD students. Finally, research self-efficacy was found to be negatively correlated with research anxiety.

Although, not clear in the title, the above study correlated research anxiety and research self-efficacy. Similarly, the present study will correlate research anxiety and research self-efficacy. Results obtained can be compared with the above study to see if there are similarity and differences. However, Merç study did not cover information literacy skills acquisition which the present study intends to see how it correlates with research self-efficacy and research anxiety among postgraduate students of Library and Information Science. It also

differs in population and scope of coverage, Merç study was carried out in Turkey among graduate English Language Teaching (ELT) students.

Similarly, Westhuizen (2014) investigated the degree to which an online module influenced honours students' attitudes towards research, their research self-efficacy and their knowledge of research. An availability sample (N = 279) of postgraduate students enrolled for an online course in research methodology (n = 97 for semester 1 in 2012 and n = 182 for semester 2 in 2012) at a distance education institution in South Africa was used. The attitudes towards research scale, self-developed research self-efficacy and knowledge test were administered in a single group pre-posttest design. Dependent t-tests revealed that in general, students' positive attitudes towards research, their research self-efficacy and their knowledge of research increased from the onset to the completion of the module. However, students' perceptions of the usefulness of research for their careers declined and their research anxiety and self-efficacy with regard to data analysis remained unchanged on completion of the module. These findings indicate that addressing students' perceptions of the usefulness of research for their careers and their research anxiety may be more complex than anticipated and that it could be a process that is independent of addressing students' research self-efficacy and their knowledge of research.

Westhuizen study is related to the present study as it captured research self-efficacy and research anxiety (though research anxiety was not stated in the title but it was discussed in the results) of postgraduate students which are major variables in the study. However,Westhuizen study did not cover information literacy skills acquisition of which the present study intends to see how it correlates with research self-efficacy and research anxiety

among postgraduate students of Library and Information Science. It also differs from the present study in research design, area of the study and method of data analysis.

Doğan (2016) carried out a quantitative research that investigated the university students' self-efficacy levels and their relation to their anxiety within English as a Foreign Language (EFL) context. The study was conducted at the English Language Teaching (ELT) Department of NecmettinErbakan University in Konya, Turkey. The participants of the study were 150 first year students of the English Language Teaching Department. The data of the study were gathered using a multi-dimensional scale comprising two Likert-type scales: English Language Self-Efficacy Questionnaire and Anxiety. The data were analyzed using Independent samples t-test, one-way ANOVA and bi-variate correlation. The gender of the students in addition to their parents' educational background were also incorporated into the study to detect the impact of students' individual and demographic differences on their levels of self-efficacy and anxiety. The results revealed a significant relationship between students' levels of self-efficacy and anxiety while indicating that the demographic differences may have a role in dealing with anxiety.

Though this research work deals with university undergraduates' self-efficacy levels and their relation to their anxiety (which is outside the scope of the present study), the present research will still derive from it.

Also, Natividad, MangulabnanandCanlas (2019) investigated the level of self-efficacy, level of anxiety and attitude toward research of the pre-service teachers. Employing the descriptive cross-sectional method of research, a survey questionnaire developed by the researchers based on the questionnaire adapted from Ozturk confirmatory factor analysis of the educators' attitudes toward educational scale and Papanastasiou's attitude toward research

scale was administered to 154 pre-service teachers. The results of the study revealed that the students taking methods of research in education have a high level of anxiety in conducting research; they have an average self-efficacy or one's ability to perform specific research activities and have positive attitude toward research. Furthermore, the data showed that there is no significant relationship between level of anxiety and level of self-efficacy towards research of the respondents. Likewise, the results also show that no significant relationship exists between research self-efficacy and attitude towards research and level of anxiety and attitude towards research of respondents. However, a significant relationship exists between respondents' self-efficacy and respondents' attitudes towards research. Results were utilized for the innovation of the programs and activities to improve the self-efficacy and attitudes of the respondents toward research.

Although Natividad, MangulabnanandCanlas study did not deal with the postgraduate students but pre-service teacher, the present study will still drive from it because the study covers relationship between level of anxiety and self-efficacy towards research. Similarly, the present study will correlate research anxiety and research self-efficacy. Results obtained can be compared with the above study to see if there are similarity and differences. However, Natividad, MangulabnanandCanlas study did not cover information literacy skills acquisition which the present study intends to see how it correlates with research self-efficacy and research anxiety among postgraduate students of Library and Information Science. It also differs in population and scope of coverage, Natividad, MangulabnanandCanlas study was carried out in Philippinesamong pre-service teachers.

Studies on relationship between information literacy skills and research anxiety among postgraduate students

No direct research on relationship between information literacy skills and research anxiety among postgraduate students has been carried out.The only study related to the present research is a study carried out by Ocak and Ataseven, (2016) which investigated the relationship between the graduate students' research anxiety and their levels of uneasiness in information literacy. The sample of the study consisted of 401 graduate students from the teacher education programs at public universities in Turkey. Research Anxiety Scale and Information Literacy Scale were used as data collection instruments in the study. Descriptive statistics, t-test, ANOVA, Pearson Correlation Coefficient and simple linear regression were used to analyze data. The results indicated that there was a positive significant relationship between research anxiety and levels of uneasiness in information literacy and the strength of the relationship was moderate. Finally, uneasiness levels in information literacy were found to be a significant predictor of research anxiety.

Although, the above research does not directly deal with information literacy skills acquisition, the present study will still derive from it because it deals with the relationship between the graduate students' research anxiety and their levels of uneasiness in information literacy. Uneasiness in information literacy can also be referred as difficulties in acquisition of information literacy skills. It is also related to the present research in some other areas such as research design, instrument and population but the present study is only interested in postgraduate (Masters and Ph. D) students of library and information science not all the postgraduate students from teacher education program. However, Ocak and Ataseven study did not include research self-efficacy of which the present study intends to see how research self-efficacy and information literacy acquisition correlates with research anxiety among

postgraduate students of Library and Information Science. It also differs in scope of coverage, Ocak and Ataseven was carried out in universities in Turkey.

Studies on information literacy skills among postgraduate students

Some researchers have conducted studies on information literacy skills among postgraduate students. Among them is a study carried out by Israel (2018) to assess information literacy skills of library and information science postgraduate students in NnamdiAzikiwe University, Awka with particular reference to Department of Library and Information Science. Descriptive survey research design was adopted for the study. A total of 34 postgraduate students admitted for the 2016/2017 academic year participated in the study. The quantitative approach was employed to solicit information from the postgraduate students. Data collected were analysed using statistical tools such as frequency count and simple percentage. The study found that the postgraduate students are information literate as all items got more than half affirmative responses except for their ability to create content in blogs, YouTube, and personal WebPages for different audiences. The study therefore, advocate the urgent need to improve postgraduate students' publishing literacy skills to enable them possess the needed skills to format and publish research and ideas in textual and multimedia formats as well as to be able to create content in blogs, YouTube, and personal WebPages for different audiences.

Israel's study though did not used cognitive ability test to measure the information literacy skills, it is still related to the present study as it captured information literacy skills which is one of the major variables of the study. It is also related to the present study in population but it covers only postgraduate students of library and information science in

NnamdiAzikiwe University Awka admitted in 2016/2017 academic year. The present study will cover postgraduate students admitted in 2017/2018 and 2018/2019 academic session in all the universities of Southeast, Nigeria. It however differs from the present study in research design, scope of the study and instrument for data collection. Additionally, it did not capture the variables of research self-efficacy and research anxiety.

Also, Anunobi and Udem (2015) investigated the information literacy competencies possessed by Library and Information Science (LIS) postgraduate students in Federal Universities in Southeast Nigeria with a focus on the Knowledge and skill level. Descriptive survey research design was adopted for the study. 72 students which included all 2011/2012 PhD and Masters degree students from the Departments of LIS in NnamdiAzikiwe University, Awka and University of Nigeria, Nsukka were involved the study. Data was collected using achievement test and questionnaire. Percentages, frequencies and mean rating were used to answer research questions. T-test was used to test hypotheses. The major findings of the study include: LIS postgraduate students in Federal Universities in Southeast, Nigeria possessed information literacy knowledge since the measure based on understanding the need for information, how to locate, evaluate and use information have average percentage scores of 95%, 87%, 82% and 88% respectively. However, the information literacy knowledge possessed by LIS Postgraduate students in NnamdiAzikiwe University, Awka (NAU) differed significantly from those possessed by LIS Postgraduate students in University of Nigeria, Nsukka (UNN); LIS postgraduate students possessed moderate level of information literacy skills as their level of information literacy skills as measured based on ability to locate and access, evaluate and use information has general mean rating of 3.34. However, the skills differed significantly between LIS Postgraduate students in NAU and UNN. Based on the

findings, it was recommended that more practical aspect of information literacy should be employed through students' industrial training and internship.

Anunobi and Udem's study is related to the present study as it captured information literacy skills which is one of the major variables of the study. It is also related to the present study in population but it covers only postgraduate students of library and information science in southeast federal universities admitted in 2011/2012 academic session. The present study will cover postgraduate students admitted in 2017/2018 and 2018/2019 academic session in all the universities of Southeast, Nigeria. It however differs from the present study in research design, scope of the study and instrument for data collection. Additionally, it did not capture the variables of research self-efficacy and research anxiety.

Furthermore, Dorvlo (2016) investigated the information literacy levels among postgraduate students of tertiary institutions, specifically the University of Ghana. The survey method was used to collect data for the study. The number of students involved was 151 in number giving an overall response rate of 56.98%. The variables considered in the study include: concept identification, search strategies, search tools, evaluation of information and the legal and ethical use of information. Most students knew how to identify concepts whereas most of them were not skilled in the use of search strategies, search tools and the evaluation of information. However, some of them knew about copyright issues. This result shows that the majority of the postgraduate students are not information literate. The study recommends that information literacy education should be introduced into the curricular of the University of Ghana as a full course which needs to be credit bearing. Information literacy should also be integrated into the research method course that is offered by every department and school.

Though Dorvlo's research deals with the information literacy levels among postgraduate students of tertiary institutions, the present study will derive from it because it covered the attributes of information literacy which when possessed becomes information literacy skills. It however differs from the present study in research design, scope of the study, area of the study and instrument for data collection. Additionally, it did not capture the variables of research self-efficacy and research anxiety.

Omeluzor, Bamidele, Onuoha and Alarape (2013) investigated information literacy skills (IL) among postgraduate students of Babcock University. It identified some IL programmes that were of utmost importance to enhance research skills of postgraduate students (PG). The instrument used to elicit response from the respondents was a structured questionnaire. The population of the study comprised a total of 253 PG students of 2012/2013 academic session. A total enumeration sampling technique was used to select the sample. All the respondents were sampled and a total of 243 questionnaires were retrieved given a return rate of 84% which were found useful and used for the analysis. Findings show that most of the respondents had their IL skills through seminar, user education (library instruction), orientation, one-on-one discussion and tutorial. It further indicates that majority (90%) of the respondents could identify information in their study area; 55.6%, 50% and 50% of the respondents respectively agreed that orientation, tutorial and seminar did not significantly help them to select and use wide range of sources in their discipline from the library. The study further revealed that information literacy skill pragramme (briefing by librarian) organized by PG school was not well attended where 209 (86%) of the respondents were absent. Based on these findings, the researchers conclude that postgraduate students should be mandated to attend information literacy skill programmes organized by library such as

briefing by librarian, computer-aided instruction, online courses, and workshops to enhance students' research ability in the emerging information age.

Omeluzor, Bamidele, Onuoha and Alarape study is related to the present study as it captured information literacy skills of postgraduate students which isa major variables in the study. However,Omeluzor, Bamidele and Onuoha study did not cover research self-efficacy and research anxiety of which the present study intends to see how they correlates with information literacy skills acquisition among postgraduate students of Library and Information Science. It also differs from the present study in research design, area of the study and instrument for data collection.

Summary of Literature Review

The literature was organized under the following subheadings; conceptual framework, theoretical framework, theoretical studies and empirical studies. The review started with an exploration of the concept of information literacy, information literacy skills, research self-efficacy and research anxiety.

One theoretical model of information literacy which is seven pillars of information literacy by SCOUNL, Bandura's self-efficacytheory and the Inverted -U-Principle theory which was derived from Yerkes-Dodson's law of drive theory and refined by Galvin were also reviewed. These theories captured the major variables in the study.

Theoretical studies which also threw more light on information literacy skills acquisition, research self-efficacy and research anxiety of postgraduate students were reviewed. Their elements were also discussed.

Finally, review of empirical studies was carried out. From the review, it appears that a few studies on relationship between research self-efficacy and research anxiety have been

carried out. No empirical study on relationship between information literacy skills acquisition and research self-efficacy. Only one study wasfound to cover the relationship between information literacy skills acquisition and research anxiety but it did not actually cover it but studied relationship between research anxiety and uneasiness in information literacy. However, the few empirical studies on relationship between research anxiety and research self-efficacy were carried out in other countries, none in Nigeria. Thus, there is knowledge gap on relationship betweeninformation literacy skills acquisition andresearch anxiety as well as research self-efficacy among postgraduate students in both Nigeria and other countries. Moreover, there is also a knowledge gap on relationship between research self-efficacy and research anxiety among postgraduate students both in Nigeria. Therefore, the present study is set out to fill this gap by studying the relationships among information literacy skills acquisition, research self-efficacy and research anxiety of library and information science postgraduates' students in South-East Nigerian universities.

CHAPTER THREE

METHOD

This chapter presents the procedure adopted in the study. It describes the design of the study, area of the study, population, sample and sampling technique, instrument for data collection, validation and reliability of instrument, method of data collection and method of data analysis.

Research Design

Correlation research design was adopted in this study. A correlation study, as noted by Nworgu (2015), seeks to establish what relationship exists between two or more variables. Bordens and Abbott (2008) stated that in correlation research, the main interest is to determine whether two or more variables co-vary and if so, to establish the direction, magnitude and forms of the observed relationship. There is no attempt to manipulate variables but observe them 'as they are.' The use of correlation design is justified because the study will seek to establish relationships among information literacy skills acquisition, research self-efficacyand research anxiety.

Area of the Study

This study was carried out in the Southeast, Nigeria. This geopolitical zone is made up of five states, namely; Abia, Anambra, Ebonyi, Enugu and Imo. Southeast is located in the Eastern part of Nigeria and is bounded in the East by Cross River State, in the West by Delta State, in the North by Kogi State and in South by Rivers and Akwa-Ibom States. The inhabitants of South-Eastern Nigeria are predominantly members of the Igbo ethnic group.

The indigenous and dominant language is Igbo. The people of the area are very hardworking, research conscious and industrious in their different types of occupations.

The choice of Southeast for the study was informed by the people's high regard for quality education which is evidenced by the establishment of several universities offering postgraduate programmes. Literature has also shown that studies on relationships among information literacy skills acquisition, research self-efficacy and research anxiety have not been carried out in this area. There are altogether 24 universities in Southeast consisting of five federal, five state and 14 private universities (see Appendix Fon page 116for the list of the universities in Southeast Nigeria). Only universities that offer postgraduate programme in Library and Information Science were used for the study.

Population of the Study

Atotal of 326 postgraduate students of Department of Library and Information Science (LIS) in universities in Southeast (that offer postgraduate programme in LIS) for 2017/2018 and 2018/2019 academic session constitute the population of the study. Data from the Department of Library and Information Science in the universities studying for the 2017/2018 and 2018/2019 academic session shows that there are 196 masters and 130 PhD degree students (see Appendix G for population distribution on page 118).

Sample and Sampling Technique

No sampling was done because the population was manageable.This means that all the 326 LIS postgraduate students from all the universities in Southeast that offers postgraduate programme in LIS were involved in the study.

Instrument for Data Collection

Three instruments were used for data collection. These instruments include: researcher's designed cognitive ability test titled Information Literacy Skills Test (see Appendix A on page 106); adopted Research Self-Efficacy Scale fromBüyüköztürk, Atalay, Sozgunc and Kebapçı (see Appendix B on page 110) and adapted Higgins-Kotrlik Research Anxiety Inventory (see Appendix C on page 111).

Information Literacy SkillsTest (ILST)consists of 20 cognitive ability test items which were designed to find out how much skills the students have acquired in respect to information literacy. The construction of the ILST was guided by the views and findings from the review of related literature. Parts of it were also drawn from the standardized Assessment of Information Literacy Skills (2012) which was based directly on the Association of College and Research Libraries Standards. The items in ILST were structuredwith multiple choice item formats which havefour (4) options with only one correct answer (see Appendix D on page 112 for the correct answers).

In order to find out the self-efficacy beliefs of postgraduate students related to research, the Research Self-efficacy Scale (RSS) was utilized. This scale was developed by Büyüköztürk et al. (2011) as a five-item Likert-type scale and established a high reliability level (alpha=0.87). It consists of 18 items each of which describes a competency related to conducting research such as;I believe I am sufficient in creating hypotheses relevant to my research (Item 2) or I can discuss my research findings within a conceptual framework (Item 15), and participants are supposed to indicate their level of agreement with those statements on a scale from Strongly Disagree (1) to Strongly Agree (5). Research Self-efficacy Scale by Büyüköztürk et al. was adopted because it is line with what the present research measured.

For measurement of postgraduate students' research anxiety, the Research Anxiety Inventory Scale (RAI) developed by Higgins-Kotrlik (2006) was adapted. The scale is made up of 18 items. The scale was however expanded to 20 items scale to cover other relevant research anxiety areas. It was also restructured to suit the present study since Higgins-KotrlikResearch Anxiety Inventory Scale was developed for faculty members while the present study is meant for postgraduate students. The rating part of the scale was not modified. The original scale is a five-item Likert-type scale from strongly disagree (1) to strongly agree (5).

Validation of the Instrument

Drafts of the questionnaire and cognitive ability testwere given to anexpertin the Department of Library and Information Science and two experts in the Department of Educational Foundation (one in Measurement and Evaluation, and the other one in Educational Psychology), all in Faculty of Education, NnamdiAzikiwe University, Awka. Copies of the draft were given to them together with the topic of research, purpose of the study, research questions and hypotheses. Content and face validation were carried out by the validators on cognitive ability test and questionnaire respectively. They were requested to critically examine the items in relation to content relevance, appropriateness of statements, the clarity of words, and length of statements in relation to the purpose of study and research questions(see AppendixE on page 113 for details). They were also requested to make other necessary comment(s) towards ensuring that the instruments are adequate and relevant to the study. The suggestions and corrections of the three resource persons which were incorporated to the present study accordingly are attached as Appendix J, K and Lon pages 129, 130 and131respectively.

Reliability of the Instrument

Reliabilities of the instruments were established using Kudder-Richardson (K-R$_{20}$) method and Cronbach'sAlpha method. Kudder-Richardson method and Cronbach'sAlpha method involves single administration of the instruments. Copies of the ILST and RAI questionnaire for the study were administered to 20 postgraduate students in the Department of Library and Information Science, Delta State University, Abraka. The reliability coefficient of their responses for the ILST was established using Kudder-Richardson formula while that of RSES and RAI were established using Cronbach'sAlpha (α) test. A reliability coefficient of 0.85 was obtained for ILST (cognitive ability test). A reliability coefficient of 0.86 and 0.85 were obtained for RSES and RAI respectively. Reliability coefficients of the three instruments were considered high enough for the instruments to be reliable (see Appendix H on page 119 for working details).

Method of Data Collection

The copies of the final version of the instrument were administered to the respondents by the researcher and five research assistants. Research assistants who were postgraduate coordinators from each university under the study were given orientation to assist in administering ILST and copies of the questionnaire to the respondents targeted for the study. The researcher visitedsome universitiesand with the help of research assistants, distributed the instruments to the postgraduate students. The instruments were distributed to 2018/2019 postgraduate students in all the universities under the study on their lecture days. Majorityof the instruments were distributed to 2017/2018 postgraduate students on their examination days while some students were invited by their postgraduate coordinator for an important

meeting during postgraduate defense and they were given the instrument to fill. Copies of theadministered cognitive ability test and questionnaire were retrieved back after completion on the same day from the postgraduate students.

Out of 326 postgraduate students selected for the study, only 236 completed the exercise and were retrieved, given a return rate of 72% which were found useful and used for the analysis.

Method of Data Analysis

Pearson's Product Moment correlationcoefficient was used to analyse data related to research questions one to three while partial correlation coefficient was used to answer research question four to six. For the research questions, the coefficient (r) and the size of the relationship were interpreted using the interpretation of a correlation coefficient by Nwana (as cited in Nworgu, 2015) as follows;

Coefficient (r)	Relationship
0.00 to 0.19	Very Low
0.20 to 0.39	Low
0.40 to 0.59	Moderate
0.60 to 0.79	High
0.80 to 1.00	Very high

The hypotheses were tested usingPearson's Product Moment correlation coefficient for hypotheses one to three while partial correlation coefficient was used to test hypothesis four to six with decision rule that null hypothesis is rejected if p-value is less than the significant value of 0.05; otherwise the null hypothesis is not rejected.All analyses were computed using SPSS Computer Software Package Version 17(see Appendix I on page 125 for the working details).

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF DATA

In this chapter, data collected from respondents were analyzed and presented in tables. Presentation was done sequentially starting with research questions to hypotheses.

Research Question 1

What is the relationship between information literacy skills and research self-efficacy scores of LIS postgraduate students in Southeast Nigerian Universities?

Table 1

Pearson r on Relationship between Information Literacy Skills and Research Self-efficacy Scores of Library and Information Science (LIS) Postgraduate Students

N = 236

Source of Variation	Information Literacy Skills (r)	Research self-efficacy (r)	Remarks
Information Literacy Skills	1.00	-0.10	
Research self-efficacy	-0.10	1.00	Very low negative relationship

Table 1 shows that there is a very low negative relationship between information literacy skills and research self-efficacy scores of LIS postgraduate students in Southeast.

Research Question 2

What is the relationship between information literacy skills and research anxiety scores of LIS postgraduate students in Southeast Nigerian Universities?

Table 2

Pearson r on Relationship between Information Literacy Skills and Research Anxiety Scores of LIS Postgraduate Students

	N = 236		
Source of Variation	Information Literacy Skills (r)	Research anxiety (r)	Remarks
Information Literacy Skills	1.00	-0.33	
			Low negative relationship
Research Anxiety	-0.33	1.00	

Table 2 shows that there is a low negative relationship between information literacy skills and research anxiety scores of LIS postgraduate students in Southeast, Nigeria.

Research Question 3

What is the relationship between research self-efficacy and research anxiety scores of LIS postgraduate students in Southeast, Nigerian Universities?

Table 3

Pearson r on Relationship between Research Self-efficacy and Research Anxiety Scores of LIS Postgraduate Students

	N = 236		
Source of Variation	Research Self-efficacy (r)	Research Anxiety (r)	Remarks
Research Self-efficacy	1.00	-0.09	
			Very low negative relationship
Research Anxiety	-0.09	1.00	

Table 3 shows that there is a very low negative relationship between research self-efficacy and research anxiety scores of LIS postgraduate students in Southeast, Nigerian Universities.

Research Question 4

What is the relationship between information literacy skills and research anxiety scores after controlling research self-efficacy scores of LIS postgraduate students in Southeast Nigerian Universities?

Table 4

Pearson r on relationship between information literacy skills and research anxiety scores after controlling research self-efficacy scores of LIS postgraduate

Control Variable	Source of variation	Information Literacy Skills (r)	Research Anxiety (r)	Remarks
Research self-efficacy	Information Literacy Skills	1.00	-0.34	low negative relationship
	Research anxiety	-0.34	1.00	

Table 4 shows that when research self-efficacy is controlled for information literacy skills and research anxiety, the relationship between information literacy skills and research anxiety scores increased from r=-0.33 to r=-0.34. This shows that if the research self-efficacy is controlled, the information literacy skills acquisition and research anxiety will have a slight higher negative relationship.

Research Question 5

What is the relationship between information literacy skills and research self-efficacy scores after controlling research anxiety scores of LIS postgraduate students in Southeast Nigerian Universities?

Table 5

Pearson r on relationship between information literacy skills and research self-efficacy scores after controlling research anxiety scores of LIS postgraduate students

Control Variable	Source of variation	Information Literacy Skills (r)	Research Self-efficacy (r)	Remarks
Research anxiety	Information Literacy Skills	1.00	-0.14	Very low negative relationship
	Research self-efficacy	-0.14	1.00	

Table 5 shows that when research anxiety is controlled for information literacy skills and research self-efficacy, the relationship between information literacy skills and research self-efficacy scores increased from r = -0.10 to r = -0.14. This shows that if the research anxiety is controlled, the information literacy skills acquisition and research self-efficacy will still have a very low negative relationship but a slight higher negative relationship.

Research Question 6

What is the relationship between research self-efficacy and research anxiety scores after controlling information literacy skills scores of LIS postgraduate students in Southeast Nigerian Universities?

Table 6
Pearson r on relationship between research self-efficacy and research anxiety scores after controlling information literacy skills scores of LIS postgraduate students

Control Variable	Source of variation	Information Literacy Skills (r)	Research Anxiety (r)	Remarks
Information Literacy Skills	Research self-efficacy	1.00	-0.131	Very low negative

Research anxiety	-0.131	1.00	relationship

Table 6 shows that when information literacy skills is controlled for research self-efficacy and research anxiety, the relationship between research self-efficacy and research anxiety scores increased from r = -0.09 to r = -0.131. This shows that if the information literacy skills acquisition is controlled, the research self-efficacy and research anxiety will still have a very low negative relationship but a higher negative relationship.

Testing the null hypotheses

Six null hypotheses were tested at 0.05 level of significance.

Null Hypothesis 1

There is no significant relationship between information literacy skills and research self-efficacy scores of LIS postgraduate students in Southeast Nigerian Universities.

Table 7

Significance of Pearson r on Relationship between Information Literacy Skills and Research Self-efficacy Scores of LIS postgraduate students

N = 236

Source of variation	Information Literacy Skills (r)	Research self-efficacy	P-value	Remarks
Information Literacy Skills	1.00	-0.10		
			0.121	Not significant
Research self-efficacy	-0.10	1.00		

Table 7 shows that the relationship between information literacy skills and research self-efficacy scores is not significant, the calculated r of -0.10 has P-value of 0.121 which is

greater than the 0.05 significance level (r=0.10, p>0.05). Therefore, the null hypothesis that there is no significant relationship between information literacy skills and research self-efficacy scores of LIS postgraduate students in Southeast Nigerian Universities is not rejected.

Null Hypothesis 2

There is no significant relationship between information literacy skills and research anxiety scores of LIS postgraduate students in Southeast Nigerian Universities.

Table 8

Significance of Pearson r on Relationship between Information Literacy Skills and Research Anxiety Scores of Postgraduate Students

N = 236

Source of variation	Information Literacy Skills (r)	Research anxiety	P-value	Remarks
Information Literacy Skills	1.00	-0.33		
			0.00	Significant
Research anxiety	-0.33	1.00		

Table 8 shows that the relationship between information literacy skills and research anxiety scores is significant, the calculated r of -0.33 has P-value of 0.00 which is less than the 0.05 significance level (r=0.33, p<0.05). Therefore, the null hypothesis that there is no significant relationship between information literacy skills and research anxiety scores of LIS postgraduate students in Southeast Nigerian Universities is rejected.

Null Hypothesis 3

There is no significant relationship between research self-efficacy and research anxiety scores of LIS postgraduate students in Southeast Nigerian Universities.

Table 9

Significance of Pearson r on Relationship between Research Self-Efficacy and Research Anxiety Scores of LIS Postgraduate Students
N = 236

Source of variation	Research self-efficacy (r)	Research anxiety	P-value	Remarks
Research self-efficacy	1.00	-0.09		
			0.17	Not significant
Research anxiety	-0.09	1.00		

Table 9 shows that the relationship between research self-efficacy and research anxiety scores is not significant, the calculated r of -0.09 has P-value of 0.17 which is greater than the 0.05 significance level (r=0.09, p>0.05). Therefore, the null hypothesis that there is no significant relationship between research self-efficacy and research anxiety scores of LIS postgraduate students in Southeast Nigerian Universities is not rejected.

Null Hypothesis 4

There is no significant relationship between information literacy skills and research anxiety scores after controlling research self-efficacy scores of LIS postgraduate students in Southeast Nigerian Universities.

Table 10

Significance of Pearson r on relationship between information literacy skills and research anxiety scores after controlling research self-efficacy scores of LIS postgraduate students

Control Variable	Source of variation	Information Literacy Skills (r)	Research Anxiety (r)	Df	p-value	Remarks
Research self-efficacy	Information Literacy Skills	1.00	-0.34	233	0.00	Significant
	Research anxiety	-0.34	1.00			

Table 10 shows that when research self-efficacy is controlled for information literacy skills and research anxiety, the relationship between information literacy skills and research anxiety scores remains significant(r=0.34, p<0.05). Therefore, the hypothesis that there is no significant relationship between information literacy skills and research anxiety scores after controlling research self-efficacy scores of LIS postgraduate students in Southeast Nigerian Universities is still not rejected.

Null Hypothesis 5

There is no significant relationship between information literacy skills and research self-efficacy scores after controlling research anxiety scores of LIS postgraduate students in Southeast Nigerian Universities.

Table 11

Significance of Pearson r on relationship between information literacy skills and research self-efficacy scores after controlling research anxiety scores of LIS postgraduate students

Control Variable	Source of variation	Information Literacy Skills (r)	Research Self-efficacy (r)	Df	p-value	Remarks
Research anxiety	Information Literacy Skills	1.00	-0.14	233	0.32	Significant
	Research self-efficacy	-0.14	1.00			

Table 11 shows that when research anxiety is controlled for information literacy skills and research self-efficacy, the relationship between information literacy skills and research self-efficacy scores is no longer insignificant but significant (r=0.14, p<0.05). Therefore, the hypothesis that there is no significant relationship between information literacy skills and research self-efficacy scores after controlling research anxiety scores of LIS postgraduate students in Southeast Nigerian Universitiesis now rejected.

Null Hypothesis 6

There is no significant relationship between research self-efficacy and research anxiety scores after controlling information literacy skills scores of LIS postgraduate students in Southeast Nigerian Universities.

Table 12

Significance of Pearson r on relationship between research self-efficacy and research anxiety scores after controlling information literacy skills scores of LIS postgraduate students

Control Variable	Source of variation	Research self-efficacy (r)	Research Anxiety (r)	df	p-value	Remarks
Information Literacy Skills	Research self-efficacy	1.00	-0.131			
				233	0.045	Significant
	Research anxiety	-0.131	1.00			

Table 12 shows that when information literacy skills is controlled for research self-efficacy and research anxiety, the relationship between research self-efficacy and research anxiety scores is no longer insignificant but significant (r= -0.131, p<0.05). Therefore, the hypothesis that there is no significant relationship between research self-efficacy and research anxiety scores after controlling information literacy skills scores of LIS postgraduate students in Southeast Nigerian Universities is now rejected.

Summary of major Findings

From the analysis of data, the following findings were made:

1. There is a very low negative relationship between information literacy skills and research self-efficacy scores of LIS postgraduate students in Southeast Nigerian Universities.

2. There is a low negative relationship between information literacy skills and research anxiety scores of LIS postgraduate students in Southeast Nigerian Universities.

3. There is a very low negative relationship between research self-efficacy and research anxiety scores of LIS postgraduate students in Southeast Nigerian Universities.

4. There is a low negative relationship between information literacy skills and research anxiety scores after controlling research self-efficacy scores of LIS postgraduate students in Southeast Nigerian Universities.

5. There is a very low negative relationship between information literacy skills and research self-efficacy scores after controlling research anxiety scores of LIS postgraduate students in Southeast Nigerian Universities.

6. There is a very low negative relationship between research self-efficacy and research anxiety scores after controlling information literacy skills of LIS postgraduate students in Southeast Nigerian Universities

7. There is no significant relationship between information literacy skills and research self-efficacy scores of LIS postgraduate students in Southeast Nigerian Universities.

8. There is a significant relationship between information literacy skills and research anxiety scores of LIS postgraduate students.

9. There is no significant relationship between research self-efficacy and research anxiety scores of LIS postgraduate students in Southeast Nigerian Universities.

10. There is a significant relationship between information literacy skills and research anxiety scores after controlling research self-efficacy scores of LIS postgraduate students in Southeast Nigerian Universities.

11. There is a significant relationship between information literacy skills and research self-efficacy scores after controlling research anxiety scores of LIS postgraduate students in Southeast Nigerian Universities.

12. There is a significant relationship between research self-efficacy and research anxiety scores after controlling information literacy skills scores of LIS postgraduate students in Southeast Nigerian Universities.

CHAPTER FIVE

DISCUSSION OF RESULTS, CONCLUSION AND RECOMMENDATIONS

This chapter presents the discussion of the results from the data collected and analyzed according to four research questions that guided the study, in conjunction with their related hypotheses. Also, presented in this chapter are conclusions, implications of the study, recommendations, limitations of the study and suggestions for further research.

Discussion of Results

The discussion of results is done under the following sub-headings

1. Relationship between information literacy skills acquisition and research self-efficacy of LIS postgraduate students.

2. Relationship between information literacy skills acquisition and research anxiety of LIS postgraduate students.

3. Relationship between research self-efficacy and research anxiety of LIS postgraduate students.

4. Relationship between information literacy skills acquisition and research anxiety after controlling research self-efficacy of LIS postgraduate students.

5. The relationship between information literacy skills acquisition and research self-efficacy after controlling research anxiety of LIS postgraduate students.
6. The relationship between research self-efficacy and research anxiety after controlling information literacy skills acquisition of LIS postgraduate students.

Relationship between information literacy skills acquisition and research self-efficacy of LIS postgraduate students

The result revealed that there is a very low negative relationship between information literacy skills and research self-efficacy scores of LIS postgraduate students in Southeast

Nigerian Universities. This indicates that LIS postgraduate students' information literacy skills acquisitions have an inverse relationship with their research self-efficacy. In other words, the results show that as LIS postgraduate students' scores in information literacy skills increases, their related scores in research self-efficacy decreases but to a very low extent. On the other hand, it can also mean that as LIS postgraduate students' scores in information literacy skills decreases, their related scores in research self-efficacy increases but to a very low extent. This implies that LIS postgraduate students' acquisition of information literacy skills does not actually have much connection on their research self-efficacy. This is surprising because one would have expected information literacy skills scores to have a positive relationship with research self-efficacy scores. However, the result may not be misleading because some researchers such as Manhood (2016); Gross and Latham (2007) had related results. Gross and Latham (2007) carried out a study to know whether competency theory prediction that students with a high level of information literacy skills are more likely to question their ability to perform while those who lack competence tend not only to be unaware of their lack of ability, but to overestimate what they can do. Their study revealed that the relationship between information literacy skills and self-assessments predicted by competency theory are evident. Similarly, Mahmood (2016) study found that there is no calibration in people perceived and actual information literacy skills, in most cases low performers overestimate their skills in self-assessments while high performers underestimate their skills in self-assessment. Maughan, (2001) concluded that "students think they know more about accessing information and conducting research than they are able to demonstrate when put to the test" (p. 71). In the case of this present result, it may be that majority of LIS postgraduate students in Southeast Nigeria Universities performed low in the information

literacy skills test but overestimated their own abilities and believed that their research abilities were above average. On the other hand, it may also be that majority of LIS postgraduate students performed high in the information literacy test but underestimated their abilities to carry out research activities.

The result also revealed that there is no significant relationship between information literacy skills and research self-efficacy scores of LIS postgraduate students in Southeast Nigerian Universities. It implies that despite the fact that LIS postgraduate students' information literacy skills acquisitions have an inverse relationship with their research self-efficacy; the relationship is still not significant. It could be that most of these students still conduct their research in the traditional way not making use of ICT aspect of information literacy but the conventional libraries. If this is the case, then their research self-efficacy is not significantly associated with their level of information literacy skills.

Relationship between information literacy skills acquisition and research anxiety of LIS postgraduate students

The result revealed that there is a low negative relationship between information literacy skills and research anxiety scores of LIS postgraduate students in Southeast Nigerian Universities. This indicates that LIS postgraduate students' information literacy skills acquisitions have an inverse relationship with their research anxiety. In other words, the results show that as LIS postgraduate students' scores in information literacy skills increases, their related scores in research anxiety decreases but to a low extent. On the other hand, it can also mean that as LIS postgraduate students' scores in information literacy skills decreases, their related scores in research anxiety increases but to a low extent. This implies that LIS postgraduate students' acquisition of information literacy skills actually have a link to their

research anxiety. This indicates that acquisition of information literacy skills will likely lead to a low research anxiety. On the contrary, lack of information literacy skills is one of the reasons for research anxiety. This is in line with McMillan and Schumacher (2001) assertion that one of the reasons for research anxiety is the inability of individuals to access, evaluate, synthesize and use information needed for research purposes. According to them, this is so because the problem to examine literature and underpin the research which is the first step of a qualified research cause individuals to avoid doing research and feeling anxious about it. Wilensky (as cited in Ocak&Ataseven, 2016) posited that individuals' incomprehension of the meaning, purpose, source and validity of the information they use is among the reasons of research anxiety. The result of this study is related to that of Ocak and Ataseven, (2016) who found thatthere was a positive significant relationship between research anxiety and levels of uneasiness in information literacy and the strength of the relationship was moderate. Uneasiness in information literacy can also be referred to as difficulties in acquisition of information literacy skills which implies a very low or no acquisition of information literacy skills. Ocak and Ataseven result had a positive significant relationship because they studied relationship between research anxiety and difficulties in acquisition of information literacy skills while the present result have a negative result because it studied the relationship between information literacy skills acquisition and research anxiety.

The result further revealed that there is a significant relationship between information literacy skills and research anxiety scores of LIS postgraduate students. This implies that LIS postgraduate students' acquisition of information literacy skills have a strong link to their research anxiety.

Relationship between research self-efficacy and research anxiety of LIS postgraduate students

There is a very low negative relationship between research self-efficacy and research anxiety scores of LIS postgraduate students in Southeast Nigerian Universities. This indicates that LIS postgraduate students' research self-efficacy has an inverse relationship with their research anxiety. In other words, the results show that as LIS postgraduate students' scores in research self-efficacy increases, their related scores in research anxiety decrease but to a very low extent. On the other hand, it can also mean that as LIS postgraduate students' scores in research self-efficacy decreases, their related scores in research anxiety increases but to a very low extent. This implies that LIS postgraduate students' research self-efficacy has a negligible connection to their research anxiety. The result is in line with the findings of Rezaei and Zamani-Miandashti (2013), who found that the relationship between research anxiety and research self-efficacy was negative among agricultural graduate students in Shiraz University,Iran. The finding of Merç (2016) that research self-efficacy was found to be negatively correlated with research anxiety among graduate English Language Teaching (ELT) students in the Turkish context also agreed with present study.

The result revealed that there is no significant relationship between research self-efficacy and research anxiety scores of LIS postgraduate students in Southeast Nigerian Universities. The result is in line with finding of Natividad, Mangulabnan andCanlas (2019), who found that there is no significant relationship between level of anxiety and level of self-efficacy towards research of the respondents. Moreover, the result of this study differs from that of Razavi, Shahrabi and Siamian (2017); as well as that ofDoğan (2016). Razavi, Shahrabi and Siamianfound that there is a significant negative relationship between research

anxiety and self-efficacy. The result of this present study that there is no significant relationship between research self-efficacy and research anxiety scores of LIS postgraduate students in Southeast Nigerian Universities is not misleading because Razavi, ShahrabiandSiamianstudy was carried out among all postgraduate students in Islamic Azad University and they adopted a wrong research design in their study. They adopted survey research design which according to them was done by descriptive approach. The present study was carried out among postgraduate students of LIS. Doğan (2016) study also concluded that there is a significant relationship between students' levels of self-efficacy and anxiety. Doğan study focus was on general self-efficacy and anxiety not on research self-efficacy and research anxiety; and it was carried out in Turkey among first year students of English language teaching Department. First year students cannot be compared to postgraduate students' research anxiety and self-efficacy.

Relationship between information literacy skills acquisition and research anxiety after controlling research self-efficacy of LIS postgraduate students

The results revealed that when research self-efficacy is controlled, the information literacy skills and research anxiety scores had a slight higher negative relationship among postgraduate students of LIS. The research self-efficacy was actually controlled in order to ascertain if the relationship between information literacy skills acquisition and research anxiety is direct, spurious, or intervening. From the results, it appears that research self-efficacy does not control the relationship between information literacy skills acquisition and research anxiety among LIS postgraduate students in Southeast Nigeria. That research self-efficacy does not control the relationship between information literacy skills acquisition and research anxiety means that whether LIS postgraduate students are confident in their ability to

conduct research or not, it does not intervene with the inverse relationship between information literacy skills acquisition and research anxiety. In other words, the relationship between information literacy skills acquisition and research anxiety is not due to research self-efficacy.

The result further revealed that there is no significant relationship between information literacy skills and research anxiety scores after controlling research self-efficacy scores of LIS postgraduate students in Southeast Nigerian Universities. This implies that information literacy skills acquisition has a direct relationship with research anxiety among LIS postgraduate students in Southeast Nigeria.

Relationship between information literacy skills acquisition and research self-efficacy after controlling research anxiety of LIS postgraduate students

The results revealed that when research anxiety scores are controlled, the information literacy skills and research self-efficacy scores had a slight higher negative relationship among postgraduate students of LIS. The research anxiety scores was actually controlled or removed in order to ascertain if the relationship between information literacy skills acquisition and research self-efficacy is direct, spurious, or intervening. From the results, it appears that research anxiety does not control the relationship between information literacy skills acquisition and research self-efficacy among LIS postgraduate students in Southeast Nigeria. Research anxiety not controlling the relationship between information literacy skills acquisition and research self-efficacy means that whether LIS postgraduate students are fearful in their ability to conduct research or not, it does not intervene with the inverse relationship between information literacy skills acquisition and research self-efficacy. In other

words, the relationship between information literacy skills acquisition and research self-efficacy is not due to research anxiety.

The result further revealed that there is a significant relationship between information literacy skills and research self-efficacy scores after controlling research anxiety scores of LIS postgraduate students in Southeast Nigerian Universities. This implies that information literacy skills acquisition does not have a direct relationship with research self-efficacy among LIS postgraduate students in Southeast Nigeria. It shows that when research anxiety is removed from the both information literacy skills acquisition and research self-efficacy of LIS postgraduate students in Southeast Nigeria, their relationship changed to significant. That means that research anxiety has some connections to the relationship between information literacy skills acquisition and research self-efficacy of LIS postgraduate student.

Relationship between research self-efficacy and research anxiety after controlling information literacy skills acquisition of LIS postgraduate students

The results revealed that when information literacy skills scores are controlled, the research self-efficacy and research anxiety scores had slight higher negative relationship among postgraduate students of LIS. The information literacy skills scores were actually controlled or removed in order to ascertain if the relationship between research self-efficacy and research anxiety is direct, spurious, or intervening. From the results, it appears that information literacy skills scores do not control the relationship between research self-efficacy and research anxiety scores LIS postgraduate students in Southeast Nigeria. Information literacy skills scores not controlling the relationship between research self-efficacy and research anxiety means that whether LIS postgraduate students possess the ability to locate, access, evaluate and effectively use information for needed information purposes or not, it

does not intervene with the inverse relationship between research self-efficacy and research anxiety. In other words, the relationship between research self-efficacy and research anxiety is not due to information literacy skills acquisition.

The result further revealed that there is a significant relationship between research self-efficacy and research anxiety scores after controlling information literacy skills scores of LIS postgraduate students in Southeast Nigerian Universities. This implies that research self-efficacy does not have a direct relationship with research anxiety among LIS postgraduate students in Southeast Nigeria. It shows that when information literacy skills is removed from the both research self-efficacy and research anxiety of LIS postgraduate students in Southeast Nigeria, their relationship became significant. That means that information literacy skills acquisition has some connections to the relationship between research self-efficacy and research anxiety of LIS postgraduate student.

Conclusion

The results of the study show that there is negative relationship among information literacy skills acquisition, research self-efficacy and research anxiety of 2017/2018 and 2018/2019 LIS postgraduate students in Southeast Nigerian Universities. The results also revealed that no significant relationship exists between information literacy skills and research self-efficacy scores as well as between research self-efficacy and research anxiety scores of LIS postgraduate students. However, the results further revealed that there is a significant relationship between information literacy skills acquisition and research anxiety. Also, research self-efficacy does not significantly control the relationship between information literacy skills and research anxiety scores of LIS postgraduate students. Nevertheless, there is a significant relationship between information literacy skills and research self-efficacy scores

after controlling research anxiety scores as well as between research self-efficacy and research anxiety scores after controlling information literacy skills scores of LIS postgraduate students. From the results, it can be concluded that acquisition of information literacy skills have a strong link to postgraduate students' research anxiety. It is therefore expedient that all who are involved in postgraduate programme should acquire information literacy skills.

Implications of the Study

The results of this study have some obvious educational implications. It has provided empirical evidence as regards the relationship among information literacy skills acquisition, research self-efficacy and research anxiety of LIS postgraduate students. Very low negative relationship between information literacy skills and research self-efficacy scores of LIS postgraduate students in Southeast Nigerian Universities observed implies that some students believed they possessed information literacy skills as well as ability to conduct research than they are able to demonstrate when put to the test. Hence, the students' information literacy skills should always be evaluated through test in such a way that it will help students' research activities.

The study revealed that there is a low negative relationship between information literacy skills and research anxiety scores of LIS postgraduate students in Southeast Nigerian Universities. Thisimplies that information literacy skills, when acquired, will help to reduce research anxiety among students.

The study also revealed that there is a very low negative relationship between research self-efficacy and research anxiety scores of LIS postgraduate students in Southeast Nigerian Universities. The implication of this is that,when the affective contents are incorporated in

teaching research, the postgraduate students will believe in their ability to carry out research and as a result, anxiety will reduce.

The study also revealed that when research self-efficacy is partial out, the information literacy skills and research anxiety scores had a slight higher negative relationship among postgraduate students of LIS. The implication of this is that, information literacy skills when acquired do not require much research self-efficacy to reduce research anxiety among students.

Recommendations

The following recommendations have been made based on the findings and conclusions made in this study.

1. The assessment of students' information literacy skills by LIS Department, LIS educators and LIS professionals should be employed frequently. This will help determine their strength and weakness and with that, the students will be able to know their stand which will encourage them to acquire these skills where it is lacking as well as instill confidence in their ability to conduct research.

2. The university management should incorporate information literacy in the programme of all disciplines in the university especially postgraduate programme since it has been found to contribute in reducing research anxiety. When information literacy is incorporated in the programme of all disciplines, many students will acquire these skills and as a result, have confidence to conduct research and achieve results as well.

3. LIS and research educators should incorporate the affective contents when teaching the postgraduate students information literacy and research course. This will help to instill confidence and motivate students to carry out research to conclusion.

Limitations of the Study

The limitation during the execution of this study was that only postgraduate students admitted in 2017/2018 and 2018/2019 academic sessions were used in the study based on the fact that they werethe students assumed to be undergoing research at the time of this study. This may affect the generalization of the findings.

Suggestions for further Research

Further research which could be undertaken as result of this study includes:

1. For better generalization of the result of the study, there is need to extend the area of the study to cover other geopolitical zones.

2. Study on information literacy skills and research self-efficacy as predictor of research anxiety among postgraduate students may also be carried out.

3. Study on influence of information literacy skills acquisition and research self-efficacy on research anxiety among postgraduate students may also be carried out.

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APPENDIX A

Department of Library and Information Science,
NnamdiAzikiwe University
PMB 5025, Awka.

Dear Respondent,

I am a postgraduate student of the above named institution conducting a research entitled "Relationships among Information Literacy Skills Acquisition, Research Self-efficacy and Research Anxiety among Library and Information Science Postgraduate Students in South-East Nigerian Universities".

Please respond to the items on Information Literacy Skills Test (ILST), Research Self-Efficacy Scale (RSES) and Research Anxiety Inventory (RAI) as you deem appropriate. Information supplied will be strictly confidential and used for the purpose of this study.

Thanks for your cooperation.

Yours truly,

Udem, Obiora Kingsley
(Researcher)

INFORMATION LITERACY SKILLS TEST (ILST)
Instruction: Please read carefully and tick (✓) on the right option.

1. To define a specific information need, the first thing to do is to …………
   A. Formulate questions based on the information need
   B. Search for the information online
   C. Investigate appropriate investigative methods
   D. None of the above

2. To determine whether the needed information exists or not, the first thing to do is to ……
   A. Identify key concepts and terms that describe the information
   B. Discuss with instructors and participate in class discussion
   C. Search for the information from libraries, Internet or through other media
   D. All of the above

3. If you are using the 7-volume Encyclopedia of Science to find information on the topic of DNA, what is the most efficient way to be sure you find all the relevant information that is in the encyclopedia?
   A. Look through the bibliography.
   B. Look under "D" for DNA.
   C. Look up "DNA" in the index.
   D. Use the table of contents.

4. To find about all the articles that have been published on a certain topic, what do you need to do?
   A. Search a research database in the subject area
   B. Search several research databases in the subject area
   C. Search several Web search engines
   D. Search the library catalog

5. Using a search engine such as Google to search for documents on *"The depletion of the ozone layer and the impact on health",* one should best use the words……………………
   A. Impact, depletion, ozone layer, health
   B. Ozone layer, health
   C. Ozone layer
   D. Skin cancer, ozone layer

6. All of the following actions qualify as plagiarism except:
   A. Including a paragraph from an article as long as you change a few of the words.
   B. Submitting a paper written by someone else.
   C. Using another person's ideas in your research paper without attribution.
   D. Using commonly known information without attribution.

7. If you want to search for a topic that has several synonyms (for example, young people, adolescents, teenagers, teens), which operator would you use?
   A. ADJ
   B. AND
   C. NOT
   D. OR

8. While searching the Web using a search engine, you would like to limit the results to items in information literacy that are less than four years old. Which of the following links on the search engine home page would be the most effective option for conducting a search of this type?
   A. Advanced Search
   B. Customize Settings
   C. Simple Search
   D. Site Map

9. You are using a research database that uses an asterisk (*) as its truncation or wildcard symbol. Which set of terms would be retrieved if you type in: read*
   A. Examine, read, peruse
   B. Read, comprehension, reading level
   C. Read, reader, study, student
   D. Read, readmit, ready

10. To find all documents about *Chinua Achebe* in the library catalogue, one would do a search…………
    A. By title
    B. By publisher
    C. By subject
    D. By author

11. What would be the most effective way to evaluate the quality of a specialized encyclopedia you are using for your project?
    A. Go to the publisher's Web page.
    B. Search for reviews of the encyclopedia in a periodical index or research database.
    C. Search the library catalog for the editor's name.
    D. Search the library catalog for the title of the encyclopedia.

12. Which of the following best describes articles published in a scholarly journal …………......
    A. The information is written for the layperson
    B. It includes a list of references
    C. It has been evaluated by an editorial board before publication
    D. The research method used is described

13. Which of the following concepts makes it ethically wrong to use the ideas of another person without giving them credit?
    A. Copyright
    B. Fair use
    C. Intellectual property
    D. Right to privacy

14. You would like to evaluate the qualifications of an author of an article you have just read. Which one of these strategies would be the least effective?
    A. Search for reviews of the author's work in a periodical index or research database
    B. Search for the author's name in a biography database
    C. Search for the author's name in the library catalog
    D. Search for Web pages that mention the author

15. Below is a description found in an online index. What type of item is this?
    Title: A comparison of usability techniques for evaluating information

retrieval system (IR) interfaces

    Authors: Ojedokun, A. A.
    Source: *Performance Measurement and Metrics 2008, 44* (1), 48-58
    Keywords: *Usability
    *Evaluation
    *Information Retrieval System
    *User Interface

        A. Journal article
        B. Book
        C. Newspaper article
        D. Government report

16. Which type of resource is the best choice to find a report of a research study that is written by the people who conducted the research?
        A. Magazine article database
        B. Newspaper database
        C. Scholarly journal database
        D. Statistical information database

17. Does the excerpt below illustrate fact, opinion, or bias?
"The argument against armed self-defense is one of the most insidious forms of victimization of women. The dominant cultural conditioning tells women that they are not capable of defending themselves with a gun. That's why fewer than 10% of women own guns."
        A. Bias
        B. Fact
        C. Opinion
        D. Persuasion

18. The reference below refers to what? Gertz , B. (2007). *Business Cycles in the United States Economy*. New York: Viking.
        A. Book
        B. Chapter within a book
        C. Encyclopedia article
        D. Newspaper article
        E. Periodical article

19. Is it legal to burn a copy of a CD you purchased?
        A. Yes, if you want to give a copy to a friend.
        B. Yes, if you want to make a copy for yourself in order to preserve the original.
        C. Yes, if you would like to return the original to the store where you purchased it.
        D. No, it is never legal to burn a copy of a CD.

20. Is it legal for you to use images created by another person on your own web page?
        A. Yes, if it is from the web because all images there are in the public domain.
        B. Yes, if the creator gives permission.
        C. Yes, if you alter the image.
        D. No, it is not legal for you to use images created by another person on your own web page.

APPENDIX B

RESEARCH SELF-EFFICACY SCALE (RSES)

Instruction: To complete the questionnaire, please read through each statement and reflect upon past research experiences. You may wish to consider all research experiences. Kindly indicate by ticking (✓) against the appropriate column that agrees with your opinion using the rating scale: Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D) and Strongly Disagree (SD).

S/N	Items	SA	A	U	D	SD
1.	I can realise the problems that may contribute to the field I work in					
2.	I believe I am sufficient in creating hypotheses relevant to my research					
3.	I can explain my research problem through drawing the necessary relations with prior research results					
4.	I can find an appropriate title to my research					
5.	I can effectively carry out the literature survey by using various channels (internet, library, etc).					
6.	I can systematically keep record of the results of the literature survey					
7.	I do not find it difficult at all to compare the results of my research to prior research results					
8.	I can criticise the results of my research regarding research processes					
9.	I can define the appropriate sampling method for my research					
10.	I can decide which approaches to use for my research problem whether it is quantitative or qualitative, or self-standing or incorporating various approaches together					
11.	I can choose the appropriate data collection method necessary for my research					
12.	I can test the validity and reliability of my research data through appropriate methods					
13.	I can choose appropriate statistical methods to test or respond to my research hypotheses					
14.	I can appropriately report on my analysis results					
15.	I can discuss my research findings within a conceptual framework					
16.	I can create an appropriate titling system when writing up my research					
17.	I can utilise appropriate referencing in my research, whether direct or indirect					
18.	I can write an abstract to my research with ease					

APPENDIX C

RESEARCH ANXIETY INVENTORY (RAI)

Instruction: To complete the questionnaire, please read through each statement and reflect upon past research experiences. You may wish to consider all research experiences. Kindly indicate by ticking (✓) against the appropriate column that agrees with your opinion using the rating scale: Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D) and Strongly Disagree (SD).

S/N	Item	SA	A	U	D	SD
1.	It bothers me that my research work may not be judged as a quality work					
2.	I worry about the possibility of my research topic not being accepted by my supervisor					
3.	When reading research articles, I am apprehensive about being able to synthesize the finding					
4.	I worry about possibility of using incorrect data analysis					
5.	When I conduct research, I fear that it will be poor compared to others in my field					
6.	It bothers me that my research findings may not be judged as acceptable by defense panel					
7.	I feel very anxious and nervous when thinking of writing the conclusion of my study					
8.	I am confident when preparing a research methodology of a study for possible presentation before defense panel					
9.	I often feel uncomfortable when discussing research methods					
10.	I am confident that I can conduct good data analysis of a study for possible presentation to my supervisor					
11.	It bothers me that my research may not be judged as acceptable by my readers during defense					
12.	I feel anxious when thinking of writing the theoretical framework for a research study					
13.	Thoughts of statistics scares me away from doing research					
14.	I tend to put off conducting my research work as it stresses me out					
15.	I am confident when stating the objectives of a study					
16.	I am always apprehensive anytime I think about my impending research work					
17.	I worry that I may not be able to conduct research on my own					
18.	I am very apprehensive in conducting and organizing literature review for a study					
19.	Writing a research proposal scares me					
20.	I am terrified by the prospect of orally presenting a research proposal					

APPENDIX D

Test Marking Guide

1. A
2. C
3. C
4. B
5. A
6. D
7. D
8. A
9. D
10. D
11. B
12. C
13. C
14. B
15. A
16. C
17. C
18. A
19. B
20. B

APPENDIX E

Department of Library and Information Science,
NnamdiAzikiwe University
PMB 5025, Awka.

………………………………
………………………………
………………………………

Sir/Madam

REQUEST FOR VALIDATION OF QUESTIONNAIRE

I am a postgraduate student of the above named department. I am carrying out a research on relationships among information literacy skills acquisition, research self-efficacy and research anxiety among library and information science postgraduate students in South-East Nigerian Universities.

Please, you are requested to validate the instrument based on the items' clarity, relevance to the purpose of study, appropriateness of language including the correctness of the instructions to the respondents. I will readily accept any correction you may come up with after going through the questionnaire.

The purpose of the study, research questions and hypotheses are provided below for your referral.

Yours faithfully

……………….
Udem, Obiora Kingsley
(*P. G student*)

TOPIC

Information Literacy Skills and Research Self-efficacy as correlates of Research Anxiety among Library and Information Science Postgraduates in South-East Nigerian Universities

Purpose of the Study

The purpose of the study is to determine how information literacy skills acquisition and research self-efficacy relate with research anxiety among Library and Information Science (LIS) postgraduates students in South-East Nigerian Universities. Specifically, the study is designed to:

1. Ascertain the relationship between information literacy skills acquisition and research self-efficacy among LIS postgraduate students.

2. Determine the relationship between information literacy skills acquisition and research anxiety among LIS postgraduate students.

3. Determine the relationship between research self-efficacy and research anxiety among LIS postgraduate students.

4. Ascertain how information literacy skills acquisition and research self-efficacy predict research anxiety among LIS postgraduate students.

Research Questions

The following research questions will be formulated to guide the study:

1. What is the relationship between information literacy skills acquisition and research self-efficacy among LIS postgraduate students in South East Nigerian Universities?

2. What is the relationship between information literacy skills acquisition and research anxiety among LIS postgraduate students in South East Nigerian Universities?

3. What is the relationship between research self-efficacy and research anxiety among LIS postgraduate students in South East Nigerian Universities?

4. How does information literacy skills acquisition and research self-efficacy predict research anxiety among LIS postgraduate students?

Hypotheses

The following null hypotheses will be tested at 0.05 level of significance.

1. There is no significant relationship between information literacy skills acquisition and research self-efficacy among LIS postgraduate students in South East Nigerian Universities.

2. There is no significant relationship between information literacy skills acquisition and research anxiety among LIS postgraduate students in South East Nigerian Universities.

3. There is no significant relationship between research self-efficacy and research anxiety among LIS postgraduate students in South East Nigerian Universities.

4. LIS postgraduate students' information literacy skills acquisition and research self-efficacy do not relatively predict their research anxiety in South East Nigerian Universities.

APPENDIX F

LIST OF UNIVERSITIES IN SOUTH EAST NIGERIA

Federal Universities

1. Federal University of Technology, Owerri, Imo State

2. Alex Ekweme University, Ndufu-Alike, Ebonyi State

3. Michael Okpara University of Agricultural Umudike, Abia State

4. NnamdiAzikiwe University, Awka, Anambra State

5. University of Nigeria, Nsukka, Enugu State

State Universities

1. Abia State University, Uturu

2. ChukwuemekaOdumegwuOjukwu University, Uli, Anambra State

3. Ebonyi State University, Abakaliki

4. Enugu State University of Science and Technology, Enugu

5. Imo State University, Owerri

Private Universities

1. Caritas University, Enugu, Enugu State

2. Evangel University, Akaeze, Ebonyi State

3. Godfrey Okoye University, Ugwuomu-Nike - Enugu State

4. Gregory University, Uturu, Abia State

5. Hezekiah University, Umudi, Imo State

6. Madonna University, Okija, Anambra State

7. Paul University, Awka - Anambra State

8. Renaissance University, Enugu, Enugu State

9. Tansian University, Umunya, Anambra State

10. Legacy University, Okija, Anambra State

11. Coal City University Enugu State

12. Clifford University Owerrinta, Abia State

13. Spiritan University, Nneochi, Abia State

14. Rhema University, Aba Abia State

APPENDIX G

Population Distribution of Postgraduate students in 2017/2018 and 2018/2019 academic session

S/N	University	Population Size				
		Masters		PhD		Total
		2017/2018	2018/2019	2017/2018	2018/2019	
1.	NnamdiAzikiwe University, Awka	3	6	8	7	**24**
2.	University of Nigeria Nsukka	75	30	38	30	**173**
3.	Michael Okpara University of Agriculture, Umudike	5	7	3	2	**17**
4.	Abia State University	9	12	13	6	**40**
5.	Imo State University	10	13	12	11	**46**
6.	Enugu State University of Science and Technology	19	7	-	-	**26**
	Total	**121**	**75**	**74**	**56**	**326**

APPENDIX H

Reliability

Scale: Information Literacy Skill Test

Case Processing Summary

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

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

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.851	.967	20

Item Statistics

	Mean	Std. Deviation	N
Q1	2.9000	.96791	20
Q2	2.7500	1.01955	20
Q3	2.7000	1.03110	20
Q4	2.7500	1.06992	20
Q5	2.8000	1.05631	20
Q6	2.7500	1.06992	20
Q7	2.5000	1.05131	20
Q8	2.5000	1.00000	20
Q9	2.3500	.98809	20
Q10	2.4000	1.04630	20
Q11	2.2000	1.23969	20
Q12	2.3500	1.08942	20
Q13	2.5500	1.05006	20
Q14	2.3500	.98809	20

Q15	2.4000	1.04630	20
Q16	2.6500	1.03999	20
Q17	2.3500	1.13671	20
Q18	2.6000	.94032	20
Q19	4.1000	6.88935	20
Q20	2.8000	1.10501	20

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q1	49.8500	332.450	.382	.841
Q2	50.0000	327.895	.373	.839
Q3	50.0500	325.418	.333	.837
Q4	50.0000	324.632	.332	.837
Q5	49.9500	327.418	.357	.838
Q6	50.0000	324.842	.316	.837
Q7	50.2500	324.408	.344	.836
Q8	50.2500	325.671	.153	.937
Q9	50.4000	330.568	.321	.840
Q10	50.3500	334.239	.578	.843
Q11	50.5500	341.418	.317	.849
Q12	50.4000	324.358	.313	.837
Q13	50.2000	329.642	.101	.840
Q14	50.4000	333.937	.224	.942
Q15	50.3500	325.713	.312	.867
Q16	50.1000	323.779	.271	.936
Q17	50.4000	330.989	.209	.851
Q18	50.1500	330.345	.167	.890
Q19	48.6500	261.082	.220	.971
Q20	49.9500	323.945	.212	.886
				.866

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
52.7500	357.461	18.90663	20

Scale: Research self-efficacy scale

Case Processing Summary

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

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

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.856	.810	18

Item Statistics

	Mean	Std. Deviation	N
Q21	3.6500	.87509	20
Q22	3.6500	1.18210	20
Q23	3.3000	1.17429	20
Q24	3.5000	1.19208	20
Q25	3.6000	1.18766	20
Q26	3.8000	1.23969	20
Q27	6.0500	11.32986	20
Q28	3.5500	1.19097	20
Q29	3.1000	1.25237	20
Q30	3.2000	1.47256	20
Q31	3.2000	1.57614	20
Q32	3.7500	1.25132	20
Q33	2.9000	1.48324	20
Q34	3.7500	1.06992	20
Q35	3.3500	1.30888	20
Q36	3.3000	1.45458	20

Q37	3.4000	1.42902	20
Q38	3.5000	1.05131	20

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q21	60.9000	243.568	.306	.886
Q22	60.9000	230.411	.582	.750
Q23	61.2500	238.618	.350	.875
Q24	61.0500	233.629	.484	.860
Q25	60.9500	235.103	.444	.865
Q26	60.7500	227.039	.645	.741
Q27	58.5000	115.737	.035	.911
Q28	61.0000	232.526	.516	.757
Q29	61.4500	235.945	.394	.868
Q30	61.3500	238.661	.261	.879
Q31	61.3500	250.976	.016	.913
Q32	60.8000	258.379	.181	.898
Q33	61.6500	240.871	.209	.875
Q34	60.8000	240.063	.346	.878
Q35	61.2000	243.747	.177	.891
Q36	61.2500	246.092	.098	.909
Q37	61.1500	242.029	.194	.887
Q38	61.0500	245.313	.190	.892
				.894

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
64.5500	252.682	15.89596	18

Scale: Research Anxiety Inventory

Case Processing Summary

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

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

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.848	.835	20

Item Statistics

	Mean	Std. Deviation	N
Q39	4.2000	.61559	20
Q40	3.8500	1.13671	20
Q41	3.6000	1.31389	20
Q42	4.1500	.93330	20
Q43	3.8500	1.03999	20
Q44	4.3000	.80131	20
Q45	3.6500	1.03999	20
Q46	4.1000	.96791	20
Q47	3.6000	1.39170	20
Q48	3.8500	1.46089	20
Q49	3.6500	1.53125	20
Q50	4.2500	.91047	20
Q51	3.3000	1.59275	20
Q52	4.0500	.88704	20
Q53	3.8000	1.19649	20
Q54	3.9500	1.23438	20
Q55	3.9000	1.20961	20

Q56	3.8500	.93330	20
Q57	4.4500	.51042	20
Q58	4.4500	.51042	20

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q39	74.6000	44.358	.187	.884
Q40	74.9500	39.103	.414	.832
Q41	75.2000	40.589	.236	.866
Q42	74.6500	38.976	.351	.719
Q43	74.9500	44.576	.044	.934
Q44	74.5000	43.526	.199	.830
Q45	75.1500	40.450	.358	.847
Q46	74.7000	43.379	.154	.885
Q47	75.2000	44.484	.008	.863
Q48	74.9500	45.524	.070	.840
Q49	75.1500	43.397	.026	.919
Q50	74.5500	42.997	.205	.917
Q51	75.5000	38.053	.289	.849
Q52	74.7500	41.145	.382	.750
Q53	75.0000	40.842	.262	.832
Q54	74.8500	41.187	.225	.850
Q55	74.9000	46.621	.110	.876
Q56	74.9500	47.945	.197	.878
Q57	74.3500	44.134	.277	.848
Q58	74.3500	46.029	.062	.782
				.909

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
78.8000	46.274	6.80248	20

APPENDIX I

Correlations

Correlations

		Information Literacy Skills	Research self-efficacy
Information Literacy Skills	Pearson Correlation	1	-.101
	Sig. (2-tailed)		.121
	N	236	236
Research self-efficacy	Pearson Correlation	-.101	1
	Sig. (2-tailed)	.121	
	N	236	236

Correlations

Correlations

		Information Literacy Skills	Research anxiety
Information Literacy Skills	Pearson Correlation	1	-.326**
	Sig. (2-tailed)		.000
	N	236	236
Research anxiety	Pearson Correlation	-.326**	1

Sig. (2-tailed)		.000	
N		236	236

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

Correlations

		Research anxiety	Research self-efficacy
Research anxiety	Pearson Correlation	1	-.090
	Sig. (2-tailed)		.167
	N	236	236
Research self-efficacy	Pearson Correlation	-.090	1
	Sig. (2-tailed)	.167	
	N	236	236

Partial Correlation

Correlations

Control Variables			Information Literacy Skills	Research anxiety
Research self-efficacy	Information Literacy Skills	Correlation	1.000	-.338
		Significance (2-tailed)	.	.000
		Df	0	233
	Research anxiety	Correlation	-.338	1.000
		Significance (2-tailed)	.000	.
		Df	233	0

Correlations

Control Variables			Information Literacy Skills	Total self-efficacy
Total research anxiety	Information Literacy Skills	Correlation	1.000	-.140
		Significance (2-tailed)	.	.032
		df	0	233
	Total self-efficacy	Correlation	-.140	1.000
		Significance (2-tailed)	.032	.
		df	233	0

Correlations

Control Variables			Total self-efficacy	Total research anxiety
Information Literacy Skills	Total self-efficacy	Correlation	1.000	-.131
		Significance (2-tailed)	.	.045
		df	0	233
	Total research anxiety	Correlation	-.131	1.000
		Significance (2-tailed)	.045	.
		df	233	0

APPENDIXJ

Validation of instrument on the Topic:

Information Literacy Skill Acquisition and Research Self-Efficacy as correlates of Research Anxiety among Library and Information Science Postgraduate Students in South-East Nigerian Universities

This is to certify that I Prof Romy Okoye

Validated the above mentioned instrument and made corrections/recommendations on the following areas:

If the correlations in Purpose Numbers 1-3 are to stand, the student may consider changing the topic "Relationships among...." The fourth purpose will take the student to prediction in which the approach will differ a little. If the student is interested in prediction, it will take care of issues addressed in Purpose Nos 1-3 but then addresses some other things. The student should therefore decide whether he needs correlation or prediction

Did not attach answers to ILST

ILST can be used, if an expert in Library Science validates it too, but the correct answer should be attached for that person

After the amendments, I considered the instruments fit/unfit for the study which it is designed for.

Signature:

Date: 17/4/19
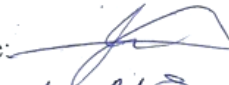
APPENDIX K

Validation of instrument on the Topic: *Information library skill Acquisition and Research self-efficacy as correlates of Research Anxiety among library and Information Science postgraduate students in South-East Nigerian Universities*

This is to certify that I *Dr. Kingsley C. Nwosu*

Validated the above mentioned instrument and made corrections/recommendations

on the following areas:

(1) The test items in the competency scale are all but restructure items 12 and 18

(2) A good number of items in anxiety scale do not measure research anxiety. The candidate needs to adapt the instrument following the ideas in Spielberg test anxiety instrument.

After the amendments, I considered the instruments fit/~~unfit~~ for the study which it is designed for.

Signature: _____

Date: 12/7/17

APPENDIX L

Validation of instrument on the Topic:

Information literacy skill Acquisition and Research self efficacy as correlates of Research Anxiety among library and Information Science postgraduate students in South-East Nigerian Universities

This is to certify that I DR CHINWE V. ANUNOBI

Validated the above mentioned instrument and made corrections/recommendation on the following areas:

(1) The areas on information literacy skills Test (ILST) have not addressed all aspects of information literacy concept information search skills, a little of evaluation and communication of research.

(2) The test is likely to be knowledge test unless you provide them with practical exercise.

(3) If you can provide practical test and change title to Info search skills acquisition as the first variable instead of Info literacy.

(4) You need to make elaborate statements on anxiety inventory to elicit the anxiety toned by anxiety confidence.

(5) The research self-efficacy scale is well captured.

After the amendments, I considered the instruments fit/unfit for the study which it is designed for.

Signature: _____

Date: 15/04/19