Information Literacy Skills and Personal Abilities of Secondary School Teachers in Lagos, Nigeria and Durban, South Africa

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ETHICAL STATEMENT BY THE RESEARCHER

I affirm that this study **Information literacy skill and personal abilities of secondary school teachers in Nigeria and South Africa** which is submitted to University of Zululand in fulfilment of the academic requirements for the award of Doctor of Philosophy in Information Studies, is my original work. I also declare that the work has neither been submitted nor copied elsewhere and that the various materials used in the study have been duly acknowledged.

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DEDICATION

This work is dedicated to the glory of God Almighty; to my father, Akinola Durodolu, who taught me the value of integrity, honesty, uprightness and hard work; to my mother, Iyabo Durodolu, and all the members of my family for their undying love and endless compassion.

I also wish to dedicate this work to Dr Ameyo Stella Adadevoh, who sacrificed herself to curb the spread of the Ebola virus in Nigeria.

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ABSTRACT

Information literacy is fundamental for lifelong learning, especially for the teaching profession, where information is critical for imparting knowledge to students who are expected to be creative, critical thinkers and lifelong learners. The study investigates the information literacy skills and personal abilities of secondary school teachers in Lagos, Nigeria and Durban, South Africa. The following research questions and hypotheses were pursued in the study: the teachers' perceptions about the need for information literacy; the purposes for which they need information; the types of information resource they access for teaching purposes; the frequency of use of information resources; the search strategies employed in using online information resources; the level of teachers' information self-concept; and metacognitive abilities employed in using information resources. The study also embarks on an analytical evaluation of information literacy in the contexts of the two cities of Lagos and Durban. A proposed conceptual model was also suggested to ensure the information literacy of teachers in secondary schools. The study was guided by null hypotheses and tested at a 0.05 level of significance, to ascertain whether there were any significant differences in teachers' perceptions of the need for information literacy, and also whether there was any significant difference in the information literacy, frequency of use of information, information search strategy, and metacognitive abilities of teachers in Lagos and Durban.

The study adopted a post-positivist research paradigm combining both qualitative and quantitative research methodologies largely through multi case study research design. Data were gathered through questionnaires, interviews, observation and document analysis that included a literature review. The target population was secondary school teachers in Lagos and Durban.

The sample for the research was drawn from teachers in government secondary schools in Lagos and Durban. Lagos State has 20 local governments, and at the time of the research a total teacher population of 8 329. Durban is divided into four Circuits representing 16 wards. Excluding primary schools, independent schools and combined secondary schools, there are 41 secondary schools and 4 887 teachers.

Face and content validity was achieved through the verification of and response to the research instruments by academics in the Department of Information Studies at the University

of Zululand. Dependability of the research instruments was achieved through a pilot survey that tested the instruments among 57 teacher-librarians at the University of Zululand. In addition, Cronbach alpha technique was used to determine the reliability of the instruments. The data collected for this research were subjected to reliability coefficient tests variable by variable. The outcome shows that the overall reliability coefficient, when all the items in the questionnaire were taken together, was .801 (r =.801). Therefore all the items in the questionnaire were found to be reliable, and hence the questionnaire was reliable, trustworthy and dependable. Interviews and observation were also used as instruments of data collection to triangulate and validate the research results obtained by the questionnaire.

Multistage sampling technique was used in the first instance to purposively select samples from the two cities of Lagos and Durban in order to make comparisons. The second stage involved stratified random sampling, and the third stage applied simple random sampling. A sample of six local governments was selected from 20 in Lagos State, and referred to as primary sampling units (PSUs). Lagos State was divided into six educational districts (EDs). The first stage sampling involved selecting one local government out of three or four in each ED. The second stage sampling comprised a few secondary schools selected at random from all the schools in selected local governments, and the third stage was a selection of some teachers from all the teachers in the selected secondary schools. The selected local secondary schools were called secondary sampling units (SSUs). All the responding units in each SSU, i.e. the teachers, were given the questionnaires to fill in. Triangulation of three data gathering instruments enabled convergence measurement for confidence in the outcome of the research. Content analysis of the contextual setting relating to the information literacy environment in Nigeria and South Africa was done. The respondents were drawn from secondary school teachers in Lagos and Durban, with 368 valid questionnaires returned with useful responses, 193 (52.4%) in Lagos and 175 (47.6) in Durban Eight librarians were also interviewed to validate the responses from the questionnaires, four in Lagos and four in Durban.

The theoretical underpinning of this research was based on the technology acceptance model (TAM), which helps in understanding human-machine interface (HMI) through perceived usefulness (PU) and perceived ease of use (PEU). The rationale for TAM is to present a foundation for ascertaining the impact of external variables on internal beliefs, personal abilities, attitude, mind-set and intention in attaining information literacy (IL) skills. This study evaluated the TAM's main variables for information literacy acquisition such as:

perceived usefulness (the intention to use, user training, computer experience, system quality) and perceived ease of use (computer self-efficacy, perception of external control, ease of use, internet self-efficacy, efficacy of library use, computer anxiety, information anxiety, perceived enjoyment and objective usability, behaviour and intention). The study also contextualises the TAM by analysing and explaining how the variables are applied in relationship to IL among school teachers. The outcome provided a deeper understanding of how TAM applies to information communication and technology for development (ICT4D) in general and IL research in particular.

The study revealed that teachers in Durban had a higher level of perception of the need for information literacy than their counterparts in Lagos. The inference from the study showed that teachers in the countries of study need information on a regular basis mainly for the purposes of teaching, and administrative and professional development. The study also showed that electronic information resources were infrequently used by the teachers. Regardless of government regulation stating the qualifications of school librarians, many of those employed in the two cities were not professionally qualified librarians. The study shows a significant level of decline in information literacy in relation to the ages of teachers. Younger teachers tend to possess a higher level of information literacy than their older colleagues, which makes in-service training imperative. Female teachers are significantly more information literate than their male counterparts. Many of the school libraries seem to have been afterthoughts, and the specifications for library building and planning were not observed as itemised by IFLA library building guidelines. The library environments showed that most of the facilities were not specifically built for the teachers, in terms of space and furniture. Interaction and collaboration between teachers and librarians is limited. The information in the literature review, and contextualisation of information literacy in Nigeria and South Africa present new insights.

The study recommended that continuous training for teachers in information literacy is essential. School authorities should establish relationships between teachers and librarians, and employ qualified librarians capable of competently handling modern information facilities in the school library. The quality of library facilities should be improved for better information access and services, and encourage change in teacher's perceptions about information literacy and services. Adequate funding for school libraries is essential to acquire resources and ensure maintenance. It is also recommended that librarians should receive

regular education to cope with changes in information access, usage and services required in modern libraries.

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LIST OF ACRONYMS AND ABBREVIATIONS

AASL: American Association of School Librarians

ABET: Adult Basic Education Training Centres

ACE: Advanced Certificate in Education

ACRL: Association of College and Research Libraries

AD: Administrative District

ADSL: Asymmetric Digital Subscriber Line

AFRICMIL: African Centre for Media and Information Literacy

ANC: African National Congress

AR: Augmented Reality

ASGISA: Accelerated and Shared Growth Initiative of South Africa

ASIDI: Accelerated School Infrastructure Delivery Initiative

BFI-SA: Bridges to the Future Initiative in South Africa

BUT: Bureau for University Teaching

CD: Compact Disc

CENSI: Centre for Software Engineering

DBE: Department of Basic Education

DDC: Dewey Decimal Classification

DHS: Durban High School

DHT: Department of Higher Education and Training

ECP: Extended Curriculum Programme

ED: Educational District

EDN: Educators Development Network

EVD: Ebola Virus Disease

FME: Federal Ministry of Education

FOI: Freedom of Information Bill

FRN: Federal Republic of Nigeria

GDP: Gross Domestic Product

HDI: Human Development Index

HRDSSA: Human Resource Development Strategy for South Africa

ICT: Information Communication Technology

ICT4D: Information Communication Technology for Development

IFLA: The International Federation of Library Associations and Institutions

IQMS: Integrated Quality Management System

ISAD: Information Society and Development

ISP: Internet Service Provider

IT: Information Technology

LAN: Local Area Network

LIFE: The Literacy Initiative for Empowerment

LRCN: Library Registered Council of Nigeria

LSBEB: Lagos State Universal Basic Education Board

MDG: Millennium Development Goals

MEC: Executive Council for Education

MILL: Molteno Institute of Language and Literacy

MPCC: Multi-Purpose Community Centres

NBS: National Bureau of Statistics

NCCE: National Commission for Colleges of Education

NCE: Nigeria Certificate in Education

NGO: Non Governmental Organisation

NRI: Networked Readiness Index

NSFAS: National Student Financial Aid Scheme

NUC: National Universities Commission

PC: Personal Computer

PEOU: Perceived Ease of Use

PHCN: Power Holding Company of Nigeria

PNC: Presidential National Commission

PU: Perceived Usefulness

RFID: Radio Frequency Identification

RIS: Research Information Skills

SADET: The South African Democracy Education Trust

SCONUL: Society of College, National and University Libraries

SDLC: Systems Development Life Cycle

SILP: Scottish Information Literacy Project

SNSA: SchoolNet. South Africa

SPSS: Statistical Package for Social Sciences

TAM: Technology Acceptance Model

TELI: Technology Enhanced Learning Investigation

TPB: Theory of Planned Behaviour

TRA: Theory of Reasoned Action

UKZN: University of KwaZulu-Natal

UNESCO: United Nations Educational Scientific and Cultural Organisation

UNLD: United Nations Literacy Decade

UPS: Uninterrupted Power Supply

USA: United States of America

USAID: United States Agency for International Development

UTAUT: Unified Theory of Acceptance and Use of Information Technology

WILP: Welsh Information Literacy Project

CHAPTER ONE

1.1 Introduction and background of the study

This chapter provides the research background, conceptual setting, and statement of the problem, and the research objectives, research questions, scope and limitations of the study.

The concept of information literacy skill has been widely discussed by professional bodies such as the Society of College, National and University Libraries (SCONUL, 2011), the Association of College and Research Libraries (ACRL, 2011), the American Association of School Librarians (1998), and the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2008). The International Federation of Library Associations and Institutions (IFLA) (2006:17) described information literacy (IL) as the ability to identify when information is needed, carry out a specific task for problem-solving purposes, cost-efficiently search for information, organize or reorganize sources of information, interpret, analyse and retrieve necessary information, appraise the accuracy and reliability of the information, and observe the ethical use of information sources. IFLA (2006:7) distinguishes the information literacy concept from other aspects of literacy like computer literacy, network literacy, digital literacy, information technology literacy and media literacy, although these types of literacy are quite related. UNESCO (2004) considered information literacy as all activities concerned with teaching and learning regarding the whole variety of information sources and formats. UNESCO (2004) notes that to be information literate an individual must be equipped with the why, when, and how to apply all IL tools and develop the ability to think decisively about the information they provide. According to the Scottish Information Literacy Project (2013), information literacy is the panacea for promoting problem-solving abilities, especially those problems that come with the use of modern facilities channelled towards accessing information. It argues that IL helps to equip scholars with critical thinking skills, the ability to seek answers to critical questions, find information from various sources, form intelligent opinions, and evaluate sources of information for informed judgement necessary for decision making.

Information literacy is a building block of educational development in the 21st century, especially for teachers who are critical stakeholders in imparting knowledge to students, who are expected to be creative critical thinkers and lifelong learners (Blas, 2014:33; Monge & Frisicaro-Pawlowski, 2014:61). An extremely convoluted information environment

necessitates the knowledge of information literacy for finding the direction, appraisal and use of information. Teachers have the pivotal responsibility of providing students with varied means to use information in a meticulous way, to the extent that teachers should acquire a comprehensive and all-inclusive understanding of information literacy to channel their own knowledge formation activities that will eventually positively influence the abilities of their future students (Purcell & Barrell, 2014:57). However, research has revealed that teachers often go into teaching lacking indispensable information literacy skills and knowledge. The explanation for this predicament lies in their experiences in pre-service, graduate, and continuing education programmes which have formed how teachers model and assist student learning in classrooms (Purcell & Barrell, 2014:57). In the opinion of Demıralay and Karadenız (2010:842), teachers should develop information literacy tools and techniques in order to be able to evaluate and use diverse and persistently changing information sources in academic work. ACRL (2011:1) affirms that teachers with information literacy skills will serve as a model for their students on how to navigate the current web of information, and how to use information to build credible and formidable arguments capable of promoting learning and independent thinking.

Based on the assessment of SCONUL (2011:3), a body responsible for the promotion and support of information services, information literacy should be seen as the ability to assemble, use, manage, create and generate information and data in an ethical and effective manner. Krauss and Fourie (2011:303) hold that information literacy should be considered an academic and social empowerment tool for teachers and an indispensable human right in the digital age, since it empowers individuals in every aspect of life in order to seek, evaluate, appraise, exploit, use and create information successfully to attain personal, collective, professional, work-related and educational goals and benefits. Rodney-Wellington (2014:73) argues that if students were actively taught information literacy in the formative years of their natural and cognitive development it would be life-changing and fruitful, and they would experience the benefit of it throughout their lives. Hang (2013:221) sees information literacy skills as essential abilities necessary for survival in information-based societies. Consequently, teachers who are saddled with the responsibility to impart knowledge should acquire these skills to boost their capacity and effectiveness in both their careers and their personal engagement in an ever-increasing information-based environment. Mokhtar, Majid and Foo (2004:1) advocate that information literacy programmes should be explicitly

designed to equip teachers with the necessary aptitude that would aid them in becoming independent, active learners and workers.

However, in the opinion of Karnad (2013:5), information literacy skills are not innate in teachers or any other professionals. They are not a product of instinct and human impulse, but have to be carefully learned; and the most suitable place to begin learning is the school, from librarians trained in information management, or teachers who have acquired the basic skills. This view has been maintained by many authors. For instance, Mounce (2010:300), Julian (2013:69), and Purcell and Barrell (2014:57) believe that libraries and library media specialists should be working in partnership with classroom teachers to ensure that students are effective and responsible users of ideas, views, opinions and information.

A trend that is watering down the quality of information in public spaces is the growth of self-publishing. In the opinion of Kawasaki and Welch (2013:3), this is fuelled by the fact that traditional publishing firms battle with logistics challenges about shelf space, inadequate printing presses, editing and production know-how, the difficulty of getting raw materials for production, and shipping books to various locations. However, the space for electronic information resources is limitless, and is open to everybody who wants to publish a book and is equipped with the ability to use a word processor. Unfortunately, the self-publishing revolution does not necessarily translate into genuine information, especially against the backdrop of the fact that, as Ware (2013:4) observes, many 'overnight' authors publish without going through the conventional peer review arrangements grounded in quality assurance that established and reputable publishing organizations go through before making information available to the general public.

Jenkins (2006:1), Katz (2007:4) and Eisenberg (2008:36) observe that the rapidly changing information and technology landscape necessitates a different approach to information literacy skills for their navigation, evaluation and use. Information literacy skill is to a teacher what a compass is to a sailor: without it he or she will experience difficulty locating various destinations. Without information literacy, teachers will encounter difficulties in meeting the expectations of the information age. ACRL (2011:1) holds that it is paramount for teachers to be information literate because of the large spectrum of information needed to solve problems and advance knowledge. They should obtain an in-depth understanding of information

literacy that will ultimately influence their students in their endeavours to become lifelong learners.

Information literacy is important for a number of reasons, especially to educators. According to SILP (2013), it helps in promoting problem-solving ability, critical thinking, the ability to ask questions and seek logical answers, find information, shape opinion, and evaluate sources of information. For an individual, being information literate is imperative in order to be a functional member of society. A government should therefore integrate the knowledge of information literacy into academic programmes so as to make people become more productive and equipped as global citizens of the 21st century (Rodney-Wellington, 2014:75).

Lincoln (2011:4) observes that information literacy is essential because of the plethora of readily accessible information, and that people are expected to acquire appropriate skills befitting the 21st century to locate, evaluate, analyse and put to effective use information from various sources. Information literacy is a must for everyone because it is a key component of education, and will determine the level of success at every professional level. Davis, Lundstrom and Martin (2011:17) caution that there may be a tendency among the modern generation who are information savvy to feel that because they have grown up in an environment driven by technology they are information literate; but the ability to use modern information gadgets does not necessarily mean being information literate.

Information literacy is important because access to information is driven by technology, which must be learnt for an individual to be a competent information user (Mordini, 2007:544; *Encyclopaedia Britannica*, 2010). Juutinen, Huovinen and Yalaho (2011) emphasize that embracing technology can help to improve people's lives. Information literacy is an essential skill that benefits a large number of those who have it. According to Sasikala and Dhanraju (2011:1), information literacy can lead to independent, self-determining and student-centred learning, rather than an overreliance on educators to offer solutions to all problems. This, they argue, will give students greater ability to control their learning process, which will influence the growth of their imagination, logic and resourcefulness instead of their simply regurgitating facts.

Information literacy is also important because it leads to an enlightened community. Shane (2011) writes that the hallmark of information literacy is the capacity to decisively evaluate and ethically apply information to find solutions to problems, and inspire individuals with the

spirit of inquiry. He believes that even though in this information age there is a rapid increase in information in the library, and on the Internet, television and radio, etc., the availability of information does not necessarily mean that it is quality information. Unfortunately, knowing a particular item of information technology (IT) today does not mean it will be useful for the future because of the constant changes in its application (Girard & Allison, 2008:111). Knowledge of information literacy will equip scholars with the ability to adapt to a changing information environment.

Shyh-Mee and Singh (2010:1) affirm that improvement in technology has led to an immeasurable variety of information which has become readily accessible in various structures and formats which in turn necessitate diverse techniques and methods to access and exploit them. This leads to excessive information in an educational setting. In view of this, Slebodnik and Zeidman-Karpinski (2008) suggest that information literacy skills become required expertise to be able to make a person distinguish necessary information from its vast sources. Regrettably, according to Tilvawala, Myers and Andrade (2009:3), information literacy, a relatively recent concept in developing countries, becomes confused with information communication and technology. Hence teachers need to know information literacy concepts, and need more exposure and training in information literacy and its relevance to curriculum delivery.

Zak (2014:23) and Dadzie and Walt (2015:58) stress that the increasing use of technology has revolutionized the way we interact in society, and this has changed the way technology is being used to communicate. They argue that the entire human race now lives in an information society where schools, professional practices and even entertainment are largely information driven. As a result, information literacy is essential to fully partake in, and contribute significantly to, the world we live in. Unfortunately, as Ferguson (2003:3) and Chipeta (2008:15) observe, most modern information is "owned", filtered, and distributed by establishments for profit; their goal is to make the public consumers rather than enlightened citizens. The authors affirm that for teachers to function productively in this information-intensive world they must impart all-encompassing, hands-on, universal education in information literacy concepts and skills through the public schools. The need to integrate information literacy concepts and skills into the school curriculum thus underscores the importance of a school library media resource centre.

Information literacy also entails the dexterity and understanding to use the variety of technologies, whether information and communication technologies (ICT) or other resources, both in physical and electronic format, to gain access to and retrieve appropriate information (Julien, Tan & Merillat, 2013:83). Boekhorst and Britz (2004:64) maintain that it is imperative to emphasize the fact that familiarity with ICT tools and techniques is not tantamount to information literacy skill. Thus, ICT or computer literacy can only be seen as one of the elements of information literacy which is generally the result of a process of education whereby the necessary knowledge and skills are acquired.

According to Gross, Armstrong and Latham (2012:107), the major benefit of being information literate is that it enables learners to find, evaluate and synthesize information for lifelong learning; therefore developing the skill will foster critical thinking, which is the heart of independent assessment, and consequently leads to better research. Information literacy assists scholars in being well informed about the use of modern technology (Dunn & Menchaca, 2009:476). It also equips scholars with diverse ways of finding information and being able to evaluate whether the information is precise and dependable (Welsh information literacy project, 2010:1).

The success of the academic enterprise depends on the quality of information available. In the opinions of Ruff (2002:1) and Kennerley and Mason (2008:23), the quality of information determines the value of a decision. For this reason, as the amount of information increases, so also do information processing ability and the quality of decision making. The authors, however, affirm that after a certain point is attained, when the decision maker has obtained more information than the processing ability requires, the ability to process information decreases, and this will lead to confusion, anxiety and uncertainty, which could adversely affect the ability to set priorities and remember previous information. Lincoln (2011:4) affirms that abundance of and desire for more information has been perceived paradoxically as the source of as much productivity loss as gain. This situation has also been described by Bundy (1998) as information fatigue syndrome (IFS), which could lead to impairment of analytical ability, increased anxiety and self-doubt, which increase the tendency to blame others. To overcome this predicament information literacy is key (Haider & Bawden, 2007: 543).

Information literacy empowers with the ability to distinguish facts from fallacy. For instance, information emanating from government documents is often regarded as authentic, but recently it has been observed that even government documents can be a product of propaganda, distortion of fact, falsification of reality, data corruption, modification and manoeuvring of statistics (Miller, DeKay, Stone & Sorenson, 2013:662). Zaharna (2004:4) states that government-sponsored information can be a mechanism to manipulate public opinion and stage-manage public diplomacy. This is particularly difficult for teachers, who may also be victims of this manipulation, especially with their responsibility to identify fact from fiction, and reality from illusion. Caravello (2007:142) maintains that more than ever before, information literacy is essential for teachers, who should be equipped with the ability to discover bias, dishonesty, partiality and prejudice in information content, because credibility of information is important for teachers in their task of expanding the frontiers of knowledge.

In an attempt to explain the different components of information literacy, ACRL (2000:5) came up with five standards to elucidate the qualities expected of an information literate teacher. They are: information need, information access, information evaluation, information use, and information ethics. On information need, Prabha, Connaway, Olszewski and Jenkins (2006:2), and Clarke et al. (2013:179) explain that the present information setting is characterized by a proliferation of information sources, formats and providers, an array of methods for accessing information, and a redundancy of content from numerous sources. In this information-saturated environment, many information users tend to experience a sense of information inadequacy and anxiety because of the volume of information available to them.

The second standard focuses on accessing information. In the view of Rice (2010: n.p.) and Perrett (2010:24), an information knowledgeable person must be able to effectively and efficiently access necessary information because of its sheer abundance. This applies to teachers, as they must be aware of the research methods used in a particular field, and need to apply effective search strategies with the appropriate tools to access information. They need to use a variety of methods rather than rely on single research tools like Google and Yahoo. When the information is finally found, teachers must be able to demonstrate an ability to extract, organize and manage their resources (Rice, 2010: n.p.).

The third benchmark is evaluation of information, which is a precondition for conducting quality research. Purdue University (2012:n.p.) and Al Awadhi and Rehman (2012:355) state that with so much information available, in many formats and from diverse sources, what is selected must be cautiously reviewed to ascertain the quality, perception and balance that best supports the research. Consequently, the following are criteria to be considered when evaluating information: authority, date of publication, accuracy, scope, objectivity, quality of publication, intended audience, level of information and ease of use.

The fourth standard is about using the newly evaluated information to create a product. As Rice points out (2010:n.p.), such research products are books, journals and conference papers. In general, this standard focuses on how to convincingly adapt, incorporate and use the new information and effectively present it in a way that is understandable and clearly supports research and development.

Finally, according to standard five, a modern teacher must be aware of the ethical issues surrounding information to avoid plagiarism and breach of copyright. Rice (2010:n.p.) stresses that it is important to be aware of concepts that can affect daily lives such as privacy, security, copyright, intellectual freedom, fair use, censorship and freedom of speech. Information literate teachers must understand and follow the rules and regulations regarding ethical use of information, which is why it is important to acknowledge sources by accurately citing them in an appropriate documentation style (Murray, 2012).

1.2 Contextual Setting: Overview

Based on the evidence gathered from the Federal Republic of Nigeria (2005), education is on the concurrent legislative list, which empowers the federal, state and local governments to put together policy frameworks on issues pertaining to education. There are four phases of education in Nigeria: early childhood (pre-primary); basic education (nine years), comprising primary and junior secondary education, which is mandatory, universal and free; senior secondary education (three years); and tertiary education. The Federal Republic of Nigeria (2005) stresses that the Nigerian Certificate in Education (NCE) is the minimum teaching qualification requirement. Teacher recruitment is carried out by the various levels of government and the private sector. Teachers are expected to register with the Teachers Registration Council of Nigeria. According to the Federal Government of Nigeria as reflected in the National Policy on Education, the objectives of education are as follows: the

inculcation of national consciousness, national unity, the right type of values and attitudes for the survival of the individual and the Nigerian society; the training of the mind in the understanding of the world around; and the acquisition of appropriate skills and the development of mental, physical and social abilities and competencies as equipment for the individual to live in and contribute to the development of the society (Federal Republic of Nigeria, 2005).

While access to information has become sophisticated, the necessity to acquire the knowledge of information literacy is imperative to enhance the quality of decision, teaching and learning, therefore the ability to use libraries and information sources (whether in print or electronic version) is important, this has led some institution of higher learning in Nigeria to make information literacy training an integral part of the undergraduate studies (Baro & Zuokemefa, 2011: 549). Furthermore, the authors revealed how some university libraries incorporate different information literacy activities like library orientations programmes, database searching skills, bibliographic training and the use of the library into school curriculum. The authors also identified certain factors such as lack of required interest by students, teachers and management, insufficient human capital in handling information literacy training, deficient facilities, low acceptance of online IL delivery approach and absence of IL policy as major militating factors against the efforts of the libraries to promote information literacy competence.

National Universities Commission is the organisation that regulates university education in Nigeria, this body authorizes the teaching of information literacy in all the higher education curricula, but only few universities have implemented it. For example, the NUC benchmark minimum educational standards for undergraduate students' programmes recommended a 2-unit course titled "use of library, study skills and ICT" for year one students of Nigerian universities (NUC, 2007). It was observed by Rasaki (2008) and Adeleke, Arikawe and Asaolu (2015:131) that there are inconsistencies in the implementation of IL in Nigeria Universities, it was noted that although some universities offer information literacy as a credit-earning course, few of them have library orientation programmes for new students; while some others merged it with other general study courses. In view of this, the conclusion can be drawn that teaching of information literacy in Nigerian universities is at elementary stage. In the same vein, Adeleke, Arikawe and Asaolu (2015:131) also confirmed that

academic libraries focus more on information literacy than other types of libraries in Nigeria, although not as expected of a 21st century library.

South Africa's Bill of Rights reinforced the fact that it is an inalienable right of the entire citizenry to have access to basic education, which also includes further education, because these have been perceived as being capable of playing a key role in South Africa's future prosperity and greatness. Therefore, the government and its agencies place education and skill acquisition at the heart of their policy. As proof of government commitment, in the 2012/13 fiscal year education constituted more than 21% of government expenditure. The responsibility for education is a joint task of the Department of Basic Education and the Department of Higher Education and Training (South Africa, 2013:68).

Education is regarded as the foundation of development in Nigeria, but unfortunately the sector is bedevilled by various problems. These include inadequate funding, which is reflected in poor educational facilities, insufficient classrooms, lack of teaching aids (projectors, computers, laboratories and libraries), scarcity of quality teachers and poor and unhygienic learning environments. In addition to these shortfalls, the school system is plagued by numerous social vices such as examination malpractices, cultism, hooliganism and corruption (Odia & Omofonmwan, 2007:1).

In the assessment of USAID (2012), the quality of education in Nigeria is considered to be poor, resulting in low academic performance by students. Of the 30 million school-age pupils, only 23 million are enrolled in schools. The remaining seven million are not registered in schools. Of the population of registered students, only a few will proceed to secondary school. Nigeria has, therefore, a large population of out-of-school students who will grow to adulthood with inadequate literacy and numeracy skills, and will thus be deprived of the opportunity to join the official workforce. This problem is acute in Northern Nigeria.

The estimated population of South Africa stands at 52.83 million, with the black African majority constituting 42.28 million, almost 80% of the population. The white population is estimated at 4.6 million, the Coloured population at 4.77 million, and the Indian/Asian population at 1.33 million. Just over 51% (27.08 million) of the population is female (South Africa, 2013:6). South Africa is divided into nine provinces, each with its own legislature, premier and executive council. They are the Western Cape, Eastern Cape, KwaZulu-Natal,

Northern Cape, Free State, North-West, Gauteng, Mpumalanga and Limpopo (*South Africa Yearbook*, 2013:5).

In the observation of Odhav (2009:33) the structural defects of education during apartheid, as reflected in the post-1994 policy outline shows fundamental change, but numerous problems continue within the education sector. Futhermore, Odhav (2009:33) stated that policy limitations exist in diverse areas such as funding and capacity building, both for historically disadvantaged institutions (HDIs) and for students, especially those from educationally disadvantaged backgrounds.

It is the directive of Education Library, Information and Technology Services (ELITS), to promote the ambition of schools in South Africa to offer quality library, information and technology resources and guarantee effective management and utilisation of these resources. These resources are expected to support curriculum development, which entails learners create knowledge in the course of interface with a number of resources. A school library in South Africa usually provides a foundation for different information resources that ranges from print, visual, audio-visual to electronic resources; this gave birth to the school library policy which generally upholds three subject matters which are; School Library Development Programme [SLDP], Information Skills and ICT Programme and Reading Programme (KZN Department of Education, 2012: 1).

Toit and Stilwell (2012) claimed that the disparity in the provision of library services under the auspices of the pre-1994 departments of education resulted in prevalent deficient facilities, insufficient resources and inadequate of skilled workforce in most of the schools in South Africa. These problems were amplified by lack of policy framework compelling departments of education to offer school libraries and institute library standards. However, the introduction of new curriculum in 2005 brought a much desired turn around in South Africa's educational development and paradigm shift in education that is poise to bring about outcomes-based curriculum with its notion of integration and lifelong learning, this new approach brought transformation to the educational system.

Toit and Stilwell (2012: 121) observed that the Directorate Education Library, Information and Technology Services (ELITS), a body in charge of school library services in KwaZulu-Natal's Department of Education, frown at the inability to establish policy framework for school library in line with the national policy schemes in KwaZulu-Natal province in South

Africa promoting information literacy policy. De Jager, Nassimbeni and Underwood (2007: 143) made it known that the new policy statements should recognise that information literacy training requires collaboration between teachers and school librarian.

Based on the assessment of Education Department in kwaZulu-natal (2014) Education Library Information & Technology Service (ELITS) is a body set up with the vision to promote well-informed learners and educators who can flourish in complex information setting in the 21st century and ensure equitable access to quality school libraries services that will promote academic excellence, institute reading culture as an indispensible skill for learning, individual growth and enjoyment in all schools, provision of library related professional development and support, incorporate information literacy skills into school curriculum and promote the use of ICT as a tool for accessing information and managing school libraries.

A detailed analytical account of the conceptual setting is in Chapter Two.

1.3   Statement of the problem

Academic and professional literature has reported the countless benefits of information literacy in the USA, Europe and Asian countries for improving the performance of teachers, and indeed all professionals. Nevertheless, such revelations are infrequently mentioned in most developing countries. Regardless of the well-known benefits of information literacy, few researchers have reported on its importance to the teaching profession. Therefore this study has been intended to estimate the impact of information literacy skills on teaching practice in Lagos and Durban.

The use of modern facilities to access information resources has surged significantly in most developed countries of the world, and has assisted teachers in their curriculum delivery, and thus the enlightenment of learners and citizenry. Although teachers and students in developed nations reap the benefit of their ability to access and use quality information, developing countries, like Nigeria, continue to lag far behind because the infrastructure that drives the contemporary information environment is still operating at a rudimentary level. For instance, computer systems are predominantly imported from other countries, which makes for exorbitant prices, and the ability to use the Internet to access information is stifled because of the epileptic nature of the power supply.

Several years of military rule in Nigeria had an adverse effect, especially on teachers and the educational sector in general. The dawn of the military era left the country with a heritage of unfulfilled promises, with constant changes in policy, fraud, injustice, religious and racial intolerance, poverty and general misery, which led to severe economic consequences, with government unable to pay teachers' salaries, and the teachers embarking on a sequence of industrial unrest leading to changes in the academic calendar (Online Nigeria, 2015).

South Africa has been described as a country with attributes of both First- and Third-World countries. This affects access to information resources along this social divide, with a privileged minority having schools enjoying all the benefits of quality equipment, including libraries. In contrast, the majority population in rural areas and townships confronts a problem in accessing ICT equipment because of relatively low-level infrastructure. In consequence, the problem of a digital divide within the society becomes deeper, and minimizes access to global knowledge in the less privileged communities. Noteworthy disparities between schools in previously advantaged and historically disadvantaged locations still exist today.

The primary role of teachers is capacity building and human capital development, and this responsibility is of paramount importance for any country that is eager for educational development. However, the capacity of teachers in Lagos and Durban to meet this responsibility can be hampered by a lack of information literacy. This gap has serious implications for students who are deprived of the opportunity to acquire basic library skills and information literacy techniques that could aid their ability to survive in the rapidly changing information environment.

Another limitation for teachers in Nigeria and South Africa is the lack of authentic access points and terminals for accessing information. As a result, the task for most teachers when seeking information is to open access to search engines. The resources in these search engines are overwhelming, but most teachers lack the requisite skills to ascertain the authenticity, validity and reliability of the resources available online. Many of the open access electronic resources are platforms where a lot of people can upload their contents without going through the peer review mechanism to evaluate the content before making it public.

It is a well-established fact that many teachers develop a resistance to using technology. This technophobia is reflected in their reluctance to embrace modern tools and techniques of information and communication, and apply them to classroom activities (Howard, 2013).

The focal rationale of the current study was to explore the topic of the information literacy skills and personal abilities of secondary school teachers in Lagos, in Nigeria and Durban, in South Africa. This will offer a comparative representation of educational endeavour in two major cities in Africa, and also help to deal with gaps in the literature by conducting an in-depth study. The findings will be of enormous benefit to the two cities, especially in the areas of policy formulation, offering guiding principles for better performance, suggesting a culture of better practice, and advocating special training, techniques and theory.

1.4 Aim of the study

The purpose of this study is to determine the information literacy skills and personal ability of secondary school teachers. The intension is to make comparisons across two cities of Lagos and Durban in a multiple case study research basis.

1.5 Objectives of the study

(i) To investigate teachers' perceptions about the need for information literacy in the implementation of secondary school subjects' instruction.

(ii) To examine for what purposes secondary school teachers need information to enhance their teaching ability.

(iii) To determine the type of information resources that teachers need for teaching purposes.

(iv) To find out the frequency of use of various information resources by secondary schoolteachers.

(v) To investigate how the information search strategy of the secondary school teachers influences their use and satisfaction with online resources.

(vi) To investigate the effects of self-concept in the information literacy skills of secondary school teachers.

(vii)   Identify the metacognitive abilities of teachers in the use of information resources in classroom instruction.

(viii)   To describe the information literacy context in Lagos, Nigeria and Durban, South Africa.

(ix)   To recommend conceptual model that will address information literacy skills of secondary school teachers in Lagos and Durban.

1.6   Research questions

(i)   What are the teachers' perceptions about the need for information literacy skills in the implementation of secondary school subjects' instruction?

(ii)   For what purposes do secondary school teachers need information?

(iii)   What types of information resource do teachers access for teaching purposes?

(iv)   What is the frequency of use of various information resources by secondary school teachers?

(v)   What information search strategy is being exploited by teachers in using online information resources?

(vi)   What is the information self-concept level of teachers in secondary schools?

(vii)   What are the metacognitive abilities of teachers in the use of information resources in classroom instruction?

(viii)   What is information literacy in the contexts of Lagos, Nigeria and Durban, South Africa?

(ix)   What conceptual model mechanisms can be used to ensure information literacy skill of teachers in Lagos and Durban?

1.7   Hypotheses

The following null hypotheses guided the conduct of this study and were tested at a 0.05 level of significance in order to present outstanding deductions and conclusions.

$H_{01:}$ There is no significant relationship between demographic variables (gender, age, years of experience and level of education) and information literacy skills (information need, information access, information search strategy, information literacy self-concept, information evaluation and information use) of teachers.

H_{02}: There is no significant difference in the perceptions of the need for information literacy skills by teachers in Lagos and Durban.

H_{03}: There is no significant difference in the frequency of use of information by teachers in Lagos and Durban.

H_{04}: There is no significant difference in the search strategy of teachers in Lagos and Durban.

H_{05}: There is no significant relationship between information literacy skills and the information self-concept of teachers.

H_{06}: There is no significant relationship between information literacy skills and metacognitive abilities of teachers for instructional delivery.

H_{07}: There is no significant joint contribution of information literacy skills variables (viz: information need, information access, information evaluation and information self-concept, information evaluation and information use) to the metacognitive abilities of teachers.

1.9   Motivation of the study

The researcher was motivated to embark on this research by the invitation of the Lagos State Universal Basic Education Board to act as a guest lecturer to train teachers on how to locate, access and use information ethically. The inability of teachers to use modern technology in their classroom instruction is a major setback for students. The researcher believes that most of the challenges encountered by teachers in seeking information can be traced to their lack of confidence in the use of modern technology. They are technophobic, a critical factor preventing teachers from benefiting from the great opportunities made available by these modern technologies.

1.10 Scope and limitations of the study

The definition and description of information literacy in this research include the effective use of ICT to acquire information, which requires the use of computer literacy, network

literacy, media literacy, visual literacy, library literacy and traditional alphabetic literacy, and includes critical thinking ability to enable the proper evaluation and ethical use of information.

The selected population for this study was limited to secondary school teachers in public secondary schools and school librarians, in order to establish convergence of opinion from various points of view; this will ensure the reliability of the results. The implication is that students were not included in the survey. Teachers in private secondary schools were also not included, because there is no official nominal roll to establish the sample size of teachers in private secondary schools. Measuring the perceptions of teachers in the use of information resources is crucial to curriculum delivery. The challenges of effects evaluation apprehension cannot be ruled out in a self-reported interview. The performance of a research participant can be positively affected or prejudiced by the researcher. This compels him or her to behave is a socially approved manner.

The study was inhibited by the busy schedule of teachers, many of whom had limited time to respond to the questionnaire and interview questions. For this reason, analyses of relevant documents and observation of the research environment were made to expose the realities surrounding the subject matter. Another limitation to the study was that much of the literature relating to information literacy has been published in America, Europe and Asian countries, thus excluding knowledge of information literacy from an African perspective and among teachers in public secondary schools. The theoretical underpinning of the research lay in the technology acceptance model (TAM), a theory derived from Western research, the application of which may generate various outcomes in the present study.

1.10.1   Subject coverage

The study is limited to information literacy skills and the personal abilities of secondary school teachers in Lagos, Nigeria and Durban, South Africa. This means that the research examines the perceptions of teachers about information literacy, how they access information from various sources and in different formats, how they evaluate their ethical use of information, their purpose in needing information, the type of information resources available to them, frequency of information use, the search strategy used by teachers, information self-concepts and metacognitive abilities of secondary school teachers, and the roles their self-concepts and metacognitive abilities play in personal abilities and self-development.

1.10.2 Research environment

The study investigates the information literacy skills of secondary school teachers in the public sector under the authority of the Ministry of Education in Nigeria and the Department of Education in South Africa. These are the schools under the direct control of the government at various levels. Teachers will be chosen because of the significant role they play in the human resources development of both cities.

The research was limited to a sample of teachers in public secondary schools in Lagos State, Nigeria, and Durban in KwaZulu-Natal Province, South Africa. It targeted 8 329 teachers from 298 schools in Lagos, and 4 887 teachers from 141 schools in Durban.

1.10.3 Methodological scope

The research design for the study was a descriptive survey anchored in both the qualitative and quantitative research methods. Quantitative research refers to a systematic empirical investigation in which a questionnaire was used to obtain information from secondary school teachers on their level of information literacy skill, self-concept and metacognitive ability. The qualitative research method was used to interview and observe the research environments. A hypothesis was tested to bring out various realities among the dependent and independent variables within this study.

1.11 Significance/contribution of the study

This study is important in the sense that it has contributed significantly to the body of knowledge in four major ways. Relevant literature in the area of information literacy was reviewed in an attempt to bring out something novel, identify a gap in research, and analyse and evaluate the existing research to expose strengths and weaknesses of the subject matter. The study makes several recommendations that are capable of deepening Library and Information Studies (LIS) practice in relation to information literacy among secondary school teachers. The study has also contributed to knowledge by making suggestions that will lead to policy changes. This is important because changing existing policy entails a long and tedious procedure. This study creates an avenue for those changes without government bureaucracy. Finally, the study contributes to knowledge by expanding existing theory, and shedding light on the subject matter of information literacy using the TAM.

1.12   Literature review

The purpose of the literature review is to appraise the research by accredited scholars and researchers in literature relevant to this study (Dena, n.d.). The underlying principle is to explain, recapitulate and evaluate the position of the existing body of knowledge in providing a theoretical foundation for the research, and facilitating the direction of new research (Boote & Beile, 2005:3). Literature has been reviewed in order to shed light on the research questions using available electronic resources and physical materials in an attempt to add to the existing body of knowledge. This study has therefore explored and appraised recent literature (published and unpublished works, peer reviewed articles, journals, conference proceedings, workshop papers. etc.) on the information literacy skills and personal abilities of secondary school teachers. The purpose, in full, was to investigate teachers' perceptions about the need for information literacy skills in teaching, and teachers' possession of those skills; determine the type of information resources teachers need for teaching, and the frequency of use of various information resources by secondary school teachers; investigate the information search strategy of teachers; and identify the metacognitive abilities of teachers in the use of information resources in classroom instruction; components of information literacy; the historical development of information literacy; information needs; sources of information; information access and evaluation; methods of evaluating sources of information; information use; ethical use of information; self-concepts and personal attributes; personal knowledge; task and procedural knowledge; strategic and declarative knowledge; and conditional knowledge. The theoretical model adopted for this study is the TAM as a strategic problem-solving model which is adapted to teach information literacy.

A detailed analytical review of literature is in Chapter Three.

1.13   Ethical considerations

Ethical issues are important to any modern research because research procedure generates apprehension between the aims of research to make generalizations for the good of others, and the rights of participants to maintain confidentiality. Ethics pertains to doing good and avoiding harm. Harm can be prevented or reduced through the application of appropriate ethical principles. The safeguarding of human subjects or participants in any research study is imperative (Orb, Eisenhauer, & Wynaden, 2000:93).

The University of Zululand's ethical principles and policies regarding intellectual property, copyright, fair use and plagiarism were upheld during and after this research based on the recommendations of the University of Zululand Research Ethics Committee (UZREC) as stipulated in http://www.unizulu.ac.za/research-and-innovation/research-ethics-integrity-and-plagiarism/ The request for ethical clearance was granted by the university (see Appendix H). The permission of the Department of Education in South Africa was sought before carrying out this research (see Appendix D), and it was granted (see Appendix E). The permission of the Ministry of Education in Nigeria was also sought (see Appendix F), and it was granted (see Appendix G). During the course of this study the researcher ensured that all the respondents included in the sample gave their informed consent to participate in the survey (see Appendix A). The researcher assured the participants of the confidentiality of all the sensitive information that was used by not revealing the identities of the respondents. The researcher also undertook to release the findings obtained from this study for the benefit of the society.

1.14 Dissemination of results

The results of this study will be disseminated to the government of the Federal Republic of Nigeria through the Lagos State government and the State Ministry of Education. A copy will also be made available to the University of Lagos based on the agreement with the researcher. The findings of this research will also be disseminated through academic publication in journals and conference proceedings. A copy each will be given to the University of Zululand and University of Lagos libraries as a contribution to their thesis collection, which they are at liberty to make available to the general public through the University of Zululand Institutional Repository website at: http://uzspace.uzulu.ac.za/. Findings of this research have been disseminated in conferences; they include:

a) Durodolu, O. O. (2015). Technology Acceptance Model as a predictor of investigating the use of information literacy skills. Paper presented at the ProLISSA Conference, 9 to 13 March 2015, Pretoria, South Africa.

b) Durodolu, O. O. (2015). The perception of secondary school teachers in information literacy skills: A two-city preliminary survey. Paper presented at the University of Zululand's

Faculty of Arts Annual Conference, 19 to 21 October 2015, KwaDlangezwa, KwaZulu-Natal, South Africa.

1.15   Structure of the thesis

Chapter One: Introduction and background to the study

Chapter Two: Contextual setting – focuses on Nigeria and South Africa

Chapter Three: Literature review

Chapter Four: Theoretical framework

Chapter Five: Research methodology

Chapter Six: Data analysis, presentation and interpretation: questionnaire responses

Chapter Seven: Data analysis, presentation and interpretation: interview and observation responses

Chapter Eight: Discussing of findings

Chapter Nine: Summary, conclusion and recommendations

1.16   Summary

This study is a comparative study of the information literacy skills of secondary school teachers in Lagos and Durban, This chapter has provided a general overview of the study by presenting the general opinion of researchers and professional bodies about the subject matter of information literacy, its importance and characteristics, a statement of the problem, research questions and objectives, the hypothesis and contribution to knowledge. The intention of the chapter has been to reveal the current studies and ongoing debate about information literacy, and isolate important variables which are discussed in depth in Chapter Two (the contextual setting, focusing on Nigeria and South Africa), and Chapter Three (the literature review) respectively.

CHAPTER TWO

INFORMATION LITERACY IN NIGERIA AND SOUTH AFRICA: CONTEXTUAL SETTING

2.1 Introduction

In the preceding chapter, the perception of information literacy was briefly discussed against the background of the research problem. The contextual setting was briefly discussed, as were the statement of the problem, the motivation, aim and objectives of the study, the research questions, hypotheses, the scope and limitations of the study, its significance, ethical considerations, the dissemination of results and the structure of the dissertation. Information literacy is a concept that has attracted the attention of a considerable number of renowned scholars, governments and international organizations the world over. Regardless of the overwhelming exposure and deliberation surrounding the notion of information literacy, it is important to note that it is an evolving and developing concept that is applicable to all human endeavour.

This chapter investigates, on a comparative basis, the contextual setting by focusing on the concept of information literacy as it influences teaching, learning and development in Nigeria and South Africa. The status of information literacy, revealing the extent, condition and present situation in both cities, will be discussed. The trend of information literacy reflecting the direction and what is in vogue concerning the subject matter, and important issues in information literacy in Lagos, Nigeria and Durban, South Africa will be highlighted, as will challenges associated with information literacy in Lagos and Durban, and various opportunities in information literacy in the two countries. The chapter divides into eight subheadings, and concludes by enumerating different perspectives in education – the status of and the issues, challenges and opportunities in information literacy in Nigeria and South Africa. This chapter also focuses on the cost of Internet access, its speed or delays, the level of ICT infrastructure and electricity generation as some of the major challenges affecting the growth of information literacy. Various intervention programmes from corporate organizations related to information literacy are also presented. These organizations are: the Molteno Institute of Language and Literacy (MILL), Trydian Interactive and Chevron Interventions. This chapter also embarks on an analysis of the concept of information literacy skill in Nigeria and South Africa.

Modern teaching requires the ability to find, evaluate, organize and communicate information, and the awareness that information is in a state of continuous flux, which means it changes as quickly as it is available. Teachers, in the analysis of Solomon, Wilson and Taylor (2012:4), are expected to continuously expand their body of knowledge to become successfully up to date, and this ability requires the skill of information literacy.

2.2 Nigeria Context

Education in Nigeria has gone through a series of policy transformations over a long period of time. The commitment to institute national policies and guidelines for harmonized standards of education in Nigeria generally rests with the Federal Government through the Federal Ministry of Education. This is clearly stated in the National Policy on Education, and supported by the Education Decree No. 16 of 1985 and the 1999 Constitution of the Federal Republic of Nigeria. Consequently, the attention of the Federal Ministry of Education is centred on six spheres of education, namely: Early Childhood Education, Introduction Basic Education, Secondary Education, Tertiary Education, Adult and Non-formal Education, and Special Needs Education (Federal Ministry of Education, 2009).

According to the *Nigerian Company Laws and Regulation Handbook*, Vol.1 (2015:7), Nigeria is the most populous nation in Africa, and the seventh most populous in the world, with approximately 174 million people. Christian missionaries introduced the Western education system in Nigeria in the mid-nineteenth century; it was more readily accepted in the southern part of the country, particularly in Lagos (Jayeola-Omoyeni & Omoyeni, 2014:269). Nigeria's literacy rate is estimated at 73.6% for urban areas and 49.5% for rural areas (Nigeria National Bureau of Statistics, 2010: 20
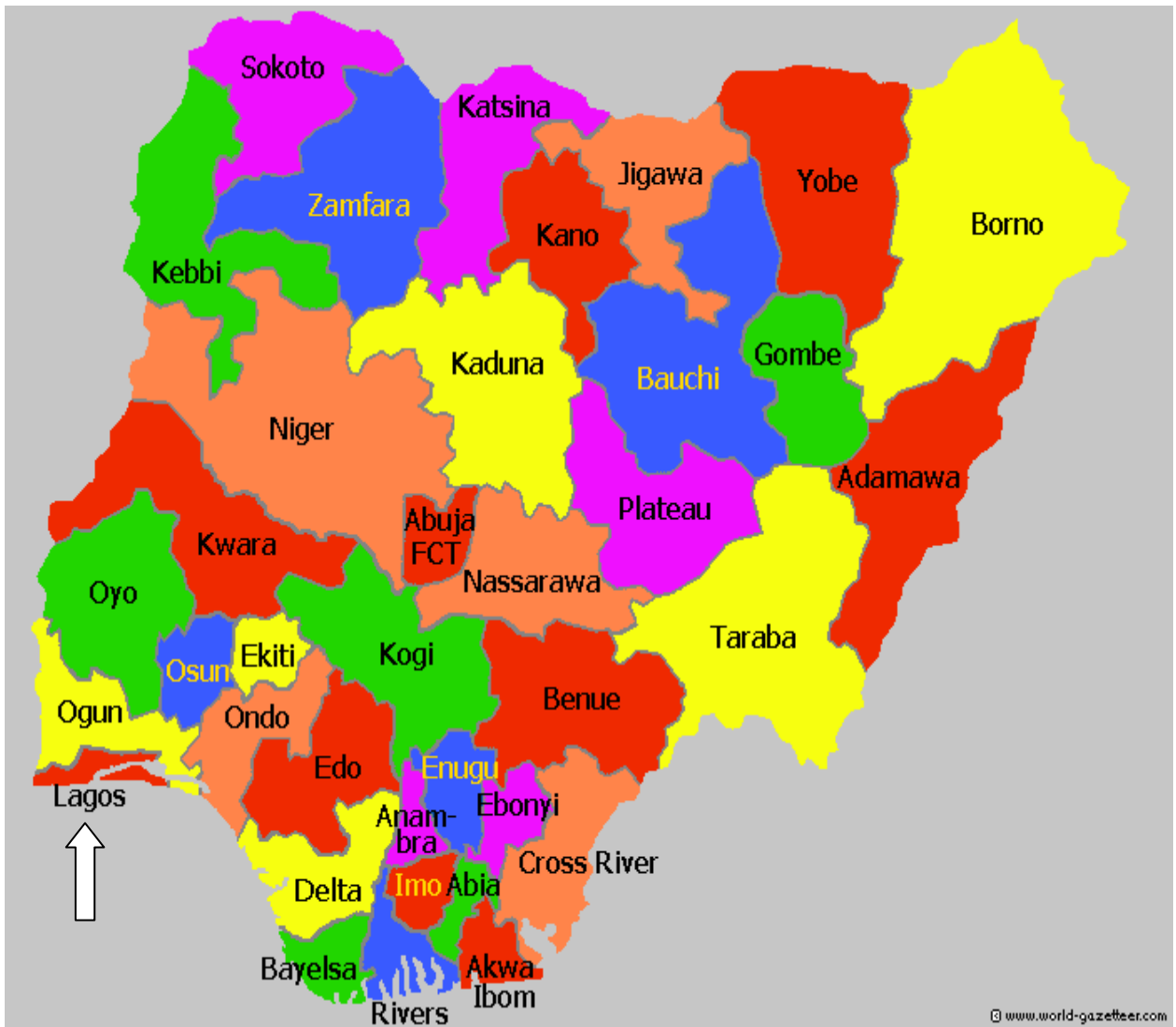
Figure 2:1   The Map of Nigeria

Source: Nigeria High Commissions (2013). Available at: http://www.nigeriahc.org.uk/images/nigeria_map_m.gif Retrieved 23/11/2014

According to Amaghionyeodiwe and Osinubi (2006:2), education being a mechanism of change and transformation, in Nigeria education policy has evolved in the course of numerous of historical developments a policy for educational improvement was launched in 1977 geared towards bringing self-realization, personal and corporate efficiency and effectiveness, national harmony, etc. for the sake of communal, cultural, economic, political, scientific and technological advancement. A universal basic education scheme was initiated in 1999 with the aspiration of obliterating illiteracy by the year 2010, and increasing the adult

literacy rate. Regardless of this vision, a high level of illiteracy remains endemic in some parts of the country.

In the opinion of Odia and Omofonmwan (2007:1), education is regarded as the bedrock of development in Nigeria, but regrettably this sector is bedevilled by various challenges, which include insufficient financial support reflected in poor educational facilities, deficient classrooms, outmoded teaching aids (projectors, computers, laboratories and libraries), shortage of quality and well-motivated teachers, and poor and unhygienic learning environments. In addition to these shortfalls, the school system is plagued with numerous social vices such as examination malpractices, cultism, hooliganism and corruption.

In the assessment of USAID (2012), a body set up to uphold development and democratic practices, the quality of basic education in Nigeria is very poor, and is mirrored in the low academic performance of students. Of the 30 million school-age pupils, barely 23 million are enrolled in schools. Of the registered students only a small number will go on to secondary school. For that reason, Nigeria has a large population of out of school students who will grow to maturity with inadequate literacy and numeracy skills, and thus be deprived of opportunity to join the official workforce. This problem is heightened in Northern Nigeria.

2.3 Status, issues, challenges and opportunities in information literacy skills in Nigeria

Many authors have written on information literacy in Nigeria: for example, Idiodi (2005), Adeyoyin (2005), Issa, Amusan and Umma (2009), Dangani (2009), Lawal, Stilwell, Kuhn and Underwood (2012), Everest and Dike (2012) and Okiki and Mabawonku (2013). However, the focus of these authors is not on the information literacy skills of teachers.

2.3.1 Status of Information access and use

The rationale of the discussion on the status of information literacy is to provide evidence-based data and information to foster a better understanding of subject matter in the context of the Nigerian environment. In recognition of the importance of information as a basis for national survival and development, the Federal Republic of Nigeria (2010:59) formulated an information technology policy, although the policy is still only at the draft level. When the policy becomes fully functional it will map out strategy to ensure skilled human resources, transparent government, and attention to other crucial issues of capacity building and creating

a reliable infrastructural support base; and it will enable means of assessing, planning and managing development and achieving sustainable growth.

Awareness of the crucial importance of developing information literacy in Nigeria came with the advent of the African Centre for Media and Information Literacy (AFRICMIL), a non-profit organization based in Nigeria. According to the Doha Centre for Media Freedom (2013:28), this organization started as a result of the first Africa Media Literacy Conference in Abuja in July 2008, with the sole purpose of promoting the knowledge of media and information to empower Africans in the effective use of information media and ICT tools. The Doha Centre for Media Freedom (2013:28) stressed that the organization is expected to focus on media and ICT education for students and teachers by providing training and a manual that will help learners to cope with the challenges of the information age relating to classroom activities. AFRICMIL's first National Youth Media Forum was held under the auspices of the Federal Ministry of Youth Development in Nigeria.

UNESCO (2013:238) reveals that information for all its programmes asserted that information literacy is of immense benefit to the education sector through the school library resources and services in schools in Nigeria, and all developing countries. Regrettably, many schools do not have a library, library resources and the practical proficiency to manage contemporary facilities. To ameliorate these problems a three-phase strategic plan was put in place for ten schools.

Nigerian education is lagging far behind as a result of its inability to embrace modern technology, especially in many secondary schools across the country. This view is supported by Arenyeka (2012), who states that many schools in Nigeria lack up to date computer technology, and many schools that can boast of having it are severely handicapped by the epileptic supply of electricity. This is a major setback because illiteracy today means more than not being able to read and write. Arenyeka (2012) concurs with the view that when a teacher lacks computer knowledge or access to modern facilities, he or she can be classified as illiterate. The problem is amplified by the fact that many computer teachers realize their marketability, especially in corporate organizations where higher wages are paid than in the classroom. The only way out of this dilemma is for policymakers to create better working conditions that will attract highly skilled teachers.

Mobile telecommunication presently covers 60% of the national territory, but mobile telephone companies generally power their base stations with generators since the Power Holding Company of Nigeria (PHCN) is unable to supply electricity. This practice is widespread all over the country, and constitutes the restricted access to effective countrywide operation of ICT in education (Agyeman, 2007:2).

Agyeman (2007:6) observes that another plan to improve the use of ICTs in schools has led to the establishment of SchoolNet in Nigeria as a non-profit organization established to support the use of ICT in Nigerian secondary schools with the backing of government ministries. Agyeman (2007:6) points out that SchoolNet is a public sector project aimed at mobilizing Nigeria's human and financial resources with the intention of using ICTs in education. SchoolNet Nigeria has, in collaboration with the mobile phone operator MTN, ISPs and computer companies, established ICT laboratories/cyber cafés for schools.

The Internet has been paraded worldwide as having enormous power to enable educational change and reform. When used properly it has the potential to expand access to education, strengthen the relevance of education to the increasingly digital workplace, and raise educational quality by transforming teaching and learning into an engaging, dynamic process connected to true life. The major obstacle to Internet use is the absence of Internet infrastructure in the rural communities in Nigeria where many students live. The authorities' failure so far to meet these students' need to be connected to the Internet poses a great threat to their studies and the use of ICT in Nigeria (Osang, 2012:1).

2.3.1.1   *Policy framework*

The Federation of Nigeria's Freedom of Information (FOI) Act (2011) is designed to ensure that citizens have unrestricted access to and protection concerning public records and information to the degree that they will not jeopardize public interest, and will protect individual privacy and public officers from the possibly unpleasant repercussions of unveiling certain kinds of official information without approval, and establish procedures for getting the required information.

The accessibility of appropriate and correct information from genuine sources can foster national development. Freedom of information is essential in order to salvage Nigeria and move speedily towards economic and social transformation. The FOI Act creates the opportunity for transparency and honesty in information access which will reinforce

democratic structures and add value to democratic practices. Even though the Act was adjudged to be noble, the major challenge is in the implementation, Over the years the Nigerian government has acquired the reputation for making good policies that will ultimately not be of benefit to the people (Anyanwu, Akanwa & Ossai-Onah, 2013). Based on the evaluation of the Federal Government of Nigeria as presented by the ministerial committee on ICT harmonization (2012:8), it was concluded that before 1999 development in the ICT sector was pedestrian for a country big in both size and resources like Nigeria. For instance, telephone lines were fewer than 400 000. However, the ICT status has now changed significantly because of the advent of mobile phones that have surged to 90.5 million, Internet users, who were fewer than 200 000, have also increased to 23.48 per 100 persons. Broadband penetration was 6.1% as at 2010, and PC penetration has grown to 4.7 per 100 persons. This has significantly increased access to information.

The Library Registered Council of Nigeria (LRCN) (2014) was a body established by Act 12 of 1995 of the Federal Government of Nigeria as a parastatal under the Ministry of Education with the aim of deciding who a librarian as an information expect is; resolving the level of knowledge and skill expected to become a librarian and work as an information professional; setting basic standards for all libraries in meeting the information need of the people; and maintaining strategic regulations within the library and information science professions.

The Federal Government of Nigeria (2012:9) has put in place several related policies and laws channelled towards the growth of the ICT sector and exploiting the enormous potential for national improvement. Nevertheless, Nigeria, like many other countries, is confronting the unavoidability of the technical, content, economic, institutional and regulatory convergence in the digital era of the comprehensive ICT industry. It is important for Nigeria to evolve new ICT policy frameworks to accommodate convergence and maximize the potential of ICT for national development. The Federal Government of Nigeria (2012:9) in the National ICT Policy intends to create a structure that will improve the capability of the ICT sector to boost the socio-economic advancement which is a key factor in Nigeria's ambition of becoming one of the twenty major economies in the world by the year 2020. The policy strategy will help in formulating actionable plans, subsectoral procedure and definite implementation strategies.

2.3.1.2   Human resource development

The competence of the teaching profession is revealed in the ability to use knowledge the environment can offer. This refers to the readiness to take advantage of modern facilities and equipment at tits disposal. The Nigerian education sector represents a key segment of the labour market with a total employment capacity of 1 987 742 in 2010. An increase of 3.9% took its 2011 total to 2 065 225, and by 2012 it had reached a total of 2 227 784 employees, showing an average growth rate of 6.97% within the period (National Bureau of Statistics, 2015). The employment demographic shows that female teachers are the largest in the group with 56.59%, 56.26% and 54.70% for 2010, 2011 and 2012 respectively. The ratio shows that male teachers were 0.75, 0.70 and 0.73 to one female in 2010, 2011 and 2012. The average growth rate of Nigerian female employees in Nigeria within the period was 8.46% (National Bureau of Statistics, 2015).

Furthermore, the Federal Ministry of Education in Nigeria (2011:53) is conscious of the reality that the teachers' education module is distinguished by poor training at different educational stages. According to this document, most of the time in Nigeria, teachers generally teach using outdated theory-based curriculum and inadequate instructional methods and materials. Information communication technology (ICT) and engaging diverse learners in different classroom situations are rare, and where it does place it is in a very elementary style. Another situation that has aggravated all the issues raised above in the document is the poor quality of the students in teachers' institutes, most of whom take to teacher education as a last option and will readily abandon it as soon as better opportunities are available. The public is consequently faced with a large number of teachers unable to manage the classroom of the 21st century. This state of affairs is not only adverse to growth and development; it is also counterproductive.

The significance of the relationship between education and development in any society cannot be overlooked. In view of this reality the global community and governments all over the world have been determined to empower citizens with good quality education. Regardless of this truth, the education system in Nigeria has experienced several years of neglect, especially in the areas of functional framework that will improve the education sector. The implementation of millennium development goals (MDGs), in the opinion of Okeshola (2012:201), is hampered by corruption, gross ineptitude, financial squandering and duplication of projects by the federal government.

2.3.1.3 Finance

According to the National Bureau of Statistics (2015), the Nigerian education sector is confronting several challenges, which include acute shortages of manpower, especially in the critical areas of science and technology. In addition, there are human capacity gaps, which are the consequence of the poor quality of education and lack of investment sufficient to keep up with the growing school age population in Nigeria. For instance, in the 2012 financial year a total of N400 150 million, i.e. 8.43% of the Nigerian budget, was allocated to education, of which N345 090 001 million, about 82%, was allocated to recurrent expenditure, whilst only N55 056 million, that is 18%, was for capital expenditure.
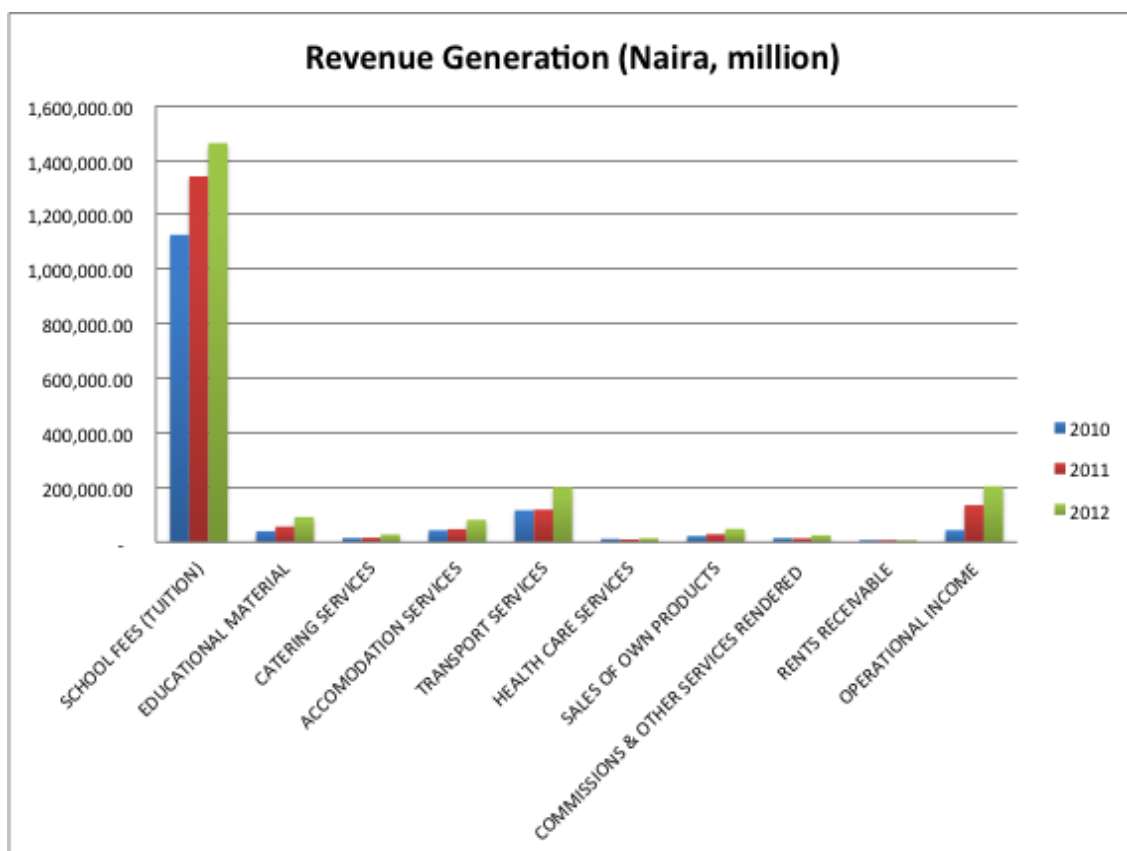
Figure 2:2   Revenue Generation in Nigeria (National Bureau of Statistics, 2015)

2.3.14 Facilities and equipment

According to Abdulkareem and Fasasi (2008:5), the successful implementation of an academic programme calls for adequate facilities, and the collective effort of parents, school proprietors, government, and all other stakeholders. Regardless of these obvious facts, this absolute necessity is neglected, and a disparity persists between the provision of facilities in urban and rural schools

Evidence abounds that if efforts are channelled in the right direction, ICT can support teaching and learning appropriately. However, in the opinion of Hennessy, Harrison, London (and) Wamakote (2010:40), introducing the tools and techniques of ICT does not automatically improve the quality of education. Thus the pedagogical and technical proficiency of the teacher is absolutely critical. As in most countries of the world, efforts of government have been focused on teachers' development as the key to the effective implementation of policy and curricula development, and using ICT as a platform for educational development. The current predicament in Nigeria is the result of growing poverty, the lack of proper funding, and the exponential rise in the student population.

The use of the Internet in education has always enabled greater efficiency and productivity, and led to advanced educational outcomes. In the opinion of Adeosun (2010:193), the Internet has a direct bearing on the quality of cognitive ability to boost personal capabilities, and increase creative and innovative thinking in line with the worldwide goal of Education for All, to which the government of Nigeria is a signatory.

Nigeria is leading in Africa in terms of Internet penetration. This is based on the report of the latest Internet World Statistics figures on connectivity rates in Africa as published by the *IT and Telecom Digest* (2013:1). According to the report, Nigeria has 45 million Internet users, and South Africa ranked fifth in the continent with 6.8 million people with access to the Internet. South Africa's low Internet connectivity rate is based on the country's smaller population of 50 million, whereas the population of Nigeria is 174 million. The report states that reduced international connectivity costs in Africa and the increase in the use of Smartphone and ordinary phones that allow web browsing and data applications are two key factors that have driven up Internet usage in Africa. Regardless of the increase in Internet penetration in Africa, the continent is still lagging far behind other continents in the world.

Africa Top 10 Internet Countries
November 2015

Country	Millions of Users
Nigeria	92.7
Egypt	48.3
Kenya	31.9
South Africa	26.8
Morocco	20.2
Sudan	9.3
Uganda	8.5
Tanzania	7.6
Argelia	7.2
Tunisia	5.4
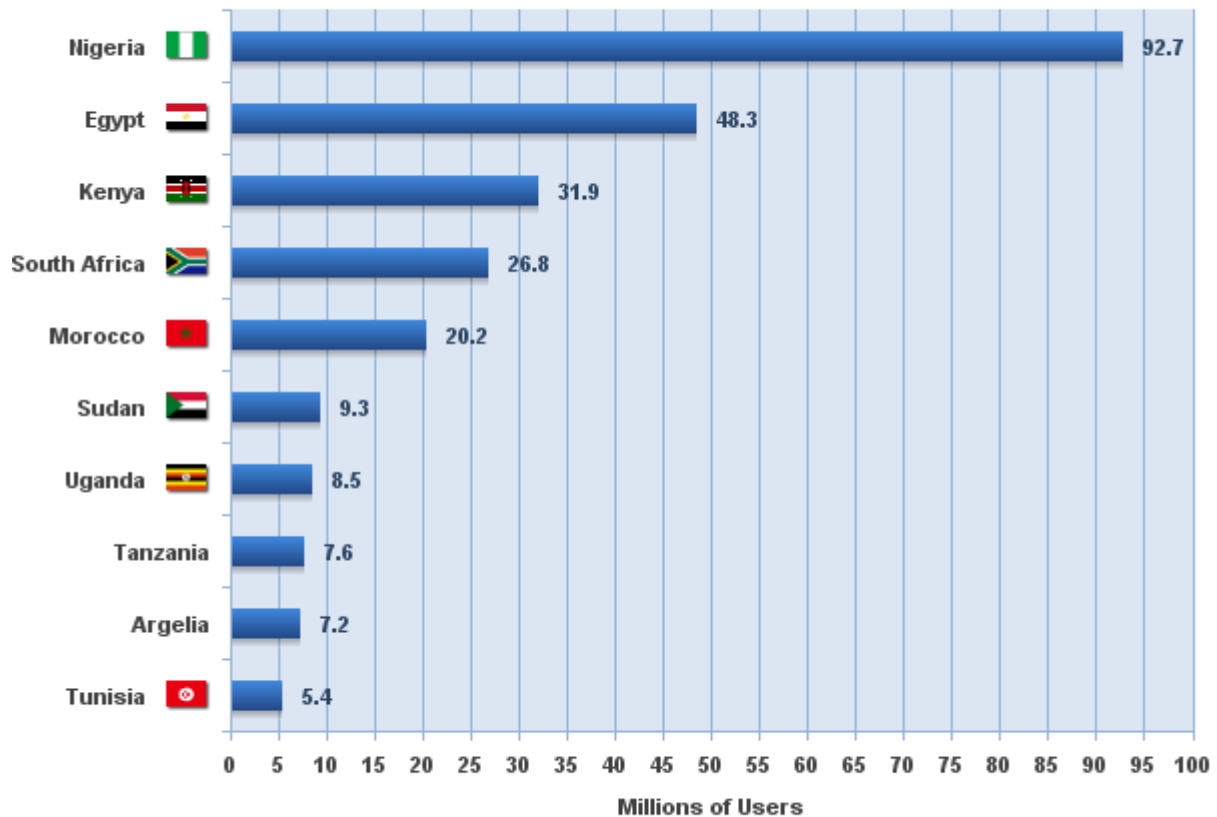
Source: Internet World Stats - www.internetworldstats.com/stats1.htm
330,965,359 Internet Users in Africa estimated for November 30, 2015
Copyright © 2015, Miniwatts Marketing Group

Figure 2:3   Internet Penetrations in Africa

2.4   Issues about information access and use

The Literacy Initiative for Empowerment (LIFE) is envisioned as a 10-year (2006-2015) strategic plan through which national governments and UN agencies collectively hasten literacy efforts in 35 countries (including Nigeria) where illiteracy has become an endemic problem. As a major effective apparatus for the performance of the United Nations Literacy Decade (UNLD, 2003-2012), this organization's ambition is to sustain countries in attaining at least 50% improvement in literacy rates by 2015. This is a process in support of literacy which is country-led and country-specific, and embedded in national policies and strategies with technical support offered in the area of policy advocacy, partnerships, capacity building and innovation. LIFE takes into cognizance the implementation procedures and implication of these activities as well as the lessons learned from the applications within the LIFE

framework (UNESCO, 2009:2). The launch of LIFE has offered a gleam of hope for the expansion of a strategic agenda for literacy education in Nigeria. A national stakeholders' forum on LIFE was held at the National Commission for Colleges of Education (NCCE) Board Room, Abuja, on Friday, 17 March 2006, to launch the LIFE initiative in Nigeria. This meeting was attended by all the critical stakeholders in education in Nigeria, and the international development partners represented by UNESCO. In 2007, the Federal Government of Nigeria, in partnership with policymakers and literacy practitioners from all over the world, combined to see how lessons could be drawn from the past and how literacy could be transformed into a national priority (UNESCO, 2009:2).

According to the National University Commission (2014), there are 142 Federal Government-owned (41), State-owned (40) and privately owned (61) universities in Nigeria, of which very few have library schools. Information literacy has not been given pride of place in the higher education curriculum (Ojedokun, 2005:17). In Nigeria, for instance, the National Universities Commission (NUC) makes it mandatory for all universities in Nigeria to integrate a library literacy course in their curriculum (Noah, 2004). But contrary to the decision of the NUC, only a few universities have embraced the idea. Others have library orientation, some universities have merged it with other general studies courses, and even in the few universities that comply, the course is not offered as a credit-earning course, and so it will not achieve a desirable outcome. In some universities it is considered an elective course; consequently, the content of the course will be insufficient (Rasaki, 2008:1)

2.5 Challenges and Opportunity of Information access and use

Abubakar and Isyaku (2012) attributed the high rate of unemployability of many students in Nigeria to lack of required skills to cope with modern working environments pervaded by an overabundance of information available in many formats Therefore information literacy has become an essential requirement to enable participation in modern development, and acquiring this knowledge can give a competitive advantage to students and teachers. Lack of information literacy is an indication of a deep lacuna created by the educational system in Nigeria. Onwubiko and Asogwa (2011) state that if graduates lack the requisite knowledge to locate and evaluate information, it means they have been deprived of the skill to enhance their survival in the modern workplace. The problem confronting many universities in

Nigeria is their inability to incorporate the skills and knowledge that will enable a student to live a satisfying and productive life in a world overwhelmed with information.

Despite the efforts of institutions of higher learning in Nigeria to boost the ICT education programme, which is one of the pivotal points for information literacy in response to the global trend, many hindrances have plagued the development. According to Ololube, Eke, Uzorka, Ekpenyong and Nte (2009), they include inadequate infrastructure as a result of the lack of a reliable electricity supply to power the ICT tools and materials; the lack of instructional technology that can enhance quality education; and the lack of a broad-based telecommunications network that can advance connection to the Internet. These problems result from the chronically insufficient funding of education in Nigeria. Without all these basic amenities the dream of bridging the digital divide may be unattainable.

In the National Policy of Education put together by the Federal Government of Nigeria (2004), ICT application is seen as prominent to educational development in contemporary society, in agreement to this policy, it is the responsibility of government to make facilities and required training available to teachers to enable ICT integration with to classroom activities. The use of computer and ICT literacy has gain prominence in Nigeria, this is because of the realization of the tools to enhance teachers' productivity and enhance job security (Adoni & Kpangban, 2010).

2.5.1 Cost: The ability to use, manoeuvre and manipulate the Internet is vital to information literacy. A limitless amount of information is available on the Internet, which can open vistas of opportunities and competitive advantage to the users. To enhance access to the Internet it is important for government and private organizations to collaborate to build a formidable nationwide infrastructural backbone capable of supporting seamless access. In Nigeria access to the Internet is determined by location: those in the rural areas experience difficulty accessing it. Notwithstanding the leading Internet penetration status of Nigeria among other African countries, the number of those who enjoy readily available access to the Internet is negligible compared to the size of the Nigerian population, so the cost of getting Internet access is high (Bambi, 2010).

The cost of computer hardware and software is exorbitant and skyrocketing in Nigeria, and often beyond the reach of most civil servants, especially teachers. Apart from computer resources, in the opinion of Aduwa-Ogiegbaen and Iyamu (2005:108), many of the secondary

schools are also deficient in the use of equipment like printers, scanners, television and other information resources, especially books and journals. Other avenues to access information, like the Internet, are also very expensive and out of reach of many schools.

2.5.2 Speed and time-consuming Internet:
Of the population of 10 million estimated Internet users in Nigeria, broadband users are few. High-speed broadband requires fibre-optic cables (Bambi, 2010); but the situation may soon enjoy a dramatic boost as a result of the 14 000 kilometre fibre-optic submarine cable, otherwise known as the West Africa Cable System. This innovation is due to the efforts of financial institutions and telecommunication companies. When it becomes operational it will help timely access to information (*Nigerian Guardian*, 2013). In the meantime, the average speed of the Internet in Nigeria is 4.90 mbps (*Net Index*, 2013).

2.5.3 Deficiencies in ICT infrastructure:
The development of ICT infrastructure that is sufficient to support available information resources is not widespread in Nigeria, owing to the inefficiency of the mobile market. The consequence of this has been a digital divide created in Nigeria between urban and rural areas, despite the fact that Nigeria has the most competitive mobile market in Africa; but with expensive operational licences granted to the market operators, mobiles became too expensive for the average citizen (Foster & Pushak, 2011:34).

2.5.4 Weak infrastructure:
In Nigeria, a major obstacle to the use of ICT is the dearth of infrastructure. Computer facilities are not designed to function without electricity. According to Aduwa-Ogiegbaen and Iyamu (2005:108), Nigeria is currently suffering from insufficient power supply except, perhaps, in areas where top government officials live. As a result, expensive educational instructional equipment has been damaged by upsurges in voltage after blackouts. UPS (uninterrupted power supply) is only designed as a temporary alternative energy supply, and is too expensive for many schools.

2.5.5 Pervasive power outages:
Electricity is the platform on which modern technology operates. The perennial shortage of power in Nigeria is a major setback to information accessibility and educational development. This is a significant hindrance in the operation of ISPs (Internet service providers) and cyber cafés in Nigeria, who daily rely on power generators and other alternative sources of energy to function. This is further

complicated by the constant fuel price increases that have hampered the distribution of the Internet to offices, educational institutions and homes (Bambi, 2010).

The Private School Blog of Nigeria (2011) itemizes various challenges facing library development in Nigeria, including a deficiency in the legislative structure, a shortage of funds, poor accommodation, unavailability of trained staff, lack of relevant material, and the lethargy of school administrators and the government.

2.6   South Context

South Africa's Bill of Rights is unwavering in the ambition that all citizens should have the right to a basic education, including adult basic education and further education. This is in recognition of the fact that education and skills development hold the key to the future prosperity of South Africa. In view of this, government at all levels gives education and skills development special attention. In the 2012/13 fiscal year, education constituted more than 21% of government's total spending. The duty of promoting quality education is a shared responsibility of two ministries: the Department of Basic Education and the Department of Higher Education and Training, The Department of Basic Education deals with all schools from Grade R to Grade 12, and adult literacy programmes, and the Department of Higher Education and Training deals with universities and other post-school education and training, and coordinates the human resource development strategy for South Africa (HRDSSA) (Republic of South Africa, 2013:168).

The South African Schools Act (1996) became effective on 1 January 1997, with the principal objective of bringing about a uniform system of administration and funding of schools. The education learning programmes extended from Grade 0 (better known as Grade R, for "Reception") to Grade 12. This Act provides for compulsory attendance of learners at school between the ages of seven and 15 (or the completion of Grade 9). This is known as the compulsory or general education phase. Every provincial Member of the Executive Council for Education (MEC) is legally obliged to allocate a school place to every child in the compulsory attendance bracket. If this cannot be done because of a lack of capacity, the MEC must take urgent steps to remedy the situation (Department of Education, 1996: 6).

According to *South African Statistics* (2013:3), in a country of approximately 52 million people, 580 577 candidates wrote the Matric (final) examinations, which 61% passed to obtain the National Senior Certificate. Just over half of the students achieved a 'bachelor's

pass', making them eligible to apply for university study in South Africa. A bachelor's pass requires, at a minimum, a rating of 4 (or a C) in four subjects from a designated list of subjects. The body responsible for primary and secondary education is the Department of Basic Education, with 6 231 secondary schools, 3 821 763 learners and 142 181 educators (DBE, 2012:3). In 2013, the South African government spent 21% of the national budget on education. Some 10% of the education budget is for higher education. Total spending on education in 2011 was 6% of GDP (Worldbank, 2012).
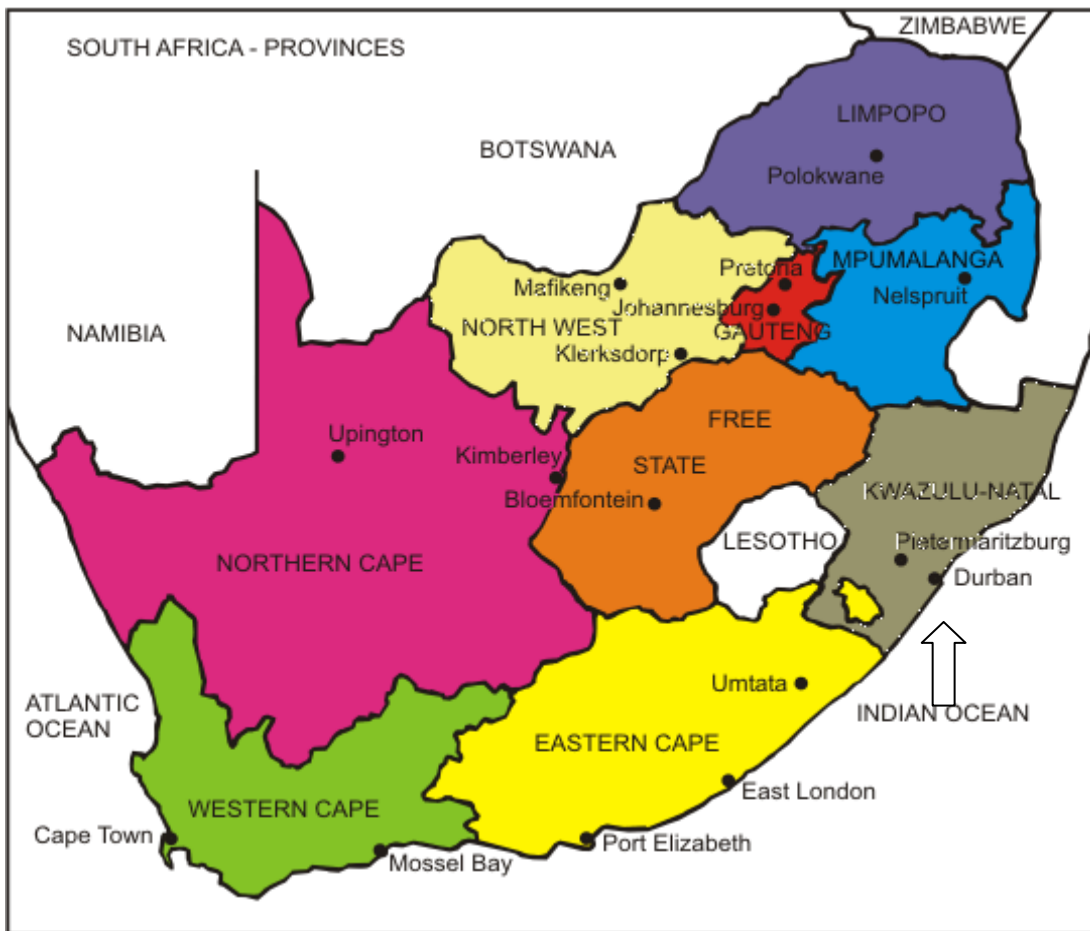
Figure 2:4   Map of the Republic of South Africa

African National Congress (2013) the Map of South Africa. Available at: http://www.csimpson80.com/new_page_633.htm

One of the conspicuous effects of apartheid was in the area of economic inequality between different race groups in South Africa; the effect has led to economic inequality along racial line (Keswell, 2005:1-2). The difference in income between white and black before the first general democratic election was sizeable, with the average salary of whites being more than

five times that of blacks. Of equal significance was the social engineering through race and language that occurred in the field of public education, especially with the beginning of the Bantu Education Act of 1954, which recommended differential access to education based on race. Keswell (2005: 1-2) acknowledges that the decade after the end of apartheid brought about significant changes in the social and political life of all races, changes which continued in the second decade.

The structural defects of education during apartheid were dealt with in the post-1994 policy outline, which proclaimed fundamental change; but numerous problems continued within the education sector and in policy in diverse areas, such as funding, and capacity building, both for historically disadvantaged institutions (HDIs) and for students, especially those from educationally disadvantaged backgrounds (Odhav, 2009:33).

According to the Departments of Basic Education and Higher Education and Training (2011:10), responsibility for educating teachers is shared between national and provincial government authorities. It is the statutory duty of provincial colleges to train primary school teachers, while the universities train secondary school teachers. The South African Constitution states that teacher's education should fall under central management and control. National education policy has introduced a lot of innovation in the sector to enable quality control appropriate to provincial requirements (Department of Basic Education, 2010:10).

According to the Departments of Basic Education and Higher Education and Training (2011:11), there is a scarcity of qualified teachers knowledgeable enough to teach specific subjects or learning areas, primarily mathematics, the sciences, technology and languages, also arts, culture, economic and management sciences, African languages, sign language and Braille. In special needs schools, in early childhood development and especially in rural and remote schools, the shortage of teachers is significant.

Teacher development in South Africa is perceived by the Departments of Basic Education and Higher Education and Training (2011:13) and many stakeholders as not properly coordinated and monitored, confusing and burdensome The Integrated Quality Management System (IQMS), in particular, is considered to be time-consuming and overburdened with official procedure. Neither teachers nor district officials are properly trained to manage this official protocol, and the professional training available to teachers is not so relevant as to elevate their performance.

In the *South African Millennium Development Goals Country Report* (2005:6) it is clearly indicated that South Africa is on track to meet the MDG targets. The Report indicates that the current evaluation of South Africa is as a new middle-income country. The rate of primary school enrolment has remained stable at about 95.5% since 1995, and secondary participation rates are currently approximately 85%, representing an increase of about 15 percentage points since the early 1990s. In addition, the male and female enrolment ratio is around 97%, representing a higher overall participation rate. The learner to facility ratio has also declined from 43 to 1 in 1996 to 38 to 1 in 2001 as a consequence of the emphasis on relieving backlogs, indicating that more children are getting access to classroom facilities than before.

2.7 Status, issues, challenges and opportunities in information literacy in South Africa

Many authors have written on information literacy in South Africa. For example, Boekhorst and Britz (2003) wrote on "Information literacy at school level: A comparative study between the Netherlands and South Africa"; de Jager and Nassimbeni (2005) contributed on "Information literacy and quality assurance in South African higher education institutions"; de Jager and Nassimbeni (2002) focused on "Institutionalizing information literacy in tertiary education: Lessons learned from South African programmes"; Fourie (2008) centred on "enhancing the livelihoods of the rural poor through ICT: A knowledge map (South Africa Country Report)"; Fourie and Krauss (2011) on "Information literacy training for teachers in rural South Africa"; Krauss and Fourie (2011) on "Information literacy training for teachers in rural South Africa"; Fourie and Krooden (1999) on "Providing learning opportunities for teaching research information skills"; Tiemensma (2012) on "Information literacy education in higher education institutions in South Africa"; and Naidoo and Raju (2012) on "Impact of the digital divide on information literacy training in a higher education context".

2.7.1 Status of Information Access and Use

Since the end of apartheid in 1994 the Department of Basic Education has been committed to ensuring equal access to education. The introduction of no-fee schools has helped the government to achieve this goal, but this has not translated into quality education (Paton-Ash & Wilmot, 2013:127). Even though it has been established that student performance depends on the availability of library facilities, fewer than 8% of public schools in South Africa have functional libraries (Equal Education, 2010:21). There is no organized curriculum for

computer training and information literacy; its introduction was a result of the curiosity and enthusiasm of a few teachers in private schools. But there was a drastic turn around concerning ICT and education when the Department of Education organized a conference on ICT and education, and this, as Boekhorst and Britz observe (2004:68), was followed in 1996 by the Technology Enhanced Learning Investigation (TELI). This effort led to the development of a broad-based information literacy course that is applicable in schools, community centres, industry-based training sites and other learning centres. However, in spite of this curriculum development, many schools continue to falter from the lack of an adequate power supply, especially in rural areas, and insufficient funds to maintain the modern technology (Boekhorst & Britz, 2004:68).

Hart & Zinn, (2007:19) revealed that the introduction of new school curriculum in 1996 and 2005 proffers agenda for new opportunities, basically because it is friendly towards library development in the sense that they identify the ability to "collect, analyse, organise and critically evaluate information". The authors further revealed that the new curriculum made provision for adequate resources and accelerated library development. Regardless of this, it has often been reported that many library are not available for use as a result of dual responsibilities of "librarian" who are also classroom teachers (South Africa, 1997). The attendance of teachers-librarians to the library operation is not clear; it is however clear that 30% of those who claim to be teacher-librarians are equally occupying importance position like, principals, deputy principals and teaching heads of departments (Hart & Zinn, 2007: 93). The author further stress that sources of funding of school library is not clear, and it can be established that few schools allocate funds to the library, another limitation to library development in South Africa is the reluctance of school authority to recognise the need for school libraries.

According to the Library and Information Services (LIS) transformation charter (2014: 5) a team was established to eradication illiteracy and inequality, by building informed and reading nation. As part of the responsibilities of the team is to ensure the recognition of the information as having ability to eliminate poverty and empower people because well informed people are responsible citizen, therefore library is expected to play a central role in information access for all in South Africa. Furthermore, the transformation charter emphasis that South African Government and all her developmental partner should actively support the

initiative to promote information literacy, building a modern library and information system and ensure right of access to information as a basic human right for all citizen.

Fourie and Krauss (2011:303) observe that the information literacy training of teachers in South Africa was funded by UNESCO; with support from the Departments of Informatics and Information Science of the University of Pretoria it played an active role in skill acquisition. This led to a partnership between the university and some schools, especially those located in the rural areas. Computers were donated to schools to encourage the teachers. It was also an avenue to test the drafted road map on media and IL (MIL) curriculum. Fourie and Krauss (2011:303) note that two training courses for teachers were designed and registered through Continuing Education at the University of Pretoria. The training programme began in May, 2010 with 54 hours' attendance over nine Saturdays. Even though the UNESCO MIL curriculum was implemented to meet the needs of teachers as working adults in a developing community, the merits of the training include access to enormous resources of information that can be tailored to any circumstances, enhancing the quality of teaching, and learning from international expertise (Fourie & Krauss, 2011:303).

The Bridges to the Future Initiative in South Africa (BFI-SA, 2010), in the assessment of USAID South Africa (2013:1), is an initiative to use the power of technology to bring about a positive turnaround in education by designing an interactive, computer-based learning tool to improve literacy rates in schools. The approach is to use the influence of interactive, user-friendly, computer-based instruction and learning methodology for literacy learning.

The Bridges to the Future Initiative in South Africa holds that information literacy is an empowerment skill capable of fostering personal development and community upliftment, and is essential for effective participation in the modern world. The report notes that in spite of this, a low level of literacy is still widespread in South Africa, and the challenge is further compounded by the multicultural and multilingual nature of the country. As a result of this an innovative project was designed to enable the use of information and communications technologies (ICT) in local languages and to develop literacy and other learning skills in South Africa (BFI-SA, 2010). The pilot project was kick started in Limpopo with the ambition to replicate its benefits in South Africa as a whole. BFI-SA is a collaborative multi-agency coordinated under the sponsorship of the Department of Education. Multimedia resources and instructional media were carefully designed to aid classroom activities and help

the imagination of learners; it was designed in English and other local languages like Sepedi, Tshivenda, and xiTsonga. The project is driven by ICT infrastructure in a mix of Adult Basic Education Training Centres (ABET, 2013). ABET is a body responsible for laying a foundation for learning and development in schools and developing skills and attitudes geared toward social, economic and political participation and transformation in secondary schools across the province. Multi-Purpose Community Centres (MPCCs) is a body tasked with the implementation and development of communication and information programmes (Rabali, 2005:1). According to BFI-SA (2010), the issue of the digital divide of education and technology was addressed in South Africa as a result of this project by improving literacy, basic education and technological literacy, thereby assisting the educators and learners to better determine their own social and economic future. This initiative was promoted in partnership with public and private organizations with support from international agencies and public-spirited foundations, using the tools and techniques of ICT, and adapting them to diverse content and learners.

BFI-SA (2010) reveals that multi-agency collaboration; which is supported by the National Department of Education; with partnerships that include the Molteno Institute of Language and Literacy (MILL), the National Literacy Institute, and the Trydian Interactive and E-learning Development Company, and the Molteno Institute of Language and Literacy (MILL), formerly known as the Molteno Project, is a non-profit organization that funds literacy programmes and research across Africa from its headquarters in Johannesburg (http://www.molteno.co.za). Trydian Interactive ICT is an innovative organization with special skills in custom courseware development deliverable through the web, intranet or cellphone (M-learning). The organization is located in Pretoria, with technology that has global impact in bringing about a highly accessible and convenient way of learning (http://www.trydian.com/). Chevron, a formidable oil and gas company in its global energy for learning initiative, has partnered with the Western Cape Education Department to fund the renovation and restocking of community secondary school libraries, and has also transformed the libraries with modern ICT tools, including computers and various types of audio-visual equipment aligned to the national school curriculum (Source: http://www.youtube.com/watch?v=uhSMZhfJcck).

In all aspects of ICT development in education, South Africa can boast of a decade of familiarity based on the wide range of projects and programmes embarked upon by

communities, the private sector, civil society, donor agencies and government bodies. The wide range of tested models on ICT access, digital content development, teacher training and professional growth, optimal usage, partnerships, and resource mobilization have encouraged significant learning among innovators, practitioners, and policymakers. This has also led to at least 22% of computer penetration in South African public schools (Shafika, 2007:2).

In spite of the improvement in ICT in South Africa, there are still major challenges confronting this sector. Shafika (2007:2) holds that harnessing various initiatives to bring about proper management and harmonization of information literacy in education encourages optimal use of technology to improve investment in ICTs in order to improve teaching and learning. That will be valuable to learners and brighten their chances of employability in a frequently changing labour market.

Shafika (2007:2) also observes that the policy on ICTs in South Africa dates back to 1995 with the emergence of technology enhanced learning initiatives (TELI) which in 2001, with the support of the National Department of Education and the Department of Communication, mapped out a strategy for ICT in education which laid the foundation for e-education The ambition of this policy is to encourage both primary and secondary sectors to acquire ICT competence by the year 2013. Shafika (2007:2) states that to make this vision a certainty, schools are encouraged through different techniques to develop e-schools with the support of both teachers and learners.

Evidence abounds that if efforts are channelled in the right direction, ICT can support teaching and learning. However, introduction of the tools and techniques of ICT does not automatically improve the quality of education; therefore the pedagogical and technical expertise of the teacher is absolutely critical. As in most countries of the world, the effort of government has been to focus on teachers' development as key to effective implementation of policy and curricular development, using ICT as a platform for educational development. The current predicament arises from the growing level of poverty, the lack of proper funding, and an exponential rise in the student population (Hennessy, et al., 2010:40).

Internet use has become fairly common in many secondary schools in South Africa, but there still exist challenges in some areas which the South African Institute for Distance Education (2005:93-99) has identified particularly in the rural communities, even though Internet

connectivity, online library resources, computer facilities, computer literacy training and relevant instructional software are familiar in urban areas.

2.7.1.1   Policy framework

In recognition of the value of information in South African society, the Constitution Act 108 of 1996, Section 32, Subsection 1, affirms that access to information is the fundamental right of every citizen, whether it is in the custody of the state, or corporate or individuals, as long as it will uphold a culture of transparency, responsibility and accountability in the private and public sectors as against the strict confidentiality and official procedure that will not foster a culture of openness, and can impede access to information. South Africa is the first country in Africa to recognize the importance of access to information in the Constitution (Promotion of Access to Information Act, 2000:12). In view of this it can be inferred that the Constitution of South Africa envisages the importance of information to the education and development of our citizens, and therefore to deprive anybody of it is against the letter and spirit of the law.

There are numerous policy frameworks put in place in South Africa to promote information use, for instance, the Presidential National Commission (PNC) on Information, Society and Development (ISAD). There are two advisory bodies set up to help the President form an opinion on matters that have to do with the development of a comprehensive information society. According to the Department of Public Service and Administration of South Africa (2012:1), the government put in place the policy framework to ensure the mutual control and governance of ICT as an essential division of corporate governance within departments in a standardized and coordinated manner. The agenda offers a set of main beliefs and ways to which all governmental departments must conform.

The National Department of Education has developed guidelines to enable teachers to use ICTs in classroom instruction. Currently, a few programmes have been designed to help teachers develop ICT skills in South Africa, programmes like SchoolNet South Africa (SNSA), Educators' Development Network (EDN), and Microsoft Partners in Learning (Shafika, 2007:16).

The broadband policy, tagged "South Africa Connect", contains details of activities to improve broadband in South Africa and improve access to broadband connection at a reduced cost of 2.5% or less of the average monthly income, and increase the speed of the broadband. The Independent Communication Authority of South Africa (ICASA), the regulatory body

for the South African communications, broadcasting and postal services sector, was established to complement the ambition of improved broadband identifying standards, download and upload speeds, latency, waiting time for installation and fault clearance (source: https://www.icasa.org.za/).

2.7.1.2   Manpower development

Teachers are significant participants in curriculum delivery in any educational environment, and help in bringing about outstanding performance from the learners. Nevertheless, there exists a general shortage of manpower: the vacancy rate by January 2012 averaged 8,7%, 10,2% and 8,7% for principals, heads of department and teachers, respectively. In 2008, 5 942 new teachers graduated from various institutions in the country, representing a 74.5% increase in four years. Based on this estimation, considerable increase was expected in the next two years, and by 2014 over 14 000 new teachers were expected to join the workforce (*South Africa Yearbook*, 2012/13). In the year 2013, there are approximately 25 000 public schools, and 391,708 educators (South African Government, 2015).

The population of newly qualified teachers is decreasing. Personal payroll data signify that approximately 10 100 teachers in public schools have left yearly, but approximately 5 000 recently qualified teachers have been joining each year (Department of Basic Education, 2011:100).

Access to information communication technology resources in South African schools has enjoyed steady improvement over the years. By 2007, more than 80% of school principals reportedly have access to a computer system at school. The number for teachers was 60%. By 2009, 23% of schools had a computer centre, though this figure varies according to province, from the highest in the Western Cape of 60% to 10% in the Eastern Cape (Department of Education, 2011:92). The evidence reveals that teachers have access to the Internet in their various schools. According to Census at Schools, access amongst learners to the Internet at home doubled from 9% to 20% between 2001 and 2009. But there is an indication, based on statistics, that the Internet remains more popular among the privileged few in the society (Department of Education, 2011: 93).

2.7.1.3   Finance

Expenditure on basic education in 2015/16 is approximately R203 468 billion. Over the next three years, nearly R640 billion will be spent on basic education (Davis, 2015). Since 13

November 2007 the Department of Education in South Africa has collaborated with corporate organizations in subsidizing education for students to the level of R40 a month. In view of this the Fundisa Fund organized a three-pilot fund designed to financially assist students who merit it, in view of the fact that the Department of Education made available R9.2 Billion as an intervention fund, and at the same time the National Student Financial Aid Scheme (NSFAS) committed the sum of R21 million (South African info, 2015). The South African Democracy Education Trust (SADET, 2015) is a body established as a Trust Fund in honour of President Thabo Mbeki, the former President of South Africa. The initiative was supported and funded by MTN, the Nedbank Group and the National Lottery Distribution Trust Fund.

2.7.1.4   Facilities and equipment

In November 2013, the Ministry of Basic Education published lawfully obligatory Norms and Standards for School Infrastructure, referred to as the South African Schools Act 84 of 1996, to regulate issues relating to minimum uniform norms and standards expected of public school infrastructure. This act recommended among others things the minimum space in a school that should be apportioned to each learner and educator, an electricity supply that conformed with appropriate law and served the school's requirements, a water supply that must meet personal and hygienic requirements, and efficient sanitation facilities. It is mandatory for all schools to have a library or a media centre appropriate for the school, laboratories must be available for science, technology and life sciences, sport and recreation facilities should be available to ensure the physical and mental development of students, electronic connectivity must include Internet facilities, a fax machine, telephone facilities and intercom, and above all the facilities must be subject to upgrading to meet the prevailing circumstances (South African Schools Act 84 of 1996).

There has been rapid growth in the number of schools with computers and other instructional media for teaching and learning in South Africa, even though there is a wide gap between provinces in the use of these facilities. Statistics have revealed, according to Angathevar and Mammo (2006:202), the regional disparity in the growth rate of ICT, with Gauteng, Northern Cape and Western Cape far ahead of other provinces. Computer penetration in South African schools shows that of 25 582 schools only 50.9% of them have computers, and just 22.6% use computers for teaching and learning (Isaacs, 2007:9**).**

The Accelerated School Infrastructure Delivery Initiative (ASIDI, 2013) is a body established by the Department of Education to eliminate backlogs in school infrastructure and fast-track provision of infrastructure in South African schools. The body is also expected to upgrade the benchmark of schools to perform at the optimal level and get rid of insufficient, risky and poor physical infrastructure.

2.7.2   Issues about Information Access and Use

School library and information services are required to make available to learners and teachers an extensive range of information for curricular support, exposing learners to different ideas, knowledge, skills, understanding and opinions. Moreover, the service, according to the Department of Basic Education (2012:3), must inculcate a culture of reading and writing, uphold respect for intellectual property, and maintain the attainment of information literacy skills to access, process and use information resources in different formats, including digital formats, where accessible and suitable. The South African school curriculum is resource-based with the objective of integrating resources to increase information-literate learners and a culture of reading.

Information literacy is a prerogative of a professionally and proficiently qualified school librarian or school media specialist; but Hoskins (2006:59) observes that in South Africa, of the 23 established universities only three can educate school librarians, and they are the University of KwaZulu-Natal, the University of Zululand and the University of the Western Cape. The qualification at the end of the three years' training is referred to as the Advanced Certificate in Education (ACE) (School Library Development and Management) in KwaZulu-Natal, and the ACE (School Librarianship) in the Western Cape (Zinn, 2012:89). In view of the significant shortfall in the number of school librarians, many secondary schools have suffered a major setback. For instance, fewer than 8% of South African public schools have efficient and well-designed libraries, and there is no policy framework to coerce School Governing Bodies and principals to establish libraries (Paton-Ash, 2012:ii).

2.7.3   Challenges and Opportunities associated with Information Access and Use

South Africa is one of the countries struggling with problems associated with digital divide, a result of the inability of many to have access to ICT tools capable of enhancing their performance. Naidoo and Raju (2012) note that the Department of Education set up the

Extended Curriculum Programme (ECP) designed specifically to aid scholastic activities by developing independent learning skills, which are at the heart of information literacy skills. This is necessary, particularly in a racially divided country like South Africa where a separate educational development policy was pursued during the apartheid era in favour of the white minority. In spite of government efforts to bring about change, the apartheid legacy is still noticeable because students from educationally disadvantaged environments continue to struggle with the use of modern technology, especially instructional media and web facilities that have been incorporated into the school system. In view of this, the possibility of students achieving total information literacy will depend largely on their educational background.

De Jager and Nassimbeni (2002:168) concur with the view that many students get admission to higher education institutions without prior knowledge of the use of a library and other modern information resources, Information literacy training is therefore of paramount importance, even though trainers are warned to be mindful of the fact that many students are not equally exposed to the skills at an early stage. They should therefore strive to bridge the digital divide gap. Fourie and Krauss (2010) suggest that Information Communication Technology for Development, otherwise known as ICT for Development, or ICT4D, may be the catalyst for teachers' information literacy empowerment.

Boekhorst and Britz (2003) acknowledge that modern society must be acquainted with information and ICT skills even though the knowledge is partly learnt in daily activities; but for it to enable systematic learning it ought to be part of the school curriculum. At first in South Africa there was no curriculum for computer education and information literacy. ICT tools in South Africa were a result of personal initiatives restricted to private schools, but the tide turned in 1995 when the Department of Education organized a conference on ICT and education, and in 1996 the Technology Enhanced Learning Investigation (TELI) organized a pilot project to develop a generic information literacy course for schools. Thereafter information literacy was incorporated into the curriculum, but many schools could not benefit as a result of inaccessibility to electricity, telephones and an adequate fund to manage modern technology.

In the opinion of Fourie and Krooden (1999), the University of South Africa (UNISA), in cooperation with the Bureau for University Teaching (BUT) and the Centre for Software Engineering (CENSI), were all involved in the development of a module for Research

Information Skills (RIS). This module was test-run on a selected number of students, many of whom expressed anxiety about their inadequate knowledge of computer and library skills – which shows that lack of experience in using information technology will impede ability to master research information skills.

The apartheid era has been identified by Fourie (2008) as a major reason why ICTs do not enjoy equitable access in South Africa. In consequence the government organized the Accelerated and Shared Growth Initiative of South Africa (ASGISA) because of the realization that modern technology is a catalyst for improvement in education which can boost productivity and efficiency, and reduce unemployment.

2.7.3.1 Cost of getting Internet*:* There has been significant growth in Internet penetration in South Africa, but the major problem is that only a fifth of the population enjoys Internet access. The Internet is not affordable because ADSL (Asymmetric Digital Subscriber Line), a body responsible for fast data transmission, has priced it above the capacity of many in South Africa. This high cost of a data bundle is affordable to those who can pay for it on their mobile phones or other devices. They are paying the lowest rates, because buying a large data bundle costs substantially less per megabyte than a small data bundle (Wild, 2013).

2.7.3.2 Speed and time-consuming Internet: The cost, inadequate access and slow connectivity impede economic growth and job creation in a contemporary economy. In South Africa average Internet connection speeds are low, but are among the highest in Africa (Hampton, 2013); it is 4.90 mbps (Net index, 2013), which is inadequate for timely access to information, especially in rural communities.

2.7.3.3 ICT Infrastructure*:* The *Global Information Technology Report* (2013) divulged that South Africa performs comparatively well in ICT infrastructure, based on the survey in the Networked Readiness Index (NRI), but its rank is dragged down by digital content inaccessibility. The assessment was based on electricity production (kWh/capita), mobile network coverage, international Internet bandwidth (kb/s per user), and secure Internet servers (per million users in population).

2.7.3.4 Electricity generation*:* None of the modern information accessibility devices can function without adequate electricity supply; South Africa supplies two-thirds of Africa's

electricity, and is one of the four cheapest electricity producers in the world. Almost 90% of South Africa's electricity is generated in coal-fired power stations; other sources are nuclear energy, hydro-electric power and pumped storage schemes. Eskom is the company responsible for electricity generation in South Africa (Source:http://www.energy.gov.za/files/electricity_frame.html).

The opportunity for information access has become brighter in South Africa, especially for teachers, whose profession depends solely on up to date information. Based on the statistics about South African households (2014:13), which reveal that 40.9% of households have a minimum of one person with access to the Internet at their home, workplace or somewhere else, 10% of the household now have Internet access, which indicates that 30% of the people access the Internet from their workplace (16%), school (5.1%) or at numerous cyber cafés (9.6%). Predictably, more homes in the metropolis enjoy Internet access (16.4%), in contrast to the rural areas (2%) and urban centres (9.2%). The window of opportunity for information access to rural dwellers is offered by the wide coverage of telecommunication facilities which gives them the opportunity to use mobile cell devices to access the Internet (17.9%). The percentage of South Africans using cellphones to access information is 30.8%, of the 81.9% of the total population who have access to mobile phones. These new statistics reveal a marginal increase in Internet usage in South Africa compared to previous years.

2.8   Implication for and application to this study

Information has been described by Elliot (2007) as the fifth factor of production, the application of which can lead to the development and improvement of other factors. In view of this many countries put policies and measures in place to ensure the access of citizens to quality information, as this will enable the workforce to quicken economic development and give a country competitive advantage in the community of nations.

Information is fundamental to the progress and development of any nation. From time immemorial the availability of information has always played a significant role in the development of nations. A citizen that is ill-informed will not be able to hold government accountable for their actions, Thus democratic principles are violated in a community of uninformed people. If information is readily accessible to people, the level of transparency will increase, and many socio-political problems of a country can be sorted out. The law establishing freedom of information in the developing countries of Africa varies from country

to country, with different levels of application. In view of this reality the government of Nigeria passed into law the Freedom of Information (FOI) act to increase people's access to information. This will go a long way to minimize corruption, which has become the bane of society and a major reason for the decline in educational development. But even though the FOI Act is now law in Nigeria, the political will to make it functional is lacking; in fact many states of the federation have yet to adopt the bill, so access to important information from government is difficult. Restricted access to public information has aggravated corruption, which is one of the reasons for the decline in education, which has had a ripple effect on library development. In South Africa the FOI law also enables people to seek and obtain information from private organizations, especially those that offer public services and enjoy government funding. Information from various sources can help to reduce illiteracy. A country with a high degree of literacy can participate more effectively in economic development, and is capable of self-development, which is a prerequisite for human progress. A country that sets up a platform to reduce ignorance will enable literacy to develop and combat various societal challenges. Information-literate citizens can maximize a country's potential and turn limitations to opportunities. On the other hand, poverty remains a common phenomenon in an environment where illiteracy dominates. Information literacy is related with political literacy, which is the level of consciousness of citizens on their rights, duties and responsibilities that empower them to take the right decisions. People who are not well informed may lack the ability to vote for leaders that will represent their interests and promote national integration and cohesion. Political literacy can be considered as a skill essential to empower citizens to effectively participate in the act of governance, which includes better understanding of government policy and its effect in the larger society, and the ability to form independent political opinions.

2.9   Summary

This chapter has elucidated the context of the research environment of Nigeria and South Africa. A comparative analysis of the two countries was embarked upon with the aim of bringing out the status, trends, challenges and opportunities in information literacy and their implications for the education system in the two countries. The chapter has given a vivid description of the contextual setting by concentrating on the concept of information literacy as it influences teachings and learning in Nigeria and South Africa The status of information literacy revealing the extent, condition and present situation in both countries has been

discussed. The trend of information literacy reflecting what is in vogue concerning the subject matter and important issues in information literacy skill in Nigeria and South Africa were highlighted. Challenges associated with information literacy in Nigeria and South Africa were presented. Different opportunities in information literacy in Nigeria and South Africa were discussed. The chapter concludes by enumerating gaps and options in information literacy in Nigeria and South Africa.

The next chapter review literature in relation to information literacy skill.

CHAPTER THREE

REVIEW OF LITERATURE

3.1 Introduction

This chapter addresses scholars' views from different backgrounds on their perspectives on the information literacy skills and personal abilities of teachers in secondary schools in Nigeria and South Africa. The chapter therefore reviews literature in the subject area of the evolution of information literacy, teachers' perceptions of information literacy, the information search strategy of teachers, the use of information literacy skills in classroom instruction, the type of information resources available to teachers, and the frequency of use of information resources. The chapter also identifies a significant correlation linking self-concept and information literacy skills, investigates the level of self-concept of secondary school teachers, investigates the personal abilities of teachers and identifies a significant correlation between teachers' abilities and information literacy skill acquisition for teaching purposes.

While, looking at the above subject areas it is imperative to explain the meaning of literature review and information content analysis. McKinney (2008:1) attempts to define a literature review as an act that summarizes, recapitulates, reiterates, interprets, and decisively evaluates an existing body of knowledge (or published or unpublished material) in order to establish similarities within knowledge of a subject matter. The purpose of doing so is not only to state the opinion of experts on different views, but according to Anderson and Beveridge (2007:1-2), it is also germane to engage in content analysis by drawing out strengths, weaknesses and gaps in the body of knowledge, and proffer appropriate solutions to bridge the gap.

The review of related literature will dwell largely on the objectives of the study that were outline in Chapter One. The objectives are:

(i)   To investigate teachers' perceptions about the need for information literacy in the implementation of secondary school subjects' instruction.

(ii)   To examine for what purposes secondary school teachers need information to enhance their teaching ability.

(iii)   To determine the type of information resources that teachers need for teaching purposes.

(iv)   To find out the frequency of use of various information resources by secondary schoolteachers.

(v)   To investigate how the information search strategy of the secondary school teachers influences their use and satisfaction with online resources.

(vi)   To investigate the effects of self-concept in the information literacy skills of secondary school teachers.

(vii)   Identify the metacognitive abilities of teachers in the use of information resources in classroom instruction.

(viii)   To describe the information literacy context in Lagos, Nigeria and Durban, South Africa.

(ix)   To recommend conceptual model that will address information literacy skills of secondary school teachers in Lagos and Durban.

3.2   Perception of the need for information literacy skills

This segment succinctly reviews research in information need, information use and information seeking. It takes a broader look at information need in general, and establishes its relationship with information seeking and information use. In addition, various models relating to information literacy are also reviewed.

Publications by Wilson (1981), Kuhlthau, Maniotes and Caspari (2010), Davies (2011), Strasser (2012), Bothma and Bergenholtz (2013), and Chikonzo, Bothma, Kusekwa and Mushowani,(2014) are some of the studies showing the profound interest in the subject matter of information need on the part of many contemporary researchers. For instance, Davies (2011:249) considered information need as the motivation behind searching for literature and literature retrieval; without eagerness for information, it will be pointless employing the expertise of a librarian and information professionals in meeting information need. Chikonzo, et al. (2014:107) acknowledge the changing need of information and how librarians are adjusting to the new responsibilities. Kuhlthau (2010:1) also understands that living in the 21st century requires a new set of skills which will help people to cope in a

difficult information environment to meet ever changing information needs. Case (2012) states that information is needed to increase knowledge to achieve a goal. Therefore CILIP (2013) recommends information literacy as a necessary skill to help in understanding the need for information, evaluating the result and assuming ethical responsibility for the use of the acquired information.

Wilson (2006: 661) exposes the difficulty in understanding information need as a theory, and decries the inability of many researchers to address the concept enough to reveal why people seek for information, and to what use they put it. The author refers to information as a secondary need to be used to satisfy primary, basic human needs like physiological (psychomotor), affective and cognitive needs, which are essential needs that encourage information seeking. The advent of information communication technology has played a significant part in the modern information environment, especially in teaching, learning and passing information across in a workplace or teaching environment. Technology, especially the Internet, has amplified the quantity of information accessible, but this also comes with challenges associated with seeking and using information resources (Tanni, 2013:8). Kuhlthau, et al. (2007:77) observed controversies among librarians and information professionals in some countries yearning for new literacy to enable access and use of information resources in many formats from an increasing information environment. Access to overwhelming information resources has undermined the need for libraries across the globe to serve as gatekeepers between those who seek for information and information resources. This new revolution in information atmosphere and the skills that promote independent information seeking have stimulated the academic debate on teaching and learning information literacy (Limberg & Sundin, 2006). Kuhlthau (2004:199) observes that information seekers are overwhelmed by the magnitude of information at their disposal from different sources. Determining when available information is sufficient is a major cause of anxiety and uncertainty experienced by information seekers.

Information can be seen as that which reduces doubt, uncertainty and ambiguity in decision making (Leickly, 2004). The quality of information is critical for efficient operation and decision making. and important to modern society in carrying out daily productive activities Thus information need is described as a personal or collective aspiration to find and acquire information to fulfil a conscious or unconscious need. Information need occurs when an individual is faced with a dilemma in which knowledge acquired over a period of time is not

adequate to help his/her objective. As a result, the need for information will trigger the curiosity to seek for it, and thus satisfy the need (Preez, 2008:21).

Various other studies have discussed information need, for example, Lundh (2010) Nwagwu and Segilola (2013) and Bothma and Bergenholtz (2013). In the opinion of Lundh (2010), information needs or question formations can be viewed from four basic progressions, namely: visceral need (need as dictated by intuition or instinct), conscious need (the result of deliberate effort), formalized need (the product of human invention), and compromised need (need as expressed verbally). Various research has also been carried out on the need for information. For instance, Chikonzo, et al. (2014:107) embarked on an evaluation of the changing need for information among professionals. The study suggested that there is a need for curricular change in coping with current information need. Nwagwu and Segilola (2013:159) scrutinize the information needs and pattern of information-seeking behaviour of professionals, and observe that information is needed in order to obtain more knowledge. The authors also observe that professionals need to be familiar with and improve the availability of and accessibility to the Internet in the workplace for better job performance, supporting innovation, and sustaining economic development. In the opinion of Bothma and Bergenholtz (2013:22), there are stable and unstable information needs to explain the perpetual change in needs over a period of time. and differentiate between a changing world, types of information need, and interpretation of data.

The information literate person, according to Prabha, et al. (2007:2) is proficient in determining the nature and scope of information needed to meet personal and professional requirements. In Lincoln (2011: 4) the present information background is rich and categorized by an abundance of information sources and providers, a multiplicity of methods for accessing information, and a redundancy of content from numerous sources (Hong, Abang, Abang (and) Zaimuarifuddin, 2005:205). In this information saturated environment, many information users tend to experience a sense of inadequacy and anxiety (Lincoln, 2011: 4). The prevailing difficulty is how to navigate this intricate landscape of information to enable satisfaction of information need.

Kolta (2011:33) asserts that the awareness of information overload symptoms and causes would help scholars in meeting and satisfying information needs, as the flood of potentially relevant information has become pervasive. In an attempt to meet daily information needs

individuals are compel to consider more information and opportunities than they can effectively process. This information overload is made worse by "data smog", which is described by Eppler and Mengis (2003:3) as a concept describing the proliferation of low value information, which can also lead to anxiety, stress, alienation, and potentially dangerous errors of judgement, which can adversely affect productivity.

One of the major consequences of meeting information need has been the exponential growth of the Internet and information and communication technologies, which is the prime reason for information overload, and the speed and complexity of developments in society. Ho, Kauffman and Liang (2011:409) contend that people find it more complicated to handle the amount of new information they receive, regular changes in the organizations and technologies they use, and the increasingly complex and unpredictable side-effects of their actions.

The need for information is as important as blood in the human system, because without information, transformation will not be possible. Information is essential in all human endeavours for problem-solving. Information need triggers information search, the practice by which a person seeks knowledge about a difficult circumstance constituting a major impediment, which leads to seeking for information on the Internet by millions of users (Browne, Pitts & Wetherby, 2007:432). The web is now a primary source of information for many people, motivating a critical need to understand how users search or employ search engines (Jansen & Spink, 2006:432). Information need and information seeking are different but related concepts because both of them are components of information behaviour (Yu-Wei, 2011:1). The adventure to seek for information begins with the need for information, and to meet that need an individual must be aware of the various information sources available.

UNESCO (2013), a body committed to promotion of educational development worldwide, has also been keenly upholding the perception of knowledge societies in which information literacy plays a prime role in structuring comprehensive, pluralistic, just and participatory societies by enabling people to understand and make valued judgments as active users of information, and become producers and distributors of information and knowledge in their own right. Horton (2013:7) affirms that information literacy enables citizens to make

informed choices to meet the information needs which will help them achieve their full potential, and it enables them to maintain their political, economic and social development.

In the opinion of Fourie and Krauss (2010:107), information literacy skills and Internet searching are vital preconditions for meeting information need. The potential of information literacy as an instructive tool in education has been well established by academic research. Yusuf and Balogun (2011:15) state that the results from the self-report used for many of the studies reveal that student teachers in many higher institutions seem to have a positive attitude toward the knowledge of information literacy comparable to that of teachers in other countries.

In Idiodi (2005:8) it is stated that the perception of information literacy skills and the challenges of information literacy acquisition in developing countries are similar to those in some other countries. It is important for teachers and students to find and efficiently use information in whatever format regardless of the location. If this is the case, teachers and students must be taught how knowledge is structured and organized by librarians who are experts in information organization and retrieval and in the best position to guide others. However, librarians cannot do it alone; they need to collaborate with other members of staff who have the responsibility to integrate information usage into their teaching programmes and encourage students to use the resources available, both in the libraries and other well regulated information sites.

There is a dire need for information literacy training of teachers. Fourie and Krauss (2010:116) and Purcell and Barrell (2014:56) affirm that the need is particularly required in rural areas for students in training and working adults, and could be addressed by considering the approach of ICT for Development and the need for international standards and curricula for information literacy. This approach should be followed by action based on the prevailing circumstances of teachers, a wide and systematic review of supporting literature, and encouraging critical inquiry

It is evident from studies conducted by many researchers that there are teachers who have the right view of online education as they are aware of its usefulness to the education system. Although personal issues like time constraints, perceived usefulness, perceived ease of use, and low enthusiasm are a relatively common phenomenon, awareness, capacity building and

enabling environments should be provided to encourage the use of online information resources among teachers (Obinna & Promise, 2011:8).

The small body of existing research and texts suggests the need to make Internet searching a centre of information literacy because of the wide variety of information freely available to meet both professional and personal needs, in spite of of the challenges of access to computer hardware and software in South Africa. Fourie and Krauss (2010:116) provide an outline of a specific initiative to make available a community of teachers with information literacy skills based on an ICT for Development approach with a focus on the planning of such an enterprise.

Examinations of teachers' competence in developing countries have revealed that they gain information literacy knowledge and ICT skills through personal efforts aided by families or friends to gain training outside the schools. The implication of this, in the view of Yusuf and Balogun (2011:16), is that much of the training provided by the schools for student teachers does not meet the need for them to integrate information literacy skills into their teaching. This underscores the need for more emphasis to be placed on exposing student teachers to advanced courses in information literacy skill and ICT knowledge. Schools and indeed universities in the developing nations must improve on their information literacy skills and ICT technique in line with the UNESCO recommendation.

3.3 Information literacy models and frameworks

A model can be seen in the form of shapes, sizes, and styles. It is also a human construct to foster better understanding of a particular theory or an existing body of knowledge. Generally, models contain information input, an information processor, and output of expected results (Ford, 2009).

Information literacy models help in the formulation of ideas, provides a framework for proper planning, triggers terminology to initiate positive discussions, helps in measuring progress, enables articulation outcomes, gives a recognizable structure or milestone for common goals, and provides hooks into other professional arenas (Bent, n.d:23).

There have been many time-tested information literacy, research or information problem-solving models that have been used by teachers to influence learners. Some of them are, but are not limited to, the following:

3.3.1 SCONUL seven pillars of information literacy

The Society of College, National and University Libraries (SCONUL, 2011) established the seven pillars of information literacy model in 1999, and it was modified in 2011. The most recent adaptation explains that to become information literate "is not a linear process": individuals can follow a diverse pathway to become information literate, and may gain knowledge of the skills at different points.

The seven pillars are:

1.   Identify: ability to identify need for information.

2.   Scope: ability to gauge recent knowledge and recognize gaps.

3.   Plan: ability to map out strategies for finding information and data

4.   Gather: ability to trace and access the information and data n.eeded.

5:      Evaluate: ability to appraise the research procedure and judge and evaluate information and data.

6.   Manage: ability to arrange information professionally and morally.

7.   Present: ability to apply the knowledge acquired. Present the outcome in research. blend recent and old information and data to produce new knowledge and disseminate it in many ways (SCONUL, 2011).

3.3.2 Inquiry-based learning (Alberta model)

Inquiry-based learning is an approach to teaching and learning that places students' questions, ideas and observations at the centre of the learning experience. Teachers play an important role throughout the procedure by establishing a culture where ideas are politely challenged, tested, redefined and viewed as improvable, moving students from a position of wondering to a position of enacted understanding and further questioning (Scardamalia, 2002).

Inquiry-based learning is a procedure in which learners participate actively in the learning experience by putting together relevant questions, scrutinizing widely and then demonstrating new perceptions, understandings, meanings and knowledge. This new knowledge will empower students to find solutions to new challenges, in order to develop a problem-solving

ability or to support a position or point of view. This knowledge is capable of prompting positive action (Alberta Learning, 2004).

3.3.2.1 Planning

Inquiry-based learning is magnified and shaped by student curiosity and interest. At this stage teachers are expected to plan for student inquiry without necessarily increasing the workload. In working through the planning process with students, teachers train them in developing skills and strategies in decision-making and reaching consensus, acquiring knowledge of information sources and developing a sense of ownership and responsibility for learning. In the planning there are several stages, and they are: Curricular Connections (subject area integration), Curricular Outcomes, Learning, Teaching, and Assessment Strategies (which include the Inquiry Process or cycle), Instruction, Learning Resources/Sources (Manitoba Education, 2013:6.3)

3.3.2.2 Information retrieval

Information retrieval is determined primarily by the growth in mainly unstructured online information repositories, especially the Internet, but increasingly other digital media sources such as audio and video; it is required for teachers to guide students in efficient ways to locate relevant information to support their curriculum (Gareth, n.d.:1).

Information retrieval entails the development of an information retrieval arrangement, to improve on the skills to locate and collect relevant resources, choose relevant information, evaluate information, and re-examine and modify the plan for inquiry (Alberta Learning, 2004).

3.3.2.3 Information processing

Information processing refers to orderly presentation of facts and opinions. It is the act of acquisition, recording, organization, retrieval, display, and dissemination of information (*Encyclopaedia Britannica*, 2013). Teaching a retrieving process in conjunction with an inquiry-based learning activity, the teacher provides students with opportunities to understand that retrieving is problem-solving that requires both critical and imaginative thinking, create a search strategy, communicate with experts and record bibliographical information (Oberg, 2013).

3.3.2.3   Information sharing

Information sharing illustrates the exchange of data which can be expressed with presentation of facts and figures between learners and teachers or learners and colleagues in educational institutions (*Technopedia*, 2013). If students enjoy a lot of support through the inquiry process, they will demonstrate confidence in sharing their product regardless of the format or audience (Alberta Learning, 2004)

3.3.2.4   Evaluation

Generally, learners express optimism about newly acquired skills at the completion of the assigned responsibilities, and they want to reflect on the evaluation of their product and their inquiry process. In order to make sense of the inquiry process, they need to understand and question the evaluation criteria, identify the steps in their inquiry process, and share their feelings about the process (Learning Alberta, 2004).

3.3.3   Research cycle (McKenzie model)

In this model learners are guided on how to become information producers rather than information consumers. They are expected to be focused in generating answers to pertinent questions which demand independent mindedness and valid judgement because of the tendencies to review and rethink their research question. The cycle emphasizes information problem-solving skills needed for accomplishment with the Internet and other information resources. The Research Cycle consists of seven stages that are used to plan and conduct meaningful research. These stages are listed below (McKenzie, 1999).

3.3.3.1   Questioning*:* This stage emphasizes the ability to query the existing body of knowledge in an attempt to have better understanding, and use the understanding for decision making. This will enable learners to reason out solutions to problems.

3.3.3.2   Planning: This is a stage that guides the ability of learners to reflect purposefully on the best possible direction to access the best information that will be useful in problem-solving. This will include the ability to source for relevant information reliably.

3.3.3.3   Gathering*:* This stage guides learners towards assembling relevant information from reliable and well organized sources, unlike other sources that can lead to information anxiety caused by information overload.

3.3.3.4   Sorting and Sifting*:* This stage will enable learners to scrutinize, examine and systematically organize data in the order of its relevance to existing problems.

3.3.3.5   Synthesizing*:* This stage will enable learners to arrange, rearrange and regroup findings. This is an approach that will help in logically combining resources from different sources to form reasonable and coherent information.

3.3.3.6   Evaluation*:* This is the stage at which assessment and appraisal is done to ensure the sufficiency of the information. The evaluation of work done will help to justify whether the existing task is complete, or there is a need to gather more information.

3.3.3.7   Reporting*:* This is the stage at which the findings of research are exposed to the body of decision makers. Based on this, recommendations can be made.

3.3.4   Guided inquiry: Carol Kuhlthau and Ross Todd model

This is a process aided by the supervision of a facilitator, where students are guided on how to identify their own problem and enquiry. They then scrutinize the resources they need to research the topic, thereby acquiring the necessary knowledge. The knowledge through this means is more readily retained because it has been acquired by experience and in relation to a real problem. Enquiry-based learning is a way to inspire students to learn for themselves, bringing a real research-orientated approach to the subject (Hutchings, 2010).

The following are the characteristics of guided inquiry in which learning is essentially student-centred, with an emphasis on group work and use of library, web and other information resources. Lecturers become facilitators, providing encouragement and support to enable the students to take responsibility for what and how they learn. Students reach a point where they are not simply investigating questions posed by others, but can formulate their own research topics and convert that research into useful knowledge. They gain not only a deeper understanding of the subject-matter, but also the knowledge development and leadership skills required for tackling complex problems that occur in the real world.

3.3.5   Action learning model

Action learning is a dynamic process where a group meet on a regular basis in order to assist individual members of the group in problem-solving activities. This is usually done through a highly structured process. As a result of the focus on individual members at every session,

biases and assumptions are reduced significantly. The individual member is guided towards action that is result oriented. The individual member reports back to the group on the applicability of the recommendations (Ruebling, 2007:1).

Action learning entails both self-development and organizational development. This action taken will enable solutions to a problem which will change the nature of the problem and the individual acting on the problem (Ashridge, n.d:12).

3.4 The use of information literacy skill in classroom instruction

Bartlett and Toms (2005:1) hold that information is useful in creating knowledge, not only in the sense of data and facts, but in the form of representations that provide meaning and context for purposive action. Interestingly, information professionals usually probe into what individuals do with information acquired. Information use has attracted less attention in the literature. It is repeatedly associated with information need, in that information is needed in order to be converted into good use. It is important to understand how information is used in finding solutions to problems, and information should also support users (Bartlett & Toms, 2005:1; Bratianu & Orzea, 2010:42). Information use is the factor that propels all other information behaviour, since it represents the ultimate reason for which information is needed and sought. Without consideration of information use, consideration of activities such as information seeking, fulfilling information needs, information evaluation and information retrieval will be pointless. It is the use of the information that informs and drives the information seeking. (Bartlett & Toms, 2004; Bitso & Fourie, 2011:174). Bartlett and Toms (2005:1) observe that information use is also considered as the final stage in the information seeking process.

The significance of using information is a critical component for purposeful existence and self-actualization in every area of human endeavour. In the opinion of Adetoro (2010:1), the sources from which information can be derived have increased and improved in the 21st century. Everyone, regardless of age, affiliation, or status can find relevant information to use.

According to the College of Information Science and Technology (2008), information is useful in establishing proper communication channels and a critical resource for organizational performance. Teachers, just like any professionals, spend time to gathering

information that will be useful for their need, by reading, writing, and communicating with others, via telephone, in person, or by e-mail. In the opinion of Cremonini, Westerheijden, and Enders (2008:374), acquisition of information involves gathering, processing, and disseminating information for proper decision making. Management of information involves coping with numerous information sources and ultimately making decisions about what to do with it. Use of information is essential to organizational growth.

For effective use of information the ability to evaluate sources of information is important; this ability is also the lifeblood in information literacy skill. Evaluation of information entails that scholars appraise sources of information in order to be convinced of its legitimacy and reliability (Taylor & Dalal, 2014:321), especially if the information is from the environment where it can be made accessible to virtually anyone. It is crucial for students to recognize bias, prejudice, manipulation and deception within sources, and evaluate information within them; this will require being able to understand the research material, extract main ideas and know what part will be the most useful for the final product (Taylor & Dalal, 2014:322), and thereafter, synthesize it into new ideas and concepts that can be compared to prior knowledge and stand the test of time. It is also vital for researchers and educators to test a different viewpoint and discuss it with peers and practitioners (David L. Rice Library, 2010).

The use of information requires proper evaluation of the sources, and that can be done critically looking at authorship, motive and intention, objectivity, currency, expert views, verifiable facts and references, and stability and logicality.

Authorship: Before the content of particular intellectual material is admissible as a genuine contribution to knowledge, the authority of the author to write on the subject matter should not be in doubt (Hollister, 2014:51). An author is the one who is the source of some form of intellectual or creative work; especially one who composes a book, article, poem, play, or other literary work intended for publication (*Encyclopaedia Britannica*, 2010). Academic writing is not only about passing on an ideational "content"; it is the ability of writers to construct a credible representation of themselves and their works, aligning themselves with the socially shaped identities of their communities (Hyland, 2002:1092)

Motive and intention: To determine the quality of information, the motive and intention of the intellectual property must be assessed in order to check for prejudice, chauvinism, discrimination and narrow-mindedness. In doing this, the background search and reputation

of the intellectual property-owner must be investigated and ascertained. It is also important to determine the purpose of the information's contents or publication, the life perspective of the author, and examine the language within the source to determine the author's bias. The reputation and credibility of the author can be determined by checking previous works. (Betts, 2010:4)

Objectivity: To admit the information content of a particular author as credible, it is imperative to look out for independent perception and the writer's conceptions, whether they are distorted by emotion or personal bias, whether topics are treated fairly, whether the author considers the perspectives, viewpoints and opinions of others, and is logical in presenting facts (Betts, 2010:4).

Currency: The time of publication of information is vital to its evaluation. Any valuable information resources should indicate clearly when the information was published, and that it has not been superseded by events. The copyright date of publication is generally written on the title page; this will reveal to information seekers the timeliness or otherwise of the content (Betts, 2010:4).

Verifiable facts and references: References are key to evaluating the authenticity of information resources, and the sources of the references should be confirmable from the bibliographical details. It is important to know if the resources are current or obsolete (Betts, 2010:4).

Expert review: The opinion of an expert is germane in evaluating the quality of any information resources. The important questions to ask are: does the author have the requisite knowledge and experience to make generalizations in a particular field of knowledge? Has the author or owner of an intellectual property been acknowledged by peers nationally or internationally as being qualified to make certain pronouncements in the profession? Is the contribution of the expert widely referenced among professional colleagues? Can the opinion of the expert stand the test of time and logic? These questions are the hallmark of an expert in a particular profession (Betts, 2010:4).

Stability and logicality: Permanence and constancy are two qualities expected of information resources. Logicality of information resources shows the interrelation or

sequence of facts or events when seen as inevitable or predictable (*Merriam-Webster Dictionary*, 2013).

King (2007) argues that an introduction to the use of the library in the orientation week at the university is not sufficient to boost the confidence of students, nor is approaching librarians for assistance. Emphasis should be on how to acquire critical thinking skills, data-driven decision making and analytical problem-solving ability. Abubakar and Isyaku (2012:41) observe that understanding more about information will promote effective use of it by professionals who are likely to help educators design curriculum which is relevant and transferable to professional practice.

The appropriate use of modern information entails the awareness of information ethics, which is also one of the components of information literacy. Hofman (2009:11) and Joan (2010:1) state that information ethics centres on the relationship between the creation, organization, dissemination and use of information, and the ethical standards and moral codes governing human conduct in relation to the use of information in society. David and Resnik (2011:2) hold that information ethics presents the tolerable measure for analysing complex information problems in relation to information use. Ethical use of information is also key to empowering scholars to master the effective use of information. According to the David L. Rice Library (2010), it helps the scholar to avoid plagiarism; be aware of issues that can affect daily lives, such as privacy and security, copyright, intellectual freedom, fair use, censorship and freedom of speech; and acknowledge information sources using an appropriate documentation style, and citing accurately as it is needed (Richard, Edward, Pisacreta and Kenneth 2008; Bothma, et al., 2011:118).

3.5   Type of information resources available for teaching

Information can be acquired from virtually anywhere: it can be through books, journals, blogs, personal experiences, grey literature, newspapers, government publications, bibliographical databases, OPAC (Online Public Access Catalogue), opinions of experts, CD-Rom, theses and dissertations, databases, electronic resources, encyclopaedias, and web pages. The type of information needed will determine the source from which information is sought. Generally, sources of information can be categorized into three major areas, according to the Virginia Technology University Library (2013): primary sources, secondary sources and tertiary sources.

Information need determines information sources from where the information will be acquired. According to the University of Maryland (2014), primary sources of information contain original material that is unfiltered, undistorted as a result of interpretation or evaluation. It is the material's first official appearance or manifestation, presented in original thinking or accounting for a unique discovery, or presenting novel information which can be in physical print or electronic layout. This is information obtained through an eye-witness or first-hand account. Primary sources of information offer first-hand accounts of events and action, or direct evidence concerning a topic under investigation. They are opinions formed by witnesses or recorders who have experienced the events or conditions being documented. Primary sources of information are not limited to the above: they can also include autobiographies, memoirs, and oral histories recorded later and passed down from generation to generation (Yale, 2008:1).

The BBC (2014) views a secondary source of information as one created by somebody other than the direct witness to the event, interpreting, restructuring and analysing primary sources of information. This source of information can be biased, and is usually written to give one-sided opinions or to influence people's views. In contrast to the primary sources of information, a secondary source of information is one that was created later by someone who did not experience first-hand or participate in the events or conditions. For the purposes of a historical research project, secondary sources are generally scholarly books and articles. Also included would be reference sources like encyclopaedias, gazettes, dictionaries, etc. (University of Illinois, 2006).

Tertiary sources of information compile process or digest other sources of information. A number of reference materials and textbooks are adjudged as tertiary sources when their main idea is to list, summarize or basically repackage ideas or other information (Finnish Institutions, 2013). Tertiary sources provide a general outline or summary of subject matter, and may contain both primary and secondary sources. The information is displayed as entirely factual, and does not include analysis or critique. This can also be collections of primary and secondary sources, such as databases, bibliographies and directories (ODU Library, 2012:1).

Ani and Ahiazu (2008), hold that the impact of information communication technology has tremendously transformed the management of information resources in academic

environments, especially libraries. The remarkable changes include the techniques through which information is provided to a community. According to Parameshwar and Patil (2010), information resources include, but are not limited to, computer laboratories, e-library centres, personal computers at home and in the office, and some handheld devices such as androids, palmtops and Blackberries, cyber cafés, etc.

Uwaifo and Eiriemiokhale (2013:8) observe that teachers obtain numerous benefits from the use of electronic information resources. However, the available facilities for using them are not encouraging in most parts of developing countries in Africa, although some teachers have personal computers at home and handheld equipment to access information resources for research and personal development.

Williams (2010:148) points out that the abundance of information that is available through a array of sources which include libraries, media facilities, and the Internet (which is now gaining increasing acceptance) has shifted the attention of scholars to the accuracy, validity, and dependability of information resources. Williams (2010) states that people face the daunting challenge of mastering the skill of information literacy to be able to distinguish accurate from inaccurate information. The information resources on the Internet are relied on by scholars to meet the obligation of coping with academic and social challenges, so it is important for them to have positive experience in their use.

Accessing information should be the responsibility of an information literate researcher. A 21st century teacher must be able to access needed information competently. Especially because of the enormous quantity of information resources and research materials accessible at one's fingertips, it is imperative to be familiar with a search strategy; this strategy should be applied to access valuable information using different tools and techniques, In the opinion of the David L. Rice Library (2010:1), when an information resource is finally found, scholars must be capable of managing it by extracting, organizing and managing the materials. Without a search strategy accessing information may end up being a cumbersome enterprise.

In the opinion of Malerich (2008), one of the effects of globalization is that technology has increased and improved access to education around the world. Historically, education has been conducted in a classroom by a teacher using printed textbooks and physical information resources. Malerich (2008) reveals that technology has revolutionized educational delivery,

bringing education outside the boundaries of a classroom to venues across the globe through print, radio, television, video and over the Internet. This new development has opened doors of opportunity to scholars to earn a college degree, gain vocational skills, develop proficiency in scholastic activities, etc., however distant they may be from a college campus.

Dunn (2012) points out that accessing information, especially Internet-based resources, can give scholars significant access to enormous educational resources, providing online instruction in various areas where a high level of proficiency is required, making resources available for students who normally cannot access an educational institution, and giving them the opportunity to collaborate with others and answer questions they cannot answer on their own.

According to the Ontario Ministry of Education and Training on Information Literacy Skill and Equitable Access (1995:5), equity of access to information is vital to both individuals and the society as a whole. Teachers who do not have access to information literacy and required information technologies will be deprived of the skills needed to fully participate in a modern economy. Access to information is the bedrock of modern democratic processes. In an emerging society, those who do not have the means and skills to access information will be powerless to participate effectively in decision-making processes.

Access to information has been widely determined by human rights organizations to be a fundamental right of every citizen. Inability to access public information resources can undermine democratic principles. Neuman (2002:6) describes poor access to information as being capable of breeding corruption; secrecy allows backroom deals to determine public spending in the interests of the few rather than the many. Lack of information impedes citizens' ability to assess the decisions of their leaders, and even to make informed choices about the individuals they elect to serve as their representatives. Knowledge is power, and transparency is the remedy for the darkness under which corruption and abuse thrive. Robert (2002:9) claims that access to information is indispensable for developing awareness of the fundamental rights to freedom of expression that are guaranteed in the United Nations Declaration on Human Rights, subsequent human rights declarations, and many national constitutions.

In view of the above, the PanAfrican Research Agenda (2008-2011) suggests that there is a need for government to reinforce learning by reducing inequalities in educational

development through the availability of ICT tools in educational institutions to enhance the competence and innovation of teachers in order to take full advantage of the potential of digital devices to improve thinking skills and thus learner performance (Ndlovu & Lawrence, 2012: 1).

3.6 Frequency of use of information resources by secondary schools

What, when and how information is gathered and used by teachers is of critical importance in meeting the information needs of secondary schools. Identification and understanding of how to search and use information sources will go a long way in improving delivery of classroom instruction (Radhakrishna & Thomson, 1996). All the luxuries of the information revolution and problems of the information explosion centre on the user and his convenience (Doraswamy, 2009).

Internet technology has become an effective means for widening educational opportunities, but most teachers neither use the technology as an instructional delivery system, nor integrate the technology into their curriculum (Afshari, Abu Bakar, Su Luan, Abu Samah and Fooi, 2009:1).

The use of ICT creates a significant learning environment, and it changes the learning and teaching process in which students deal with knowledge in an active, self-directed and constructive way (Volman & van Eck, 2001:613).

As a classroom tool, the computer has captured the attention of the education community. This versatile instrument can store, manipulate and retrieve information, and it has the capability not only of engaging students in instructional activities to increase their learning, but of helping them to solve complex problems to enhance their cognitive skills (Jonassen & Reeves, 1996:693).

The proliferation of technology has complicated the teaching-learning process and finding the best ways of integrating technology into classroom practices is one of the challenges 21st-century teachers face. Effectively integrating ICT into learning systems is much more complicated than providing computers and securing a connection to the Internet (Afshari, et al., 2009:20).

The Internet has become an indispensable requirement for every teacher because it gives them the ability to work with multimedia, and thus enhance interactive activities in the classroom environment. The Internet is also the fastest growing educational tool. The overwhelming amount of publicly available information on the web is increasing consistently at a mind-boggling speed. It has turned into a gigantic electronic library. It is therefore important for teachers to embrace this new technology by acquiring basic and advanced skills of information literacy (Singh & Jindal, 2009:430).

3.7   Effects of self-concept in information literacy skills

Many researchers have pointed to the fact that personal abilities can no longer be overlooked when investigating information literacy skill. For instance, Zahra (2010:17), Jackson (2013:150) and Mahmood (2013:232) postulate that personal abilities are vital in scrutinizing the connection between information literacy and the self-concept which is the bedrock of personal ability and academic attainment. Such scrutiny is necessary in order to salvage those who may be victims of self-destructive beliefs which may also be damaging to students (Mortimore & Wall, 2009:29).

The most important attribute of modern societies is that everything is in a perpetual state of flux. At the same time the quantity of information is now overwhelming, and technology has become relevant to every aspect of human life. There is hardly any professional calling today which has not felt the positive influence of this change. It is therefore almost mandatory for all who wish to be relevant in any career to embrace this new technique. Societies of the information age must be confident in the application of modern technology to be able to access information to foster independent, self-regulated learners equipped for lifelong learning. The manpower needed by today's societies can be described as effective consumers of information who can find, evaluate, use, produce and share information, and make use of technology in all these activities (Kurbanoglu, 2003:635).

Rosman, Mayer and Krampen (2015) argue that satisfactory self-perception of scholarly capability is fundamental for the recognition of intellectual ability, thereby promoting learning of complex skills like information-seeking skills. Rosman, et al. (2015) suggest that academic self-concept should moderate the connection between intelligence and information literacy: a constructive relationship between intelligence and information literacy is expected for an academic self-concept. Thus it is accepted that this moderator effect is mediated by

personal effort. Whenever people are able to distinguish between personal deficits or strengths, they will come to understand how to develop the level of confidence they aspire to have.

In the opinion of Lawrence (2006:2), a self-concept is characterized as the sum total of a person's mental and physical features and evaluation of self. As such it has three aspects: the cognitive (thinking), affective (feeling), and the psychomotor (action). It is important to consider the self-concept as developing in these three areas. It can also be seen as individual awareness of self, and awareness of identity (Lawrence, 2006:2). Echaniz, Fernández, de Barrón, and Palacios (2015:52) noted that it has become an acceptable fact that one's self-concept is a way in which one sees oneself. This is not restricted to physical appearance, which is reflected in one's academic, professional and social existence, but includes private and personal awareness.

Personal confidence in the use of modern technology is important for effective use of expertise. Bandura (1977:191) affirms that skills acquisition is insufficient unless individuals develop self-confidence in the application of what is learnt. In other words, success based on the possession of required skills for performance also requires the confidence to use these skills effectively. Therefore apart from possessing information literacy skills, individuals in modern society must also be convinced about their proficiency in the use of these skills. Information literacy self-efficacy is capable of motivating academic performance; information literacy can help in predicting academic achievement, while self-concept is considered a major factor in developing information literacy (Ross, Perkins & Bodey, 2013: 279).

Kurbanoglu (2003:644) observes that psychological factors affect human ability to learn new skills. Therefore in addition to attaining information literacy skills it is also important to develop perceived self-efficacy concerning these skills. This will help in better appreciation of self-efficacy as a way to boost problem-solving capacity as a needed feature for lifelong learning. Self-concept is a vital component of teaching, not just to help with academic performance; it supports social skills and makes it easier for teachers to influence positive behaviour. Students are also better equipped to cope with mistakes, disappointment and failure if the mental attitude of teachers is positive; they are more likely to stick with challenging tasks and complete learning activities (Watson, 2013).

The self-concept of teachers has life-long impact in the overall performance of learners; because it has positive effects on their self-esteem. This is because reinforcing the self-esteem of students is a direct consequence of increased motivation and learning. Teachers' positive attitudes can create a satisfying teaching environment and help to give students the impression that they belong and are welcome in the school setting. Teachers with positive mental attitudes must constantly communicate to students that mistakes are part of the learning process, and that no student should ever feel embarrassed to ask questions if he or she does not understand something (Brooks, 2010).

In the opinion of Rinn and Boazman (2014:92), self-concept comprises an individual's perception, emotion and attitude toward him or herself, and is usually shaped in the course of familiarity with and understanding of one's environment. Bandura (1977) affirms that self-concept is a combination of environmental and psychological conditions. These two factors can affect human behaviour, as people become vulnerable to social factors in their search for independence. Marsh and Ayotte (2003:687) and Rinn, et al. (2009:251) opine that self-concept is a multidimensional entity which consists of very different cognitive and affective components.

Perception of self can be a consequence of cumulative effects during biological, social and psychosocial transitions. Constructive transitions result in healthy self-concept developments, which make possible the achievement of many advantageous outcomes. Positive educational environments, family, school and community youth groups can shape personal qualities, which support cognitive, psychological, psychosocial and socio-emotional achievement. Positive outcomes will motivate the desire to attain high educational goals that are integral in self-concept formation (Ramtahal-Metivier, 2009:82).

According to Jamaludin, Ahmad, Yusof and Abdullahi (2009:1), eight elements form the foundation of a person's self-concept. They are morality and ethics, personal and physical attributes, family, identity, social satisfaction and behaviour. Self-concept also refers to an act of self-evaluation or self-perception, and it signifies the total sum of a person's belief about his or her own qualities. Self-concept reflects how people evaluate themselves in domains in which they consider success important (Baldwin & Hoffmann, 2002:1).

3.8   Effects of metacognitive ability on information literacy

Metacognition can be defined as the ability to think about one's thinking process, which combines two components of knowledge and regulation about oneself in relation to factors that might affect performance, strategic knowledge, and knowledge to be applied based on present challenges (Lai, 2011:4). Metacognitive ability has been seen as having knowledge, understanding and control over mental activities, and appropriate use of the acquired knowledge. (Wilson & Bai, 2010:2). Metacognition refers to higher order thinking which involves active control over the cognitive processes engaged in learning (Livingston, 1997:1). Metacognitive regulation is the monitoring of one's cognition, and includes planning activities, awareness of comprehension and task performance, and evaluation of the efficacy of monitoring processes and strategies (Lai, 2011:4).

According to Pressley (2005:1), information literacy is a foremost metacognitive skill; i.e., information literacy skills are exactly the expertise people require to be able to take control of their own thinking and learning in order to find the best information for their needs. To be information literate demands self-awareness. This refers to an attentiveness towards and understanding of learning processes. Learners who possess highly developed metacognitive skills are more likely to acquire information literacy skills as a precondition for modern learning (Dewald, Scholz-Crane, Booth and Levine, 2000:40). Martin (2013:16) explains that metacognitive ability reinforces information literacy as a reiterative, holistic process where individuals continually assess their own ability to increase their information literacy.

John H. Flavell, the progenitor of metacognition, describes it as purposeful, planful, deliberate, goal-directed, future-oriented intellectual behaviour that can be directed at achieving cognitive tasks (Flavell, 1979). Metacognitive ability also refers to knowledge concerning cognitive ability and affective states, and control over knowledge in order to achieve a specific goal Such knowledge can be classified into declarative, procedural and conditional knowledge which are the overall qualities expected to advance knowledge acquisition (Danuwong, 2006:1). Metacognitive experiences involve awareness of one's own cognitive ability and affective processes. These experiences are retrieved by actively monitoring one's own mental processes (Danuwong, 2006:1). A metacognitive ability integrates, among other things, ability in time management, limits information searching to the most pertinent rather than the most available, and considers conflicting viewpoints and

emotional intelligence, which means that learning can involve complex moods of uncertainty, frustration and doubt (Zinn, 2012:124).

Metacognitive strategies include a variety of simple processes such as underlining, outlining, notetaking, summarizing, self-questioning, and more complicated methods such as hierarchical summaries, conceptual maps, thematic organizers, and metaphorical thinking (Parker, n.d.:3). Leeder (2014) investigated how to efficiently teach information literacy and reliability assessment skills in the use of online information atmosphere, in the context of students' dependence on the use of Internet resources. Lack of information literacy skills can limit critical appraisal. Leeder (2014) therefore suggests innovative instructive techniques necessary for effective online information literacy skill, and to integrate scaffolding and metacognitive support.

Metamemory refers to the ability of people to demonstrate the capacity to search the content of memories, either prospectively or retrospectively, out of which judgements or clarification are drawn. Metamemory is not memory *per se*, but depends on it (Metcalfe & Dunlosky, 2008:349). Understanding memory reveals that memory can fall short of the expected need in two diverse ways, the first involves forgetting, or being incapable of retaining information despite one's best efforts. The other involves"misremembering", or remembering something incorrectly (Jaswal & Dodson, 2009:1).

According to Lewis (2012), metacomprehension means the capability to examine the degree to which one understands information being communicated, to recognize the reason for failure to comprehend, and to employ repair strategies when failures are identified. Pule (2009) observes that metacomprehension derives from two keywords: meta and comprehension. For example, metadata would mean that data is being analysed about data. Comprehension means an ability to understand or show lack of understanding. Metacomprehension thus means an ability to be aware of or understand one's understands of a topic.

Self-regulation, colloquially known as willpower, refers to self-directed competence for altering behaviour. It helps to increase the flexibility and adaptability of human behaviour, helping people to adjust their actions to a remarkably broad range of social and situational demands (Baumeister & Vohs, 2007:3). Thinking about the importance of self-regulation can help individuals to become objective and to understand in responding to behaviour.

Understanding the impact of temperament and considering goodness of fit can assist teachers in selecting strategies that support the development of self-regulation (Gillespie & Seibel, 2006:4).

3.8.1 Personal knowledge

Personal knowledge refers to knowledge applied in the profession which has been accumulated and proved over time to possess permanent value, worldwide application and universal truth. It is acquired mainly through formal and informal training (Qun, n.d.:6). In the opinion of Kuhn, Garcia-Mila, Zohar (and) Andersen (1995:3, 12), the process of gaining knowledge is a method essential to survival which begins early and continues all through life. Metacognitive knowledge involves consciousness and manifestation of the content of an individual's thought, ranging from simple awareness of the content of one's immediate and prior thought.

The importance of knowledge cannot be over-emphasized in any profession, especially in the area of classroom management techniques. Knowledge is a set of skills and information obtained through experience and/or education, giving someone the ability to perform well in a specific field or ability (Mason, 2012). Personal knowledge can be translated into a progressive classroom environment capable of boosting the intellectual ability of students, and fostering intelligent behaviour for problem-solving purposes, decision making, and creative thinking. Figuratively, the intelligence-friendly classroom serves as a caring companion and mindful guide to the intellect of each and every learner in it (Fogarty, 1998:1).

3.8.2 Task and procedural knowledge

In the opinion of Schumacher, Minor, Walter (and) Bergmann (2012:1), people constantly become skilled because of the knowledge acquired from years of experience, but since personal experience is always insufficient, people tap from the experiences of relatives, friends and colleagues in an attempt to enlarge their knowledge or solve problems.

According to Wiesen (2013:1), procedural knowledge is the knowledge that is demonstrated through the procedure of doing it. It shows how people understand things, and how the mind works to gain, recall and use the knowledge. This is often unconscious knowledge: though someone may demonstrate it, it can be something otherwise not considered by the person. For example, a teacher may know when to apply a particular technique in the classroom, but may

not be able to precisely explain this to his colleagues. In other words, says Wiesen (2013:1), it can be considered a trade secret that makes one individual distinct from others.

3.8.3 Strategic and declarative knowledge

Declarative knowledge is known as the ability to recall stored or acquired information. This procedure entails three stages of learning declarative knowledge: first, establishing a link between new information and an existing body of knowledge, which means learning how to remember new information.; second, categorizing information by putting new information into groups., placing it into different parts of the memory; and third, elaborating information by making connections among the information being received as well as connecting new information to existing knowledge (McCabe, n.d.:3).

According to Christopher (2005:3), learning strategies are devices used by learners to aid acquisition of knowledge and skills. Instruction should guide the learner in the choice of appropriate learning strategies for particular learning tasks. Facilitating the learning of declarative knowledge, concepts, procedures, principles, problem-solving, cognitive attitudes, and psychomotor skills begins with decisions on what content should be presented, how it should be presented, and in what sequence the instruction should follow.

3.8.4 Conditional knowledge

Jones (2012) avers that the ability to decide when and why a particular approach is necessary for the purpose of problem-solving is conditional knowledge. A teacher can do a wonderful job in passing knowledge across to students, but may find it difficult to teach them how to weigh up options available to them, and make informed decisions about when to employ this skill.

3.9 Summary

This chapter began with a historical analysis of the concept of information literacy from the period when Paul Zurkowski propounded it in 1974, and different developmental aspects of the concept based on the manner in which various professional library and information bodies have reacted to it, and its implications for learning, teaching and development. The perceptions of teachers about information literacy were also articulated with the aim of identifying the interaction of teaching and learning with new technology, and its implication for classroom activities Various aspects of information literacy that may affect the perception

of teachers were discussed, namely: information need, information access, information use, information evaluation and information ethics.

Literature was also reviewed covering different phases of the research questions; for example, types of information resource available to teachers, and their quantity. The information search strategy of teachers was discussed, as were (extensively) various personal abilities of teachers that may have a noticeable impact in the way teachers relate to modern technology.

CHAPTER FOUR

THEORETICAL FRAMEWORK

4.1 Introduction

In the opinion of Trent University (2013), theoretical frameworks provide a specific viewpoint, or lens, through which research is examined. A theoretical framework is comparable to the frame of a house Just as the foundation supports a house, or the skeleton supports the human body, a theoretical framework provides an underlying principle for predictions about relationships among variables of a research study. It plays an important role in conducting the process of the research study; indeed, it is essential to modern research, especially if it is based on sound logic and can be anchored in previous research studies; there is then a strong possibility that the predictions or hypotheses sprouting from that framework will be supported. A theory is a set of interrelated, interconnected and organized constructs, descriptions and propositions that present a logical view of phenomena by specifying relations among variables, with the purpose of explaining and predicting the phenomena (Nawal, 2007:2).

Theories are originated to clarify, predict, and comprehend social phenomena, and can also correct errors in existing knowledge within the confines of critical assumptions. The theoretical framework is a formation capable of holding or sustaining the theory for a research study. It initiates and explains theory that describes why the research problem exists (Swanson, 2013).

There have been many time-tested information literacy theories, and many researchers have spoken about the importance of research theories in having a significant impact on learners. Wikgren (2005) and Andrew and Lyn (2013) argue that there is a need to design a new model in the field of library and information studies that should include not only information seekers but also the communicator or information provider.

Research on information literacy is increasing and many theories and models have been produced. Limberg, Sundin and Talja (2012:93) categorise IL theories into three perspectives: phenomenography, socio-cultural theory and Foucauldian discourse analysis. Larsson and Holmstrom (2007:55) consider phenomenography as a qualitative research methodology, grounded in the interpretive research paradigm that sets out to investigate the

qualitative and diverse ways in which people experience something, or perceive certain events. Andretta (2008) sees the phenomenographic point of view as developing six theoretical outlines of information literacy consisting of: the content frame, the competency frame, the personal relevance frame, the learning to learn frame, the relational frame and the social impact frame. Diehm, Rae-Anne and Lupton, and Mandy (2012:5) identify six categories that explain how to learn information literacy: finding information, developing a process, building personal knowledge, advancing disciplinary knowledge, contributing to the community and creating a product.

Scot and Palincsar (2013) state that the socio-cultural viewpoint is a theory popular in the field of sociology, and is used to describe the understanding of circumstances surrounding individual behavioural patterns relating to environmental, institutional, historical and cultural factors. Wang, Li, Bruce, Christine, Hughes and Hilary (2011:2) describes socio-cultural theory as a communal constructivist paradigm which considers human knowledge as a product of social interaction within the community through collaboration. This theory, according to Wang, et al. (2011:7), is based on three key principles: knowledge is a social construct and authoritative dialogic model that can help in acquiring information literacy; tools and equipment play a significant role in social relations; internalization is an influential model, especially when data are created and evaluated using this research approach.

Foucauldian theory is based on discourse analysis, which is a form of interview analysis, focusing on relationships in society as expressed through language and behaviour, and the relationship between language and power (Lisa, 2008:249). Kendall and Wickham (1999) identify five stages relevant to Foucauldian discourse analysis: acknowledging dialogue as a statement organized in a logical way; understanding how the statement is constructed; unpacking what statement can be presented in a written and unwritten format; understanding how the new statement can be created; and building practices, material and discursive, simultaneously.

This chapter discusses the Technology Acceptance Models (TAM) focussing on its definitions and development, characteristics, criticism, applications and implications.

4.2. Technology acceptance model (TAM)

To come to a better understanding of the circumstances surrounding the evolution of the TAM, a concise narrative of theories and models preceding its manifestation is essential,

especially now that the use of technology has permeated every aspect of human life, which makes it imperative to understand why technology is rejected or accepted (Nikola & Granic, 2015:85). For instance, the theory of reasoned action (TRA) was developed to predict and comprehend human behaviour and attitudes. This theory critically evaluated behavioural intentions rather than attitudes as predictors of behaviour. The theory also implies that actual behaviour could be determined by previous intentions alongside beliefs that a person has for the given behaviour (Fishbein & Ajzen, 2010:xvii). The theory of planned behaviour (TPB) was formulated to take care of the limitations of the theory of reasoned action (TRA), and set out to predict the intention of people to engage in behaviour within a particular place and time, and to describe all behaviour over which an individual has the capacity to apply self-control (Ajzen, 2006). Davis (1986) modified the above theories and originated the TAM, which aims to predict the acceptance and rejection of modern technology.

In the opinion of Marangunic and Granic (2015:81), the constant improvement and progress in technology, especially ICT-related applications, makes the choice to decide on matters of acceptance and rejection a dilemma. For this reason, many models and theories have been developed to shed more light on the effective use of technology, and of all the models, the TAM stands out in examining issues affecting users' acceptance of modern technology. Without considerable understanding of the foundation, growth, and adjustment, along with the limitations of the model, there can be no broad and systematic research in the field.

The TAM is an expansion of Ajzen and Fishbein's theory of reasoned action (TRA) (Priyanka & Kumar, 2013:144), which was a theory initiated by Fred Davis in 1986, and since then has gone through several modifications and validations. The aim of the theory is to describe factors that determine technology acceptance, and information technology usage, and to provide a parsimonious theoretical explanatory model (Bertrand & Bouchard, 2008:200). Ducey (2013:20) explains that the TAM includes perceived ease of use and perceived usefulness, which are the important determinants of technology acceptance and user behaviour.

Teo (2013:81) identifies various factors that promote the use and acceptance of technology. He enumerates individual differences, social influences, beliefs, attitudes and situational influences as factors that promote the intention to use technology and the ability to accept or reject it. He posits that an individual's behaviour is influenced by an intention to perform the

behaviour; in other words, the real performance of the behaviour is heralded by a person's behavioural intention to engage in the activity. The TAM is a prominent theory that seeks to investigate the attributes that influence technology adoption. Ducey (2013:3) describes it as a parsimonious theory of technology adoption in an establishment which intends that individual responses toward a technology can trigger intentions or curiosity to use the technology, which in due course can influence actual usage (Aggorowati, Suhartono & Gautama, 2012:499). The TAM is a theory that sets out to intensify knowledge about how perceived ease of use and perceived usefulness affect the acceptance of new technology or new skills among educators (Aypay, et al., 2012:264). Also important to TAM is intention, which can be used to envisage and predict the eagerness and motivation to perform a behaviour and a number of skills. Such intention is determined by three factors: the first is personal in nature, reflecting human attitude; the second is subjective norms, which show social influence; and the third is called perceived behavioural control (Huda, Rini, Mardoni (and) Putra, 2012:272). People's intention to adopt a particular skill can be attributed to the three important factors stated above. Many studies have been conducted to test the authenticity of TAM. For example, Aypay, et al. (2012:264) tested the theory in predicting the intensity of technology acceptance among pre-service teachers, and results indicated that there is a relationship between the model and information acquisition. Jiang, Chen and Lai (2010:243) also found that individual ways of technology acceptance are valuable, but incomplete without looking at social factors and personal environments, which are two of the factors alluded to in the previous paragraph. Thakur (2013:17) discussed the issues affecting consumer intention to adopt the use of mobile payment systems, and found that "performance expectancy, effort expectancy, social influence are facilitating conditions in the e-finance and mobile finance context." Garg and Garg (2013:48) suggest that in formulating perception regarding new technologies, subjective and social norms influence consumers as well as perception of the quality of service.

Many theories have been developed that are applicable to information literacy research. They include: diffusion of innovation, by Rogers (1983), the theory of reasoned action (TRA), by Ajzen, cited by Priyanka and Kumar (2013:144), and the theory of planned behaviour, by Ajzen (1991). Despite that, the TAM is, in my view, most appropriate because it helps to predict users' behaviour by considering the three components suggested by Huda, et al. (2012:12), and supported by Shroff, Deneen and Eugenia's study (2011: 604). The validity of the theory has also been tested, and was found to be impressive.

The TAM, which is based on the two central variables of perceived ease of use and perceived usefulness, has been adjudged as an essential determinant for classroom instructional media acceptance and performance, and is one of the most widely applied theoretical models in the information system (IS) field. The TAM is also one of the most influential and commonly adopted theories for describing an individual's acceptance of information systems (Bagozzi, 2007:244). With careful observation, the variables that make up TAM are also similar to the personal ability expected of modern professionals in order to become information literate.

Suki and Suki (2011:1) note that the two definite beliefs of perceived usefulness and perceived ease of use to a large extent have direct links to the attitudes that determine the use of technology. Perceived usefulness is seen by Pantano and Di Pietro (2012:2) and Teo (2013:81) as a subjective prospect that specific application systems will increase job performance within a particular organization, which is known as "performance expectancy". Wen and Kwon (2010:255) state that perceived ease of use is anchored on the belief that it would be effortless and hassle-free to acquire a particular skill, known as "effort expectancy". In the opinion of Bagozzi (2007:2), the TAM anticipated that attitudes would have a positive influence on the mind-set that would gear human efforts towards the use of technology.

The TAM has proven to be useful in revealing certain shortcomings in society. In Portera and Donthub's study (2009: 999), it was discovered that despite the growth of information usage, evidence has shown that there is a significant decline among the elderly, illiterate, lower income earners in contrast with the younger, well-educated and high income earners. The application of the TAM has helped to confirm that age, education, earnings and race are associated with belief in the importance of information, and belief can influence attitudes towards and use of skills that will enhance access to information.

In the opinion of Davis (1989:320), the creator of the TAM, the two important variables, perceived usefulness (PU) and perceived ease of use (PEOU), influence the perception determining the adoption of technology, and are suggestive of user intention to develop new skills. The extent of the acquisition of new skills can be affected significantly by both extrinsic and intrinsic motivations (Davis, 1989:320). Extrinsic motivation refers to the performance of an activity because it is perceived to be helpful in achieving special outcomes that are different from the activity itself (Davis, 1989:320). In contrast, intrinsic motivation, Davis explains, refers to the performance of a task with no apparent reinforcement other than

the procedure of performing the activity *per se*. The reason why perceived usefulness is relevant to the acceptance of information literacy is that it is adopted first and foremost because it is instrumental in achieving specific objectives that are not inherent in the use of the skill itself. The underlying principle for each variable in the model is examined below.
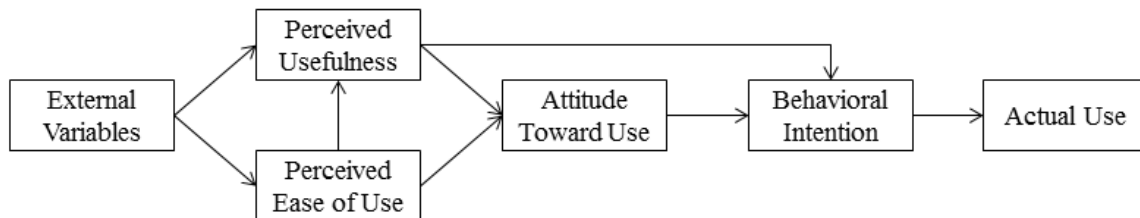
Figure 4:1. Technology acceptance model (Davis, 1986)

The two important foundations of the TAM, PU and PEOU, are illustrated above. The TAM makes available a succinct method to model the impact of external variables on people's beliefs, attitudes, and intentions. External variables refer to the elements outside an individual, for example, training, computer experience, quality of systems, etc. These fundamentally lead to attitudes towards the use of a particular technology and the ultimate use of the technology. Below, the TAM variables are explained.

4.2.1 Perceived usefulness (PU)

Access to information offers the possibility for improved human competence. Lombardi (2007:2) states that the acquisition of capacity to access authentic information is prevented by users' reluctance to accept and use available strategies and techniques to access the information. Perceived usefulness, according to Davis (1989:320), is the extent to which a person believes that using a particular method or technique would enhance his or her job performance or routine responsibility.

Davis (1989:320) believes that people are naturally reinforced for better performance by raises, promotions, bonuses and other rewards. The TAM undoubtedly presents value to many researchers because it has effectively demonstrated how such value can improve users' job performance. Perceived usefulness has proven to be a very important factor for technology adoption in most recent studies (for example, Yeh & Teng, 2012:525).

4.2.2 Perceived ease of use (PEOU)

Davis (1989:320) argues that perceived ease of use is the extent to which an individual considers that making use of a specific system would be effortless and hassle free; in other words, ease of use means freedom from complexity and trouble. Thus an application that is perceived to be easier to use is generally accepted and used by more people. Zhu, Linb and Hsu (2012:968) add that perceived ease of use signifies the degree to which an individual accepts that using certain technology would be effortless and hassle free. The system's characteristics can help the ease of use of technology, and system usage can equally lead to the acquisition of information literacy.

Nanthida (2011:13) enumerates certain factors that may influence the ease of use of modern resources, such as the characteristics of information resources, the job experience, technical equipment and support, etc. The following are the factors to consider when evaluating perceived ease of use: computer self-efficacy, perception of external control, Internet self-efficacy, computer anxiety, information anxiety, perceived enjoyment and objective, usability and intention to use.

4.2.3 External variables

Winarto (2011:16) confirms that there are many external variables that can be used along with the TAM that can be a pointer to methods that must be followed in the use and adoption of new skills. Winarto (2011:16) identifies more than 70 external variables that have been popularized to explain the procedure people go through in acquiring new skills. Yousafzai, Foxall (and) Pallister (2007:252) classify the variables into four categories, namely: organizational characteristics, system characteristics, user`s personal characteristics, and other variables.

Table 4.1: Variance of external variables

Organizational Characteristics	System Characteristic	Users Characteristics	Other Variables
Competitive environment	System design	Age	Cultural affinity
Users support	System operation	Cognitive ability	External computing

			support
Internal training	System maintenance	Information anxiety	Facilitating condition
Management support	System development	Computer anxiety	Subjective norms
Policy support	System auditing	Computer literacy	Social pressure
Organizational composition	Access cost	Educational level	Social influence
Peer influence	Interface	Experience	Argument for change
Training and development	Convenience	Gender	
	User friendliness	Intrinsic motivation	
	Information quality	Personality	
	System quality	Perceived enjoyment	
	Cyber security	Perceived playfulness	
		Self-efficacy	
		Tenure at work	

Source: Winarto (2011:17).

The four variables are quite applicable to IL skills as IL acquisition and application skills occur within a particular space/environment, largely within organizations, and depend on functional technology or machine interface and human capability and behaviour towards information access and use.

4.2.3.1 Information anxiety

Another factor that can affect the perceived ease of use is information anxiety as access to an overwhelming amount of information is a major challenge of the modern world, which is producing an information overload. Girard and Allison (2008:112), while recognizing the

global information overload, pose the following question: should the information epoch be overwhelmed by a sense of drowning in an ocean of information, or excited by new prospects arising from a better supply of information? As a result of the abundance of information, the problem of authenticity arises (Jungwirth, 2002:94). Information anxiety occurs as a result of information overload, which is a condition where the amount of information input exceeds the processing capacity of personnel, which can lead to poor decision making (Girard & Allison, 2008:112). The solution to this problem is Information literacy.

Ability to use technology comes with uneasy side effect which may occur during interaction with the use of new technology; this can lead to disappointment, uncertainty, irritation, nervousness and anxiety, these negative emotions can lead to lack of productivity in learning and social interaction (Saadé & Kira, 2006: 531). Appropriate use of technology in information use can reduce the problem of anxiety; evidently the knowledge of information literacy can help to reduce the burden of information anxiety.

4.2.3.2 Computer self-efficacy

Yussoff (2009:77) notes that many studies have been conducted to reveal the relationship between computer self-efficacy and technology acceptance as a psychological phenomenon. Computer self-efficacy is a determinant of acceptance of technology and perceived ease of use. Advances in computer technology and the diffusion of personal computers, productivity software, multimedia, and network resources have heralded the development and implementation of pioneering teaching strategies (Hong, et al., 2006:1819). Acquiring this knowledge, as explained by the authors, requires computer self-efficacy, which is a significant factor relating to achieving information and computer literacy skills leading to the ease of use of educational technology. Computer self-efficacy can be defined as confidence demonstrated by individuals in making the right choice of action necessary to meet specific requirements in situations that will lead to maximum benefit from the use of computer resources (Yussoff, 2009).

Kurbanoglu, Akkoyunlu and Umay (2006:731) hold that accomplishment is not only based on the acquisition of expertise; it also requires the assurance to use these skills well.

For any organisation to reap the full benefits and optimise the use of information resources, it is germane to accept the use of modern technology, as the acceptance or resisting of this technology so that the investment on the use of the modern facility by the establishment will

yield a good and satisfactory return and help the level of productivity (Mohamed & Al-Haderi, (2013:188). In view of this, technology self-efficacy is central determinants that influence the use and adoption of technology that drive information use.

4.2.3.3 Behavioural Intention to use

In the opinion of Walker and Pearson (2012:2), the intention to use and apply new skills is the willingness or extent to which an individual is consciously prepared to execute or not execute a particular action. Intention is a dependent variable that predicts the actual usage of a particular skill that will ultimately lead to attitude formation. One of the opinions that are constant among various models is that learners' intention to use a technology or embrace a skill that leads to the actual use of the skill and expertise (Ajzen and Fishbein, 2005) is important. Learners' participation, interaction with others and attitudinal change create a fertile ground for intention to use a new technology.

Perspective about personal ability to thrive in a set goal is dependent on the behavioural desire to achieve the objective. Individual differences in acceptance for information resources can lead to increased productivity (Mohamed & Al-Haderi, (2013: 189).

4.2.3.4 Computer experience

Computer literacy refers to the comfort level attained in using computer programmes and other applications that are associated with computers. A helpful component of computer literacy is the knowledge of how computers function (Liao & Pope, 2008), and it can also determine the perceived usefulness of a technology.

Many organisations invest in technology in terms of hardware, software and infrastructure to support information access and use efficiently and productively, However, appropriate experience in the use of the technology can lead to proper utilisation of the available resources, inexperience personnel can take poor usage decision leading to lack of productivity (Mohamed & Al-Haderi, (2013: 189). Therefore, suitable experience can correlate positively with the acceptance of modern technology.

4.2.3.5 System quality

The quality of systems and technology adopted must be capable of providing sufficient output quality that influences the users' perception of its quality (Nanthida, 2011:13). Certain factors determine quality technology support, namely: access to one-on-one personal

supervision and aid; frequent participation in a technology-oriented profession; support among peers; professional development content; focus on instruction and integration; and access to resources (Dexter, Anderson, & Ronnkvist, 2002:265). The authors argue that the quality of systems is capable of fostering a perception of the usefulness of the technology.

Quality of information systems can enhance interaction between personnel and resources, this can influence the acceptance of technology, undoubtedly, individual characteristics interacted with technology characteristics to influence technology acceptance, and the result will lead to relative advantage, result demonstrability and productivity in workplace (Al Haderi, 2014: 65).

4.2.3.6   Perception of external control

In the view of Nanthida (2011:13), external control is a function of available knowledge, ease of use of relevant resources, dexterity in the use of new skills and modern technology, and a proficiency that is required in carrying out a particular task. If learners have access to definite resources and have an increased knowledge base, the level of control in carrying out certain tasks will increase significantly.

4.2.3.7   Internet self-efficacy

According to Torkzadeha and Thomas (2002), internet self-concept is a fundamental concept that facilitates the understanding of technology acceptance, performance, and use. This quality may also be considered as a way to gauge the level of success in technology planning. Self-concept has positive implications for learning and development, especially in programme appraisal, change in behavioural patterns, relationships between others, management of human resources, innovation and even fear (Torkzadeha & Thomas:2002).

The information age enables overwhelming amount of information that is readily available through the use of internet technology at a very high speed, this new innovation has continuously pushed the need for technologies and acceptance of these technologies at an accelerating rate, therefore organisations should promote activities that will enhance internet self-efficacy of the workforce to facilitate productivity and give them competitive advantage in information use and access (Kripanont, 2007).

4.2.3.8   Computer anxiety

Fear, apprehension and anxiety about using computers tend to increase antipathy in learners and deter interest in personal development. In the opinion of Dupin-Bryant (2002), the complication in computer-human interactions can trigger a multiplicity of emotional reactions, including anxiety. Anxiety or nervousness regularly occur when new knowledge is being acquired. Dupin-Bryant (2002) holds that inability to adapt to change and resistance to transformation can adversely affect cognitive performance. This fear may be a result of the unpredictability of computers, public display of ignorance, and threat of failure which may impair learners' attitudes and be unfavourable to learning.

Computer anxiety has been recognise as individual characteristics that affect users perception and influence perceived ease of use, especially during the early adoption of new technology. Therefore, the lower the level of computer anxiety of an individual the higher the level of human-machine interaction (Shih & Huang 2009: 263).

4.2.3.9   Perceived enjoyment and objective usability

Perceived enjoyment and objective usability refer to how functional and usable a system is and the effect it has on perceived ease of use. Objective usability and perceived enjoyment influence a user's perception of a system's ease of use (Nanthida, 2011: 24).

Perceived enjoyment is considered as the degree to which the exercise of using technology is perceived to be enjoyable, this plays important role in users' acceptance and has implication for productive use of information resources (Sun & Zhang, 2006: 618). The authors further stated that the acceptance of technology that drives information access can increase the success in job output.

4.3   Criticism of technology acceptance model

TAM is a theory that has been extensively used in information system (IS) research, but the model has a number of limitations (Chuttur, 2009:17). Chuttur states that scholars are doubtful about the application and theoretical precision of the model, so research on the TAM may have attained a saturation stage. This means future research may focus on developing new models that would take advantage of the strengths of the TAM but discard its weaknesses, as noted recently by the increasing popularity of the unified theory of acceptance and use of information technology (UTAUT) (see Venkatesh, et al., 2003).

Khan and Woosley (2011:713) identify certain noticeable limitations of the TAM and conclude that most of the studies validating it involved students in academic, not business, environments. The types of application studied were predominantly introduction of office software or development rather than business applications, and the problem of self-reporting. The TAM measures the variance in self-reported use, which is not necessarily precise. Factors measured in the adoption of information technology are influenced by organizational dynamics that are not included in the TAM, which studies only 40% of IT usage. Khan and Woosley (2011:713) recommend that there is a need to expand the TAM to embrace social and human factors.

The TAM is also inadequate in explaining technology adoption by ignoring the societal influence that dictates technology adoption. It is not enough to examine the adoption of technology from an individual perspective because environment, exposure, society and economic status in the vicinity where technology is exposed to individuals can collectively affect adoption and use (Bagozzi, 2007:212).

The TAM has been generally criticized, and the limitations observed by many researchers have initiated the development of an extended model to make up for its deficiencies. Priyanka and Kumar (2013:147) observe that the theory includes questionable heuristic value, limited explanatory and predictive power, triviality, and lack of any practical value". Other researchers, like Benbasat and Barki (2007:215), have criticized the TAM for not being able to accommodate and adapt to the frequently changing IT settings and this has led to theoretical chaos and confusion.

4.4 Implications and applications of TAM in LIS research

In the profession of library and information studies, many researchers (for example, Hicks, 2011; Meier, Ben & Schuppan, 2013; Khalil, 2013, Sever & Güven, 2014;) have revealed that contemporary information resources are grossly underused in many academic organizations, leading to colossal financial loss and professionals performing below the necessary productivity quotient. In view of this, many technology acceptance theories and models have been developed to study and evaluate the nature, use and adoption of information technology as it relates to information use and deployment.

The TAM has been used by researchers worldwide to understand the acceptance of various types of information system. The gap in the research of TAM is discussed. Regardless of the wide application of the model in many areas (Teo, 2013; Chung-Kuang, 2014; Sebetci & Aksu, 2014 Wann-Yih & Ching-Ching, 2015) focusing on online shopping behaviour, business intelligence systems, teachers' intention to use technology respectively. Technology Acceptance model has been comprehensively used in various studies some of which are outlined on table 4.1.

Table 4.2: Use of Technology Acceptance in other Studies

Author (s)	Studies
Aypay, Çelik, Aypay (and) Sever (2012)	Technology Acceptance in Education: A Study Of Pre-Service Teachers In Turkey.
Ducey (2013)	Predicting Tablet Computer Use: An Extended Technology Acceptance Model
Garg and Garg (2013)	An Assessment of 3G Internet Service Acceptance in Botswana: Technology Acceptance Model with Social Influence and Price Perception
Holden and Karsh (2010)	The Technology Acceptance Model: Its Past and Its Future In Health Care
Jiang, Chen and Lai (2010)	Technological-Personal-Environmental (TPE) Framework: A Conceptual Model for Technology Acceptance at the Individual Level.
Khan and Woosley (2011)	Comparison of Contemporary Technology Acceptance Models and Evaluation of the Best Fit for Health Industry Organizations
Priyanka and Kumar (2013)	Understanding the evolution of Technology acceptance model

Teo, Ursava and Bahcekapili (2011).	Efficiency of the technology acceptance model to explain pre-service teachers' intention to use technology
Wann-Yih and Ching-Ching (2015).	An Online Shopping Behavior Model Integrating Personality Traits, Perceived Risk, and Technology Acceptance. Social Behaviour and Personality
Winarto (2011)	Analysis Effect of External Variables on System Usage and User Satisfaction Using Technology Acceptance Model (Empirical Study on Bank Pekreditan Rakyat in Semarang City Region)
Yusoff, (2009)	Individual Differences, Perceived Ease of Use, and Perceived Usefulness in the E-Library Usage. Journal of Computer and Information Science.
Zhu, Linb, and Hsu (2012)	Using the technology acceptance model to evaluate user attitude and intention of use for online games

Table 4.1 based on recent studies reveal that TAM is increasingly popular in information science research. However, studies focusing on its application for IL studies in Africa are limited.

Despite the increased use of alternative sources and technologies to access and use information, libraries and indeed the LIS profession are poised to play a crucial role in academic institutions to support teaching, research and learning. Information literacy is

fundamental for enabling learning and research achievement to occur. Holden and Karsh (2010:157) and Zak (2014:23) recognize the importance of IT for the LIS profession as it places the profession in a position of knowledge navigators and change agents that will meet the specialized needs of clients. Holden and Karsh (2010:157) notice that for this reason, it is important for the LIS profession to embrace cutting edge technology tools and techniques. Zak (2014:23) holds that even cell phones have larger computing resources than a computer, and virtual reality has become common in LIS literature. This implies that it is important to re-engineer and reinvigorate the teaching and learning outline in a manner that will accommodate the use and adoption of new technology. This will also foster the ability of the profession to adapt to educational change.

Mutula (2013:89) considers that the field of LIS has transformed extensively, and this has led to the change in nomenclature from library studies, or library and information science, to information science, information management and knowledge management to reflect the contemporary reality. This change in information management has also affected the job descriptions and job specifications of LIS professionals to reflect new realities (Chikonzo, et al., 2014:107). There is no doubt that the LIS curriculum where IL belongs has to accommodate the rapidly changing information environment and embrace ICT in the LIS content, teaching and learning in order to bring all the actors on board and prepare for current information access challenges.

Many studies have been conducted to evaluate the effects of modern technology. Singh and Pinki (2009) observe that the current LIS professionals are under threat owing to the increasing use of ICT technology. Zak (2014:23) identifies the effects of augmented reality (AR) technology in LIS's professional ability to serve users and organize information, and notes that the technology will enhance user experience, which can lead to assessment of user behaviour, response, and observation of technologies. Bilandzic and Johnson (2013) see the library as a place that has to transform from a physical place to a digital environment, and consider the implications for the profession. They also recognize that combining social, spatial and digital space can advance the connected knowledge experience among on-site visitors. Nastasie (2012:271) presents a general overview into the research potential of LIS, emphasizing the significance of ICT in teaching and practice. However, the author decries "lack of opportunities to apply the acquired knowledge in practice and the need for 'sustainable, attractive and relevant' programmes, competitive on the international market."

The TAM is of particular interest to LIS professionals because it helps to enhance their desire to adopt and use information technology (IT) which is the dominant technology of contemporary society, and has elevated the importance of theories that predict and explain IT acceptance and use.

From the earlier evaluation, it is apparent that the TAM has had extensive relevance in explaining ILS professionals' response to IT use and adoption. The constant use of the TAM is justifiable, especially with numerous relationships specified by the TAM continually validated in the information profession.

In view of the above observation, it is important that LIS professionals adopt the TAM to get the profession equipped with the new technology. The variables that influence the attitude and mind-set necessary for the use and acceptance of technology are: perceived enjoyment and objective usability, information anxiety, computer anxiety, Internet self-efficacy, perception of external control, computer self-efficacy, system quality, computer experience, user training and intention to use.

4.5 Summary

The changing information environment calls for the appropriate use of modern technology because technology has become a tool that promotes access and uses up to date information resources to advance productivity and development. This chapter has incorporated variables from four elements – organizational characteristics, system characteristics, users' characteristics and other variables – to explain the procedure necessary for acquiring new skills. In the 21st century, efficient access to and use of information resources depends on the ability to effectively use the apparatus of Information technology. The inability to demonstrate expertise in this area can lead to resistance to technology which has been acknowledged as the main impediment in embracing new technology. This can lead to many organizations investing in the new way of doing things, and yet it will be underused by workers. Understanding technology acceptance will lead to better prediction of the use of new information resources.

The study shows that confidence in the use of technology can lead to increased personal control, flexibility and competent use of information. Increased knowledge can lead to better productivity. The study also shows that the inability to control and accept the use of new

technology can be overwhelming, which may ultimately lead to anxiety that will enfeeble the making of decisions.

Supplementary appraisal of this study is suggested to empirically test the validity of the external and internal variables in information literacy skill, especially as professionals show evidence of resistance to the use of technology to access information resources. The researcher believes this will lead to better prediction of the use of information.

The next chapter presents the research methodology.

5.0   Introduction

This chapter presents the study's research design and methodology, research instruments, and sampling and data analysis techniques. According to Dawson (2002:2), when a researcher sets out to study or find answers to pertinent questions, it is expected that such activity be conducted with a set of philosophies which must be time-tested in order to guarantee the validity and reliability of the outcome. Academic research should be designed to be unbiased and objective for the result to be acceptable as part of the body of knowledge. Rajasekar, Philominathan and Chinnathambi (2006:1) consider that research is expected to be based on sound reasoning, consistency and systematic examination of facts based on a particular subject matter. The researchers say that research is an investigation and attempt to find solutions to scientific and social problems through objective and systematic analysis of reality, and a search for knowledge, which means it is an attempt channelled towards the discovery of hidden truths. According to Kothari (2012:2), the aim of research is to find out the truths, facts, realities and certainties which are hidden and which must be unveiled.

5.1   Research methodology

A research methodology is considered by Phophalia (2010:1) as an effective aid towards solving social and economic problems. The author stresses that research is an intellectual work undertaken with the objective of advancing the frontiers of human knowledge and abilities; therefore the method adopted by researchers should be objective, logical, systematic and scientific in order for the result of the research to be meaningful and lead to the development of generalizations, principles or theories, resulting in prediction and possibly ultimate control of events. Knowledge that is created in the scientific field mainly depends on the methodology adopted and followed. The evaluation of research processes used by researchers is pertinent because it can help to spawn new knowledge and authenticate it (Ngulube, 2015:125). Methodology is vital to the research method, since it is considered as a lens through which a researcher gazes when making assessments about social phenomena, and getting answers to the research questions (Ngulube, 2015:127).

Methodology is an organized, academic investigation of the methods used in a piece of research, which contains theoretical evaluation of the methods and philosophy related to a branch of knowledge. It also includes concepts such as paradigm, theoretical model and quantitative or qualitative techniques. Methodology does not provide solutions but offers a theoretical foundation for understanding which method, or set of methods, is best practice, and how it should be applied in different cases (Irny & Rose, 2005).

A research paradigm is related to a methodology in the sense that it is a constructive framework that satisfies the criteria for methodology. A paradigm is an algorithm that is constructed on a logical foundation rather than a physical array of connected elements (Kuhn, 1970).

5.2   Postpositivist research paradigm

According to Johnson and Christensen (2005) in William (2012), a research paradigm is a point of view that is based on a set of shared assumptions, hypotheses, values, concepts and practices. *Paradigm* can also be defined as a function of how researchers view the development of knowledge. A research paradigm is an arrangement of two ideas that are linked to the nature and scope of the world and the function of the researcher. It helps the researcher to conduct the study in an effective way (William, 2012:1). A paradigm is a philosophical and theoretical framework of a scientific school or discipline within which theories, laws and generalizations and the experiments performed in support of them are formulated (Merrian-Webster, 2013).

Post-positivism, sometimes referred to as postempiricism, is a philosophical standpoint that embraces neutrality and objectivity by being aware of the possible effects of biases, and also acknowledges that the theories, background, knowledge and principles of the researcher can affect what is observed (Alexander, 1995).

Postpositivism is a modification of positivism, which is an ideology that evolved from criticism of logical positivism. Postpositivism reinforces the limitations of positivism in the area of ontological realism, objective truth and experimental methodology (Trochim, 2006). A postpositivist research paradigm presupposes that knowledge can be acquired not necessarily through scientific method, but hypotheses can be generated through inductive reasoning, which is a logical thinking pattern where a conclusion is drawn from various premises (McGregor & Murnane, 2010:6). In this case hypotheses are generated by

application of logical reasoning. Postpositivism includes constructivism/interpretivism and the critical/ideological as two supplementary paradigms which will assist researchers in getting acceptable results that are unbiased, value-laden and objective. This research process is carried out within the human community on a daily basis within their natural environment rather than an experimental setting (McGregor & Murnane, 2010:6). Postpositivist research investigates epistemology and human understanding, and how perception is formed about a social phenomenon. Examining the epistemology entails a critical look at certain underlying assumptions (Ryan, 2006:18). Postpositivists are also supported by a deterministic philosophy in which causes determine effects. The problems postpositivist researchers study require the identification and assessment of the causes that influence a particular outcome. precisely as takes place in scientific experiments (Creswell, 2008:7).

Postpositivism is grounded on epistemology which is a philosophical viewpoint that investigates the nature of reality, the relationship between a researcher and what can be known, the hypothesis that changes the method of knowing and the achievement of findings, the prospect of that procedure being shared, and repeated research to assess the quality of the original research and the trustworthiness of its findings (Moriarty, 2011).

The pragmatist school of thought holds that situation and circumstances can go a long way to determine the research paradigm. The proponents of this approach hold that various research methods can be used collectively with a postpositivist or positivist paradigm (Lancy, 1993). Punch (2005) encourages the use of quantitative and qualitative methods as a justifiable research approach in the social sciences.

Paradigm has been described by Neuman (2011:81) as a whole system of thinking that includes fundamental assumptions, the vital questions to be answered or puzzles to be solved, and the research techniques to be adopted.

The interpretive researcher relies on qualitative data collection methods and scrutiny, or a combination of both qualitative and quantitative methods (Mackenzie & Knipe, 2006). This is a concept of meaning that examines conversation, words or pictures in order to discover the deep or inherent meaning. It seeks to interpret the social world through a direct, close contact with individuals with the intention of developing an understanding of how parts relate to a whole. In other words, it is a detailed study of the interaction of people in their natural environment. The reason for this is to enable researchers to understand how people cope with

daily activities in terms of how meaning is constructed in their natural setting (Neuman, 2011: 82).

This study will use both qualitative and quantitative research methodologies, otherwise known as triangulation. Hussein (2009:2) explains that triangulation is the use of multiple techniques, essentially qualitative and quantitative methods, in learning an identical phenomenon or observable fact, so as to get a deeper understanding and increase the credibility of a study. In this research interviews and observation were embarked upon among secondary school libraries in Lagos in Nigeria, and Durban in South Africa. Content analysis was done to ascertain the extent and gap in the subject matter through literature review and document study.

Merriam (2014:2) reveals that a qualitative, interpretive, or naturalistic research paradigm describes the procedure appropriate for collecting and analysing data. He states that qualitative inquiry concentrates on meaning in context, which necessitates a data-collection instrument that is responsive to fundamental meaning when gathering and interpreting data. Humans are suitable for the task, particularly as interviewing, observing, and analysing are required for qualitative research. Qualitative research is aimed at finding answers to questions like: Why? How? In what way? Qualitative research is concerned with the opinions, perception, experiences and feelings of individuals producing subjective data (Hancock, 2009:6). It also describes social phenomena as they happen naturally. No attempt is made to manipulate the situation under study as is the case with experimental quantitative research. This is a way to understand situations through a holistic perspective (Hancock, 2009:6). Moriarty (2011:2) asserts that qualitative research data collection techniques generally involve close communication between the researcher and the research participants, which allows for emergent issues to be explored.

Merriam (2014: xi) discloses that the level of interaction between interviewer and respondent will determine the success and the outcome of the interview. The author further stated that the importance of the record and evaluation of interview data, and also upholds the importance of the interview, which will give the researcher the opportunity to obtain a direct or eye-witness account of the phenomenon, rather than have to interpret an account obtained by others.

In the opinion of Joubish, Khurram, Ahmed, Syeda (and) Haider (2011:2083), qualitative research is a broad term for exploratory methodology expressed as ethnographic, naturalistic,

anthropological, field or participant observer research. It promotes the significance of carefully looking at variables in the natural environment. In this case, the relationship between variables is important. Comprehensive data is gathered through open-ended questions that provide direct answers. The interviewer is an essential part of the investigation (Joubish, et al., 2011:2083).

In the opinion of Sukamolson (2007:2), quantitative research is the numerical account and manipulation of observations for the purpose of unfolding and explaining the phenomena that those observations reflect. Sukamolson (2007:2) classifies quantitative research as survey research, correlational research, experimental research and causal-comparative research, with each type having its unique characteristics. Most quantitative research categorizes three types of primary research as exploratory, descriptive and explanatory. In a quantitative research method, a questionnaire is regularly used to collect information from the target population. Closed- and open-ended questions and multiple choice questions can be asked to elicit responses that most nearly provide the responses to a statement or item (Wisker, 2011).

The use of qualitative and quantitative data can help researchers to get closer to reality and truth, because the limitations of one approach, i.e. qualitative data, can be fortified by the introduction of data by another, i.e. qualitative. The integrating of the two approaches will lead to better understanding of a social phenomenon – the evaluations of both quantitative data through questionnaires, and qualitative data through interviews and observation (Greene, Caracelli & Graham, 1989).

In view of the discussion above, a quantitative approach was used in the present study because of the large target population; qualitative research was deemed suitable because it is cost-effective in money and time, with only a sample of the population being used; and the result was used as a basis for generalization. Furthermore, quantitative research was used to enable the researcher to test the hypothesis by comparing dependent and independent variables, and find solutions to various research problems relating to the information literacy skills and personal abilities of secondary school teachers in Lagos and Durban. To ensure the objectivity of the study a qualitative approach was used. The study adopted post- positivism as a methodology that encourages the combination of quantitative and qualitative research. The literature confirms that post positivism supports methodological triangulation in which more than one method can be used as a source of data collection.

In the next section, the types of primary research are discussed and their use in this study explained.

5.2.1   Descriptive research

Descriptive research is used to acquire information relating to the existing status of phenomena to describe "what exists" with reference to variables or conditions in a situation. The methods involved range from the survey, which describes the status quo, the correlation study, which investigates the relationship between variables, to developmental studies which seek to determine changes over time (Oklahoma State University, 1997).

5.2.2   Explanatory research

Explanatory research takes a closer look at the nature of certain relationships. Hypothesis testing provides an understanding of the relationships that exist between variables. It also enables definitions of key variables, and key relationships are also defined (Harvard University, 2013).

Kellea (2006:293) states that the choice of combining quantitative and qualitative research methods is primarily determined by research questions. It is done so as to balance and compensate for mutual and overlapping weaknesses. The author emphasizes that it can also provide joint validation of research data and findings, and enables more rational and coherent representation of the investigation than mono-method research can yield.

5.3   Research Method and Design

5.3.1   Survey research

This study has employed the survey research method in order to collect data on the information literacy skills and personal abilities of secondary school teachers in Lagos and Durban. A post positivist research paradigm is employed for this study because it supports both qualitative research (interviews and observation) and quantitative research (questionnaire), thus enabling verification of the data. This procedure is also referred to as triangulation, which is a method that aids validation of data by confirmation and authentication of research results from two or more sources (Bogdan & Biklen, 2006).

Redmond (2009) stated that survey research is a technique of gathering data in which people are asked a series of questions, generally in the form of a questionnaire. The dependability

and reliability of a survey's results depends solely on whether the sample of people from which the information has been collected is not biased and sufficiently representative. The reason for a survey is to generate statistics that are a quantitative or numerical description of the study population. The method of obtaining a response is by asking questions relevant to the objectives of the study, which will later be analysed. Information is drawn from only a fraction of the population rather than the entire population (Fowler, 2014:1).

5.3.2 Case Study Research

A case study research method is used when a researcher addresses either descriptive or explanatory questions. It sheds light on a particular situation and helps acquire a better understanding by exposing the researcher to direct observation and collect data from natural settings (Yin, 2004:2). According to Rose, Nigel & Isabel (2015) a case study research design is often used to investigate one or more specific occurrences like, comprehensive study of a small population, when data is collected and analysed about large population, a real life context where causal relationship exist, where cases naturally occur in the sense that they are not manipulated, and also a case study research is used when multiple sources of data collection method are required which include observation, interview and content analysis is required to ensure triangulation of research findings.

There are single and multiple case study research with focal point of answering "how" and "why" question, when behaviors of those involved in the study cannot be manipulated and boundaries between phenomenon and context remain unclear (Baxter and Jack, 2008:545). Bengton (1999:3) maintains that the method is used to achieve robust results, and make comparative analysis of social group possible. This research uses multiple case study research design that enabled deeper understanding of IL in sampled secondary schools in Lagos and Durban. It was assumed that the two cities would reflect some similarities and differences in the sampled schools in terms of demography, resources, literacy, education policy, information access including the variables and themes represented in the study objectives (see 1.7). According to the Lagos State Literacy Survey (2011: 13) nine out of every ten residence of Lagos can read and write which signifies 90% literacy level on one hand while EThekwini Municipality also known as Durban is considered officially as grade A municipality, with literacy level of 64% from grade 7 above (sources: http://www.durban.gov.za). Furthermore, other aspects of ILS was discussed in details about Lagos (see 2.3.1) and Durban (see 2.8), policy framework about ILS in Lagos (see 2.3.2) and Durban (see 2.7.1), manpower and

human resources about Lagos (see 2.3.3) and Durban (2.7.2), financial planning and budgeting relating to Lagos (see 2.3.5) and Durban (2.7.3) the availabilities of information facilities relating to Lagos (see 2.3.5) and Durban (see 2.7.4) and finally method of information access about Lagos and Durban were discuss with the view of exposing similarities and dissimilarities (see 2.11).

Mobile technology now provides access to the internet; Nigeria and South Africa remain Africa's largest Internet markets, regardless of this web-enabled mobile, handsets are expensive above the financial capacity of many household (Gordon, 2011).

Interviews, questionnaires and observation have been used for data collection from the two cities. Multistage sampling technique was used in the first instance to purposively select samples from the two cities of Lagos and Durban in order to make comparisons. The second stage involved stratified random sampling, and the third stage applied simple random sampling. For detail explanation of sampling procedure (see 5.10).

5.4 Study area and population

The target population in a survey represents the entire unit for which survey data can help to draw inference and deduction. The target population provides the findings from units from which generalizations can be made. Ascertaining the study objectives is the first stage in designing a survey, and targeting a population is the second step. In any survey, the target population must be defined because it determines the eligibility or ineligibility of the survey (Cox, 2008).

Secondary school teachers in Lagos State, Nigeria, and Durban, KwaZulu-Natal Province, South Africa were selected for the population of this research. Lagos is a densely urban state, fairly reflective of the disparity in Nigeria, and Durban is a highly populated urban centre. This research targeted 8 329 teachers from 298 schools in Lagos, and 4 887 teachers from 141 schools in Durban. As a consequence of difficulty in reaching the entire population, through shortage of funds and time, the respondents were selected using a multistage sampling technique from six educational districts in Lagos, and four administrative circuits in Durban. Lagos and Durban were selected because they are urban, industrial centres, and port cities with the busiest harbour in the two countries, responsible for the diversity of the population. As a result of the business activities in the two cities they also have well established educational institutions responsible for the manpower development of their areas.

5.5 Sample and sampling technique

Sampling is a process of drawing a representative group of individuals or cases from a particular population. Sampling and statistical inference are used in circumstances in which it is impractical to obtain information from every member of the population (*Encyclopaedia Britannica*, 2010).

5.5.1 Sampling

Sampling refers to a key technique or method of collecting representative data or observations from a large population or group in such a way that it will be thoroughly examined to estimate characteristics or make accurate generalizations of the whole. This is done primarily for the purpose of identification and assessment. Sampling can be divided into two processes: probability and non-probability sampling (Neuman, 2011:219). The sample method entails taking a representative selection of the population and using the data collected as research information. A sample is thus a subgroup of a population (Latham, 2007:1). In the explanation of Barreiro and Albandoz (2001), it is impractical and unrealistic for a researcher to circulate questionnaires, interview or observe the entire population of a given country. This adventure would require a lot of effort in time and resources and besides, it is complicated to get to each and every member of the population. For instance some may be in hospital, or have travelled to distant places. In these circumstances, it is cost-effective and convenient to interview a sample of the population, chosen in an appropriate manner so as to draw conclusions that will be representative of the whole population.

5.5.1.1 Probability sampling

Probability sampling is the selection of samples from a group based on random choice or chance. It is the one in which each sample has the same probability of being chosen. The main justification for this approach to research is that it saves time and cost, and is largely accurate if properly conducted (Neuman, 2011:224).

Simple random sampling

This serves as a model for other sampling techniques, and is based on a mathematical procedure. It remains one of the easiest and most common methods of sampling technique, where an exact sampling frame is developed and elements are selected to make up the

sample. It is done in such a way that every member of that group has an equal opportunity of appearing in the sample or in any position (Neuman, 2011:227).

Systematic sampling

This is a kind of random sampling that randomly selects elements available in the list. It requires the researcher to develop a selection method known as quasi-random system sampling. By numbering every element in the sampling frame the researcher calculates a sampling interval (Neuman, 2011:230).

Stratified sampling

This is a method that splits the target population into subgroups or strata, then a random sample is selected from each stratum. This method is much more reliable than random sampling in the sense that the samples are more representative of the population if each stratum is accurate. This method is used when the researcher needs to highlight a small percentage or subgroup of the population (Neuman, 2011:231).

Cluster sampling

This is a method in which the targeted population is divided into clusters or groups which are randomly selected. Cluster sampling is used when the study has to do with a geographically dispersed population (Neuman, 2011:233).

Multistage sampling

Brady (2010:1) says that multistage sampling is a relatively intricate and complex form of cluster sampling and design features for a variety of reasons (for example, cost efficiency). Cluster sampling is a kind of sampling which involves dividing the population into groups (or clusters). One or more clusters are selected at random, and everyone within the chosen cluster(s) is sampled. Using all the sample elements in all the selected clusters may be too expensive, and time and energy consuming. In a situation like this, multistage cluster sampling becomes valuable. Instead of using all the elements contained in the selected clusters, the researcher randomly selects elements from each cluster. For purposes of estimating sampling variants based on complex multistage sample designs involving stratification and cluster sampling, the sampling error codes provided by survey organizations in public use survey data files often assume "ultimate cluster selection" of individuals from

primary sampling units (PSUs), possibly based on multiple stages of sample selection (e.g., countries as PSUs, area segments within countries, households within area segments, and individuals within households) (Brady, 2010:1).

5.5.1.2 Non-probability sampling

Non-probability sampling is adopted when it is crucial to obtain a sample from an unknown and unidentified (hidden) population. It is frequently the case that the study population cannot be known in advance or, more usually, that no up to date and complete list is available from which a sample can be derived. In quantitative research, it is considered less rigorous because bias may inadvertently be introduced, making the sample unrepresentative of the total population (Gerrish & Lacey, 2013:114).

Convenience sampling

As the name implies, convenience sampling is a sampling technique in which cases are selected just because they are convenient. However, the results from such cases may misrepresent the population, and thus cannot be used as an accurate generalization of the whole (Neuman, 2011:220).

Quota sampling

This is a modernized version of the convenience sampling technique, where the researcher identifies relevant groups in the population, and decides the number of elements in each group even though the number of elements in each group is fixed. In quota sampling, representing all population characteristics accurately is difficult (Neuman, 2011:221).

Snowball sampling

This is the kind of technique used when the researcher finds it difficult to locate members of the study population. The researcher collects data from the few participants of the target population he is able to locate, and then asks them to suggest other members who belong to the target group since there is a direct or indirect link between them. This technique is primarily used in hard-to-track populations, for instance prostitutes, drug addicts, etc. (Neuman, 2011:222).

Purposive sampling

This sampling technique serves special or unique cases. It is useful in a situation where the researcher needs to reach the target group as quickly as possible. It is selected based on the purpose of the study and knowledge of the population. That is, cases are selected with a specific purpose using the judgement of an expert (Neuman, 2011:222).

The sampling technique used for this study is probability sampling based on a quantifiable unit of the population. The selection of samples was in three stages: the first was stratified random sampling, and the second and third stages were simple random sampling.

5.5.2 Sampling procedure

A sample of six local governments was selected from 20 in Lagos State using stratified random sampling in which all the local government areas were split into subgroups. These are called primary sampling units (PSUs). To do this, Lagos State was divided into six educational districts (EDs). The first-stage sampling was to select one local government out of three or four local governments in each educational district (ED).

A sample of four circuits in Durban was selected from 16 wards using stratified random sampling in which all the districts were split into PSUs. To achieve this, Durban was divided into four administrative circuits (ACs). The first-stage sampling was to select one ward out of four in each administrative circuit. The second-stage sample comprised a few secondary schools chosen at random from all the schools in selected local governments in Lagos and wards in Durban, and the third-stage sample was a selection of a few teachers out of all the teachers in selected secondary schools. Simple random sampling was used for the selection of two secondary schools in each educational district and administrative circuit in Lagos and Durban respectively; at the end of the selection 12 schools had been selected in Lagos and eight in Durban.

The selected secondary schools, called the secondary sampling unit (SSU), were named separately, placed in a bowl and thoroughly mixed; a blindfolded researcher then selected 20 numbers which were included in the sample. All the responding units (teachers) in each SSU were given the questionnaire to fill in.

Table 5.1: Number of schools selected from each educational district and administrative circuit

Educational Districts	Name of school	Sample size	Population of teachers	%
Lagos				
District 1	Tomia Secondary School	21	30	70
	Akinyele Secondary School	17	28	60.7
District 2	Archdeacon Adelaja High School	25	32	78.1
	CMS Girls' High School	14	35	40
District 3	Lafiaji High School	16	21	76.1
	Okesuna High School	13	21	61.9
District 4	Surulere Ideal Girls' High School	13	52	25
	Obele	18	20	90

	Community High School			
District 5	Awori Ajeromi Grammar School	16	32	50
	Amuwo Odofin Grammar School	12	19	63.2
District 6	Ikeja High School	22	51	43.1
	Agidingbi Grammar School	6	22	27.3
	12 Schools	193	363	53.2
Administrative Circuits **Durban**				
1	Queensburgh Secondary School	22	35	62.9
	Damorosa Pre-vocational Secondary School	12	30	40
2	Hunt Road Secondary	16	20	80

	School			
	Overport Secondary School	31	41	75.6
3	Ogwini Comprehensive High School	34	111	30.6
	Umlazi Commercial High School	21	37	56.8
4	Folweni High School	21	48	43.8
	Isolemamba High School	18	25	72
TOTAL	8 Schools	175	347	50.4
Grand Total		368	710	51.8

The category of teachers was drawn from government secondary school teachers in Lagos and Durban. Lagos State has 20 local governments and a total population of 8 329 teachers (Directory of public senior secondary schools in Lagos State). Durban is divided into four circuits representing 16 wards. Excluding primary schools, independent schools and combined secondary schools, the total number of secondary schools is 141, and the population of teachers is 4 887 (Department of education, 2010).

5.6 Data collection instruments

Scherman (2010) maintains that a data collection method is germane to modern research. An inexact or erroneous data collection approach can adversely affect the results of a study, and in due course lead to unacceptable results. Careful development of the research instruments is

important if unsatisfactory results are to be avoided. In view of this, questionnaires, interviews, observation and content analysis were used as data collection instruments.

5.6.1 Questionnaire

The questionnaire was divided into two parts. Part A captured the demographic profile of the respondents, which included age, gender, years of experience, academic qualifications, computer literacy level, use of library skills, awareness of electronic resources and knowledge of information literacy.

Part B contained queries that elicited information about how teachers perceived information literacy. A perception scale containing statements about information literacy was presented to respondents on a scale of 1 to 5, wherein 1 = SD (Strongly Disagree), 2 = D (Disagree), 3 = UD (Undecided), 4 = A (Agree) and 5 = SA (Strongly Agree)

5.6.1.1 Questionnaire design and construction

The introductory approach by the researcher made it clear that the information from the respondents would be treated with the utmost confidentiality. The questionnaire was designed to be completely devoid of prejudicial language, discriminatory statements, and assertions capable of misinterpretation.

5.6.1.2 Questionnaire administration

Bowling (2005:281) states that the main primary data collection instruments in social and epidemiological research is the survey questionnaire. The modes of data collection by questionnaire vary in their method of contacting respondents, delivering the questionnaire, and administering the questions. These variations can have different effects on the accuracy and quality of the data obtained.

The questionnaire was distributed by the researcher to secondary school teachers in Lagos and Durban, and collected directly from them. The researcher visited the research environment on several occasions to be able to collect a sizeable number of the questionnaires as a result of the inability of teachers to return them at the same time. For details of the questionnaire, see Appendix A.

5.6.2   Content analysis

Content analysis is a pragmatic method for analysing text, in a manner that exposes relationships among concepts and ideas that initially seem unconnected, and informs the decision-making processes associated with many technical communication practices and works of research (Thayer, 2007:267). Content analysis is a technique of qualitative investigation by which a researcher critically evaluates a document to bring out the real meaning of the subject matter (Hsieh & Shannon, 2005:1277). This research analyses journals, policy documents, books, speeches and interviews related to the subject matter.

5.6.3   Observation

According to the University of Strathclyde (2013), the advantage of observation is that it provides direct access to the social phenomena under consideration or review. Instead of relying on self-reporting such as an interview, one can observe and record the event as it occurs in a particular situation. In an interview or in response to a questionnaire, a person may not always provide accurate or complete information, or might answer in ways that correspond to what is socially desirable, or decide to hide the actual position or event for personal, social or political reasons. There is a recognized source of bias in self-reporting techniques referred to as a "social desirability set", which means that in many spheres of social life there are socially desirable ways of behaving, and, consciously or unconsciously, individuals will tend to respond in that way, although in the "real world" they might behave differently (University of Strathclyde, 2013).

Critical infrastructures that are important to the concept of information literacy among secondary schools were observed. The school authorities were aware of the observation schedule of the researchers, and personnel were allocated to guide the researcher to various facilities within the school library. The permission of the school librarian was sought to take pictures where necessary. The researcher was guided by the following observation checklist (see Appendix C). The physical environments of the secondary school libraries were observed to ascertain the availability of information resources that could promote information literacy among teachers.

5.6.4   Interview

Interviewing is a procedure of making inquiries by asking questions and receiving answers. Interviews can be one-to-one or with a group, and face-to-face, or electronic (via the Internet)

or over the phone. Interviews may be structured, semi-structured or unstructured. Notwithstanding the diverse types of interview, there are similarities and differences across the range (Fontana & Frey, 2008:119). Qualitative interviewing techniques assist researchers to scrutinize, document and record subject matter relating to the subject matter under review. The questions are usually open-ended, encourage free interaction, and give the opportunity for first-hand, eye-witness accounts on the theme of the research (McQuerrey, 2015).

Table 5.2: Schools and Library officials interviewed in the two cities.

SN	Secondary Schools	Designation	Qualification
1	Eva Adelaja High School, Lagos	Teacher-Librarian	BEd (History)
2	Ojota Senior Secondary school, Lagos.	Chief Clerical Officer	GCE (Advanced level)
3	Agidingbi Secondary School, Lagos.	Chief Clerical Officer	S75
4	Ikeja High School, Lagos.	Teacher-Librarian	Master's Degree
5	Durban High School, Durban.	School Librarian	Degree (Library and Information Science)
6	Queensbury High School, Durban	Media Centre Administrator	Matric (13 years of working experience)
7	Umlazi Commercial High School, Durban.	Teacher Librarian	Teachers Diploma and Advance Certificate.
8	Swelihle High School Durban	School Librarian	Degree (Library and Information Science)

The researcher was guided by an interview schedule checklist (see Appendix B).

5.10　Validity and reliability of survey instruments

The validity of survey instruments is the level to which an instrument measures what it is supposed to measure, and performs as it is designed to perform. It is uncommon for any instrument to be totally valid, so validity is generally measured in degrees. The validation of an instrument involves collecting and analysing data to assess the accuracy of an instrument. There are numerous statistical tests and measures to assess the validity of quantitative instruments, which generally involve pilot testing (Dewar College of Education, 2009).

The research instrument was given to professionals in the Department of Information Studies in the University of Zululand to ascertain the face and content validity. A pilot study was conducted before the main study so as to appraise the soundness and dependability of the research instruments. Alterations and adjustments to the questionnaire were promptly made based on the outcome of the pilot. The re-evaluation resulted in constructive criticism, modification and additions to guarantee that the questionnaire was suitable, and eradicate ambiguity and doubt. The research instrument was trial-tested among teacher-librarians in the University of Zululand, where 57 of them reacted to the instrument with useful responses. Cronbach's alpha technique was used to determine the reliability of the instrument. The instrument was also given to experts in research and statistical analysis to ascertain the face validity of the instruments before circulating them, and the result is shown below:

5.10.1　Reliability of instruments

The data collected were subjected to reliability coefficient tests variable by variable. The results are presented below:

Table: 5.3: Reliability coefficients of study variables

Sections	Information Literacy Skills and Personal Abilities of Secondary School Teachers in Lagos and Durban Questionnaire	
	Number of Items	Reliability coefficient (r)
Teachers' Information Literacy Skills Perception	12	.875
Teachers' Purpose of Need for	13	.892

Information		
Teachers' Information Access Ability	17	.686
Teachers' Information Evaluation Ability	10	.843
Teachers' Ethical Use of Information Ability	10	.864
Teachers' Information Literacy Skills	10	.753
Teachers' Information Resources Access Ability	20	.742
Teachers' Information Resources Use	17	.891
Teachers' Information Search Strategy Ability	8	.891
Teachers' Information Self-Efficacy	12	.786
Teachers' Metacognitive Abilities	32	.777

*All the items in each of the variables were found to be reliable.

The overall reliability coefficient when all the items in the questionnaire were taken together is .801 (r =.801). Thus all the items in the questionnaire were found to be reliable, and thus the questionnaire was trustworthy and dependable.

5.10.2   Pilot study

A pilot study, also known as a feasibility study or experimental trial, is a small-scale, short-term experiment that enables a researcher to learn how a large-scale project might work in practice. A high-quality pilot study provides a platform for a researcher to test logistics, prove value and expose deficiencies before committing huge resources or spending a considerable

amount of time, energy or money on a large-scale project (Rouse, 2013). The research instrument was pretested with the University of Zululand teacher librarians.

5.11 Ethical Issues

The research process was carried out in line with the approved data collection procedure. The permission of the appropriate authorities in the Ministry of Education Lagos, Nigeria and Department of Education, Durban, South Africa was sought in writing. For instance, Letters of permission to conduct research (see Appendix – D to G). Letter of ethical clearance (see Appendix - H)

The participants in this research were informed about the purpose of the survey, and that their confidentiality would be protected based on the information they provided. They were also advised that their participation in the survey was voluntary. Permission was sought from heads of various schools before the research instruments were given out.

The researcher travelled round all six educational districts in Lagos and the four administrative circuits in Durban to collect data and ensure its integrity and credibility.

5.12 Data presentation and analysis

Data were collected from teachers by making use of the survey questionnaire. A comprehensive interview was conducted with the school librarian or the officer in charge of the school library. The purpose of the questionnaire was to determine the information literacy skills and personal abilities of secondary school teachers in Lagos and Durban. The questionnaire was personally administered by the researcher with the help of research assistants in Lagos and Durban. The interviews and observation were done solely by the researcher. The reason for the comprehensive interview, observation and content analysis was to complement, authenticate and validate the results of the quantitative data, and deepen the scope and boundary of the study based on the interpretations from qualitative data acquired from the secondary school teachers, observation and document analyses. Secondary school teachers were selected because of the importance of information to their daily responsibilities. The conduct of the survey spanned the period from November, 2014 to June, 2015 in Durban and Lagos. The questionnaire was administered to the respondents in their own offices and staffrooms. Before the questionnaires were distributed the permission of the principals of the schools was sought, and in the few cases where the principal was not

available, that of the deputy principal. Some school principals graciously agreed to assist in the distribution and then collection after the completion of the instruments. This procedure was evidently advantageous as it helped to increase the responses. Regarding the comprehensive interviews held with 10 librarians or officers in charge, the researcher phoned to schedule an interview appointment. In most cases, the interview lasted for about 20 minutes. The completion of the questionnaire (368 were distributed) took barely 10 minutes. Some staff in charge of the library declined to use a voice recorder to capture the interview.

Data were presented and carefully analysed according to the subject matter that the questionnaire set out to elicit. The analysis of the quantitative data was done using the Statistical Package for Social Sciences (SPSS), which is a popular data analysis software for finding solutions to problems, bringing intelligibility and better understanding to any phenomena regardless of the level of complexity in different areas, and helping the decision-making process (Grecu & Ciobanica, 2014:375).

Responses from the interviews and observation schedules were analysed and evaluated using the content analysis approach. The interview questions were predominantly open-ended, offering the respondents the chance to ventilate their opinions on the question asked.

5.13 Hypothesis

A hypothesis is an educated guess, a tentative statement based on prior knowledge and observation about the relationship between two or more variables. It is a definite, testable prediction about what is expected at the end of research (Bradford, 2015:1) A good hypothesis should contain three basic elements: it should be based on the research topic, must contain testable variables, and must include independent and dependent variables (Cherry, 2014).

5.13.1 Hypothesis testing

This technique belongs to a realm known as inferential statistics; the ultimate goal of the research is to determine the validity of its claims. Carefully designed statistical experiments obtain sample data from the population. The data are in turn used to test the accuracy of a hypothesis concerning a population (Taylor, 2014). In hypothesis testing, there are two contra-hypotheses: the null hypothesis and the alternative hypothesis.

5.13.2   Types of hypothesis

The null hypothesis emphasizes that there is no significant relationship or difference between two sets of data or variable. When doing research, a researcher can either not reject the null hypothesis (suggesting that there is no relationship between the variables) or reject it (suggesting that there is a relationship between the variables) (Cherry, 2014). A null hypothesis is designated by Ho.

In a mathematical formulation of the alternative hypothesis there will typically be an inequality, or "not equal to" symbol. This hypothesis is denoted by either Ha or H1. The alternative hypothesis is what a researcher attempts to demonstrate in an indirect way by the use of a hypothesis test. If the null hypothesis is rejected, then the alternative hypothesis is accepted (Taylor, 2014).

5.13.3   Differences between hypothesis and research question

A research question is an extremely focused question that addresses one concept or component of the hypothesis, whereas the hypothesis itself is used to state the relationship between two variables (Nicole, 2012).

5.14   Challenges encountered in the course of the data collection

In spite of permission from the Department of Education, some principals of secondary schools completely declined access to their schools, and did not allow the researcher to circulate questionnaires or conduct interviews. The reason, according to them, was that participating in research can be a major distraction, the luxury of which they do not want to accord their staff.

Another setback that confronted the researcher was the unwillingness of respondents to fill in the questionnaire, which many of them considered to be too extensive. Regrettably this was inevitable owing to the wide-ranging nature of the research questions. SMS's and phonecalls were used as a form of reminder before visiting, but in some cases this yielded little result as the teachers claimed to be preparing for examinations. Some teachers lost their questionnaire, and the replacement did not offer any encouragement for them to fill it in and return it immediately. This was particularly the experience in Durban.

Reluctance to share honest opinion despite the assurance of confidentiality is based on the fear of politicians who prohibit teachers from making statements that may expose various lapses, especially during election periods. Some refused to be interviewed or be placed on record, others gave vague answers that ran contrary to the observable evidence, still others were hardly ever in the office. This was particularly surprising in that approval had been given by the Lagos State Ministry of Education, evidence of which was shown to them. This did not assuage their fear.

One of the major challenges encountered at the course of the fieldwork was the outbreak of ebola virus disease (EVD) in Lagos State between July and October, 2014. To curb the spread of the disease the state government embarked on a swift and vigorous response. As part of the plan, the government delayed the opening of schools as a strategy to prevent the outbreak of the contagious disease among students and teachers. This predicament was a serious setback to beginning the fieldwork in Lagos State. Even at the beginning of the research, nobody was permitted to enter the school premises without being tested by thermo-scan, a device designed to check the temperature, and it was also compulsory to disinfect one's hands. Despite all the precautions people are generally not receptive to migrants from other African countries.

5.15   Summary

This chapter has examined the research methodology of this study, using qualitative and quantitative research paradigms as a guide. The survey research method was employed to gather data from government secondary school teachers in Lagos and in Durban. The qualitative approach was used to elicit responses from schools. The chapter has given an in–depth account of the study area and population, which includes the location of teachers based on the six educational districts and 20 local governments, all in Lagos; and in Durban districts, four circuits and 16 wards that form the sample size of the research. The chapter has examined data collection instruments, which included questionnaires, interviews, observation, and content analysis of existing peer-reviewed articles. The merit of using a questionnaire was that it was tested on a small but related group, and the dependability, acceptability and validity assured before it was used on a large scale.

 The next chapter presents the analysis and interpretation of the data.

DATA ANALYSIS, PRESENTATION AND INTERPRETATION: QUESTIONNAIRE
RESPONSES

6.1   Introduction

The purpose of this study is to determine the information literacy skills and personal abilities
of secondary school teachers in Lagos and Durban. The preceding chapter presented the
methodology of this research by discussing the procedure followed, which includes the
selection of the population, the instruments used, the data collection method and the
technique of data analysis. This chapter presents the results of data analysis and interpretation
of the research findings obtained from secondary school teachers in Durban and Lagos based
on questionnaire responses. Information obtained from the respondents through survey
instrument administration and the data generated was collated, coded and analysed using
descriptive techniques such as frequency counts, percentages and cross-tabulations, and
inferential statistics such as Pearson product moment correlation and multiple regressions.
Statistical evaluation was also done to know the relationship between two or more variables
using t-test. Research questions 1 to 7 (RQ1-RQ7) were answered using descriptive
techniques of frequency counts, t-test, percentages in cross tabulation and Pearson product
moment correlation. The hypotheses were tested using a multiple regression technique at a
0.05 level of significance.

The chapter is divided into two parts, the first part discusses the profiles and characteristics of
respondents and the second part is divided based on the objectives of the study, namely, i) to
investigate teachers' perceptions about the need for information literacy in the
implementation of secondary school subjects' instruction, ii) to examine for what purposes
secondary school teachers need information to enhance their teaching ability, iii) to determine
the type of information resources that teachers need for teaching purposes, iv) to find out the
frequency of use of various information resources by secondary school teachers, v) to
investigate how the information search strategy of the secondary school teachers influences
their use and satisfaction with online resources, vi) to investigate the effects of self-concept in
the information literacy skills of secondary school teachers, vii) and to identify the
metacognitive abilities of teachers in the use of information resources in classroom
instruction.

6.2   Profiles/characteristics of the respondents

This segment involved respondents offering details of their biodata, particularly their gender, age, teaching experience, academic qualifications and location. This was done in order to know the respondents better and to establish the relationship between the respondents' demographic characteristics and the data being collected.

The respondents were selected from six educational districts in Lagos State and four administrative circuits in Durban, KwaZulu-Natal, as stated in the previous chapters.

Information on the gender distribution of respondents, as presented in Table 6.1, revealed that more female respondents in Lagos (116, 60.1%) and Durban (132, 75.4%) than male (77, 39.9% for Lagos) and Durban (43, 24.6%) participated in the survey. Table 6.1 also presented results on the age distribution of respondents. Most of the respondents sampled from both cities were 36 years old and above, with response rates of 123 or 63.7% for Lagos, and 113 or 64.6% for Durban. Further breakdown of the results of the analysis showed that there were more teachers aged 21-25 in Durban (13, 7.4%) than in Lagos (11, 3.7%). Also, slightly more teachers aged from 26-30 were found in Durban (21, 12.0%) than in Lagos (17, 8.8%). On the other hand, more teachers aged from 31-35 were found in Lagos (41, 21.2%) than in Durban (28, 16.0%), and more teachers were found to be 36 years old and above in Durban (113, 64.6%) than in Lagos (123, 63.7%). The age differences among the teachers surveyed from the two cities were insignificant.

Results of the analysis on the working experience of respondents as shown in Table 6.1 below revealed that more teachers in Lagos (46, or 23.8%) had worked for 1-5 years than in Durban, where 31 or 17.7% had worked for that time. Looking at the categories of teachers that had worked for 6-10 years, the analysis revealed that there were more teachers (46, 26.3%) that had worked for 6-10 years in Durban than in Lagos (41. or 21.2%). Also, more teachers (37, 19.2%) in Lagos had worked for 16-20 years than those in Durban (16.6%). The results of the analysis revealed that although there were variations in the working experience of teachers from Lagos and Durban, the difference within different age clusters between teachers from the two cities was insignificant. However, the overall results showed that most respondents from both Lagos and Durban affirmed that they had worked for 11 to 30 years, with 106 or 55.0% and 98 or 56.0% response rates respectively.

Information on educational qualifications possessed by respondents, as presented in Table 6.1, revealed that a larger proportion of teachers in both cities possessed a bachelor's degree, with 152 (78.8%) and 87 (49.7%) responding in Lagos and Durban respectively. The results of the analysis showed that most of the teachers from both cities possessed professional qualifications, with 136 (70.5%) and 105 (60.4%) responding in Lagos and Durban respectively. This indicates that teachers in secondary schools in both cities were professionally qualified to teach in secondary schools. There were variations in the terminology of qualifications, such as Matric/Secondary School Leaving Certificate, Senior Secondary Teachers' Diploma, and National Professional Diploma in Education in Durban and Lagos. Only a few of the teachers in both cities were found to have a postgraduate qualification in education (i.e. Postgraduate Certificate in Education and Master of Education), with 30 (15.6%) and 31 (16.9%) responses in Lagos and Durban respectively.

It is believed in this study that there was a link between the respondents' profiles and their information literacy skills.

Table 6.1: Distribution of respondents by gender, age, teaching experience and academic qualifications

Statement	Cities	Male		Female		Total	
	Lagos	77 (39.9%)		116 (60.1%)		193 (100.0%)	
	Durban	43 (24.6%)		132 (75.4%)		175 (100.0%)	

	Cities	16-20	21-25	26-30	31-35	36 above	Total
Age	Lagos	1 (0.5%)	11 (5.7%)	17 (8.8%)	41 (21.2%)	123 (63.7%)	193 (100.0%)
	Durban	0 (0%)	13 (7.4%)	21 (12.0%)	28 (16.0%)	113 (64.6%)	175 (100.0%)

		1-5	6-10	11-15	16-20	21-25	26-30	Total
Years of experience	Lagos	46 (23.8%)	41 (21.2%)	28 (14.5%)	37 (19.2%)	10 (5.2%)	31 (16.1%)	193 (100.0%)
	Durban	31 (17.7%)	46 (26.3%)	27 (15.4%)	29 (16.6%)	10 (5.7%)	32 (18.3%)	175 (100.0%)

Academic qualifications	Lagos	Durban
Matric	-	2 (1.1%)
Diploma in Education/NCE	11 (5.7%)	18 (10.3%)
Senior Secondary Teachers Diploma	-	19 (10.9%0
National Professional Diploma in Education	-	18 (10.3%)
Bachelor of Arts	14 (7.3%)	21 (12.0%)
Bachelor of Science	43 (22.3%)	26 (14.9%)
Bachelor of Education	95 (49.2%)	40 (22.9%)
Postgraduate Certificate in Education	10 (5.2%)	16 (9.1%)
Master's of Education	20 (10.4%)	15 (7.8%)
Total	193 (100.0%)	175 (100.0%)

What relationship exists between information literacy skills and demographic variables (age, gender, level of education and years of experience) of teachers?

$H_{01:}$ There is no significant relationship between demographic variables (gender, age, years of experience and level of education) and information literacy skills (information need, information access, information search strategy, information literacy self-concept, information evaluation and information use) of teachers.

From Table 6.2, it can be inferred that there is no significant relationship between demographic variables of teachers and their information literacy skills ($F_{(1, 368)}$, .664; p>0.05). Therefore, the null hypothesis is not rejected. Also, demographic variables had multiple correlations with information literacy skills of teachers (R = 0.010, P>0.05).

Table 6.2: Summary of Regression Analysis on the Significance of Relationship Between Demographic Variables and Information Literacy Skills.

R	R square	Adjusted R square	Std Error of the Estimate
.102	.010	-.005	-.706

Model	Sum of squares	df	Mean square	F	Sig
Regression	1.324	4	.331	.664	.618
Resident	126.714	364	.499		
Total	128.039	368			

6.3 Teachers' perceptions about the need for information literacy skills in the implementation of secondary schools subjects' instruction.

Information on teachers' perceptions about the need for information literacy skills revealed that most of the teachers in both cities surveyed were not sure of their need for information literacy skills. This is shown through the undecided position taken by them as regards most of the statements that emphasized the need for information literacy skills. Further breakdown of the results of the analysis revealed that most of the teachers in Durban agreed with the statement "I need information literacy skills to be an effective teacher" (109, 62.3%), but only a few teachers from Lagos (74, 38.3%). The inference to be drawn from the results shown below is that teachers in secondary schools in Lagos are not sure of the need for information literacy skills as key to their ability to function well in their duties.

Table 6.3: Teachers' Perceptions on the Need for Information Literacy Skills

Statement	Cities	SD	D	U	A	SA	Total
I need information literacy skills to be an effective	Lagos	11 (5.7%)	14 (7.3%)	94 (48.7%)	74 (38.3%)	-	193 (100.0%)
	Durban	12	18	36	109	-	175

teacher.		(6.8%)	(10.2%)	(20.5%)	(62.3%)		(100.0%)
I need training in how to effectively use the internet.	Lagos	16 (8.3%)	31 (16.1%)	93 (48.1%)	50 (25.9%)	-	193 (100.0%)
	Durban	16 (9.1%)	31 (17.7%)	83 (47.4%)	63 (36.0%)	-	175 (100.0%)
I need training in how to use academic electronic databases.	Lagos	8 (4.1%)	16 (8.3%)	106 (54.9%)	63 (32.6%)	-	193 (100.0%)
	Durban	9 (5.1%)	25 (13.1%)	74 (42.3%)	67 (38.3%)	-	175 (100.0%)
I need to be trained in the proper use of the library.	Lagos	35 (18.1%)	45 (23.3%)	91 (47.1%)	22 (11.4%)	-	193 (100.0%)
	Durban	15 (8.6%)	49 (28.0%)	67 (38.3%)	44 (25.1%)	-	175 (100.0%)
I need information literacy skills to effectively use a library.	Lagos	26 (13.5%)	37 (19.2%)	104 (53.9%)	26 (13.5%)	-	193 (100.0%)
	Durban	17 (9.7%)	36 (20.6%)	76 (43.4%)	46 (26.3%)	-	175 (100.0%)
I need information literacy skills to effectively retrieve information in any format from any source.	Lagos	13 (6.7%)	41 (21.2%)	92 (47.7%)	47 (24.4%)	-	193 (100.0%)
	Durban	11 (6.3%)	27 (15.4%)	80 (45.7%)	75 (42.9%)	-	175 (100.0%)
I need information	Lagos	22	22	90	59	-	193

Statement	City	SD	D	UN	A	SA	Total
literacy skills to avoid plagiarism.		(11.4%)	(11.4%)	(46.6%)	(30.6%)		(100.0%)
	Durban	14 (8.0%)	27 (15.4%)	80 (45.7%)	54 (30.9%)	-	175 (100.0%)
I need information literacy skills to effectively use a search engine.	Lagos	9 (4.7%)	32 (16.6%)	106 (54.9%)	46 (23.8%)	-	193 (100.0%)
	Durban	11 (6.3%)	27 (15.4%)	89 (50.6%)	48 (27.4%)	-	175 (100.0%)
I need strategic ability to log in and retrieve information.	Lagos	15 (7.8%)	25 (12.9%)	108 (55.9%)	45 (23.3%)	-	193 (100.0%)
	Durban	11 (6.2%)	26 (14.8%)	90 (51.4%)	48 (27.4%)	-	175 (100.0%)
I need the ability to recognize how current awareness technologies (e.g., RSS feeds, blogs) can be used to stay informed in areas of interest.	Lagos	7 (3.6%)	27 (13.9%)	105 (54.4%)	54 (27.9%)	-	193 (100.0%)
	Durban	10 (5.7%)	21 (12.0%)	93 (53.1%)	51 (29.1%)	-	175 (100.0%)
I need the ability to recognize information overload and develop strategies to manage information anxiety.	Lagos	7 (3.6%)	23 (11.9%)	123 (63.7%)	40 (20.7%)	-	193 (100.0%)
	Durban	13 (7.4%)	19 (10.9%)	98 (56.0%)	45 (25.7%)	-	175 (100.0%)

Key: Strongly Disagree = SD; Disagree = D; Undecided = UN; Agree = A; Strongly Agree = SA

In order to triangulate the results, this question was subjected to two null hypothesis tests as follows (see also Tables 6.4 and 6.5).

H$_{02}$: There is no significant difference in the perceptions of the need for information literacy skills by teachers in Lagos and Durban.

Table 6.4 shows the relationship between relationship between teacher's perception of the importance of information literacy skills and information resources' use for teaching based on 368 respondents. The data shows the absolute value near to .5 is considered positive correlation. This means that the two variables have a strong tendency to vary together. This indicates that there is significant relationship between teacher's perception of the importance of information literacy skills and information resources' use for teaching. From the table, r = 0.14, and P> 0.05, therefore the finding is not consistent with the stated null hypothesis. This implies that teacher's perception of the importance of information literacy skills can determine information resources' use for teaching.

Table 6.4: Relationship between teacher's perception of the importance of information literacy skills and information resources' use for teaching

Variables	Mean	Std. Deviation	N	R	P	Remark
Information resources use for teaching	34.8436	12.89836	368	0.14	0.05	S**
Perception	33.4469	7.47891	368			

S - Significant**

6.4 Purposes for which secondary school teachers need information in Lagos and Durban.

Table 6.5 presents information on the purposes for which the respondents need information. The results showed teaching preparation (Lagos = 167, 86.5% and Durban = 129, 73.7%), guiding students' classroom activities (Lagos = 143, 75.0% and Durban = 123, 70.3%), supporting curriculum development (Lagos = 152, 78.7% and Durban = 121, 69.1%), developing competence (Lagos = 154, 79.8% and Durban = 123, 70.3%), and keeping up with current trends (Lagos = 156, 80.8% and Durban = 128, 73.2%) as topping the list of purposes for which respondents need information. Further inference from the analysis revealed that there is no difference in the purposes for which teachers in both cities need information.

Table 6.5: Purposes for Which Teachers Need Information

	Cities	VF	F	S	R	N	Total
Teaching preparation	Lagos	99 (51.3%)	68 (35.2%)	13 (6.7%)	9 (4.7%)	4 (2.1%)	193 (100.0%)
	Durban	78 (44.6%)	51 (29.1%)	9 (5.1%)	4 (2.3%)	10 (5.7%)	175 (100.0%)
Guiding students' classroom activities	Lagos	73 (37.8%)	70 (37.2%)	37 (19.2%)	8 (4.2%)	5 (2.6%)	193 (100.0%)
	Durban	55 (31.4%)	68 (38.9%)	35 (20.0%)	7 (4.0%)	10 (5.7%)	175 (100.0%)
Support curriculum development	Lagos	68 (35.2%)	84 (43.5%)	35 (18.1%)	16 (8.3%)	3 (1.6%)	193 (100.0%)
	Durban	66 (37.7%)	55 (31.4%)	37 (21.1%)	6 (3.4%)	11 (6.3%)	175 (100.0%)
Development competence	Lagos	78 (40.4%)	76 (39.4%)	18 (9.3%)	12 (6.2%)	9 (4.7%)	193 (100.0%)
	Durban	61 (34.9%)	62 (35.4%)	32 (18.3%)	10 (5.7%)	10 (6.7%)	175 (100.0%)
Keep up with current trends	Lagos	88 (45.6%)	68 (35.2%)	21 (10.9%)	5 (2.3%)	7 (3.6%)	193 (100.0%)
	Durban	61 (34.9%)	67 (38.3%)	28 (16.0%)	6 (3.4%)	4 (2.3%)	175 (100.0%)
Preparation for promotion interview	Lagos	72 (37.3%)	78 (40.4%)	24 (12.4%)	9 (4.7%)	6 (3.1%)	193 (100.0%)
	Durban	43 (24.6%)	42 (24.0%)	46 (26.3%)	14 (8.0%)	14 (8.0%)	175 (100.0%)

Preparing lecture notes	Lagos	82 (42.5%)	67 (34.7)	27(13.9%)	16 (8.3%)	6 (3.1%)	193 (100.0%)
	Durban	42 (24.0%)	51(29.1%)	32 (18.3%)	15 (8.6%)	35 (20.0%)	175 (100.0%)
Workshop and seminar a presentation	Lagos	64 (33.2%)	73 (37.8%)	41(21.2%)	7 (3.6%)	8 (4.1%)	193 (100.0%)
	Durban	43 (24.6%)	53 (30.3%)	32 (18.3%)	17 (9.7%)	30 (17.1%)	175 (100.0%)
General awareness	Lagos	65 (33.7%)	85 (44.0%)	22 (11.4%)	13 (6.7%)	8 (4.1%)	193 (100.0%)
	Durban	40 (22.9%)	70 (40.0%)	40 (22.9%)	12 (6.9%)	13 (7.4%)	175 (100.0%)
Service or job requirement	Lagos	59 (30.6%)	66 (34.2%)	34 (17.6%)	16 (8.3%)	18 (9.3%)	193 (100.0%)
	Durban	34 (19.4%)	55 (31.4%)	44 (25.1%)	21 (12.0%)	21 (12.0%)	175 (100.0%)
Reading purposes only	Lagos	37 (19.2%)	83 (43.0%)	43 (22.3%)	10 (5.2%)	20 (10.4%)	193 (100.0%)
	Durban	34 (19.4%)	50 (28.6%)	56 (32.0%)	10 (5.7%)	25 (14.3%)	175 (100.0%)
Carry out administrative work	Lagos	55 (28.5%)	86 (44.6%)	29 (15.0%)	15 (7.8%)	8 (4.1%)	193 (100.0%)
	Durban	35 (20.0%)	52 (29.7%)	54 (30.9%)	10 (5.7%)	24 (13.7%)	175 (100.0%)

6.5 Types of information resource teachers access for teaching purposes.

Table 6.6 presents information on the types of information resource being used by teachers in Lagos and Durban. It reveals that there are some variations in the types of resource. Breakdown of the results revealed that most teachers in Lagos make use of electronic resources (119, 61.7%), and slightly fewer teachers in Durban do so (71, 40.6%). The results also reveal that more teachers in Lagos (148, 76.7%) make use of reference materials than teachers in Durban (85, 48.6%), just as more teachers in Lagos (128, 66.3% and 109, 56.5%) were found to make use of journals and electronic books, whereas only a few teachers from Durban (69, 39,4%) make use of journals and electronic books (47, 26.9%). Further breakdown of the results of analysis revealed that teachers in both cities do not make use of specialized databases, theses and dissertations, CD-ROM, monographs, reports, grey literature, indexes, audiovisual resources, YouTube, wikis and blogs, but use only computer resources, Internet resources, newspapers, emails, library resources and books.

Table 6.6: Types of information resources accessed by teachers for teaching purposes

	Cities	Yes	No	Total
Computer resources	Lagos	147 (76.2%)	46 (23.8%)	193 (100.0%)
	Durban	111(63.4%)	64 (36.6%)	175 (100.0%)
Internet resources	Lagos	161(83.4%)	32 (16.6%)	193 (100.0%)
	Durban	124 (70.9%)	51 (29.1%)	175 (100.0%)
Electronic resources	Lagos	119 (61.7%)	74 (38.3%)	193 (100.0%)
	Durban	71(40.6%)	104 (59.4%)	175 (100.0%)
Specialised data bases	Lagos	89(46.1%)	104 (55.6%)	193 (100.0%)
	Durban	68 (38.9%)	107 (61.1%)	175 (100.0%)
Newspapers	Lagos	145 (75.1%)	48 (24.9%)	193 (100.0%)
	Durban	126 (72.0%)	49 (28.0%)	175 (100.0%)

Email	Lagos	103 (53.4%)	90 (46.6%)	193 (100.0%)
	Durban	91(52.0%)	84 (48.0%)	175 (100.0%)
Library resources	Lagos	138(71.5%)	55 (28.5%)	193 (100.0%)
	Durban	105(60.0%)	70(40.0%)	175 (100.0%)
Reference material	Lagos	148 (76.7%)	45 (23.3%)	193 (100.0%)
	Durban	85 (48.6%)	90 (51.4%)	175 (100.0%)
Books	Lagos	124 (64.2%)	69 (35.8%)	193 (100.0%)
	Durban	112 (64.0%)	63 (36.0%)	175 (100.0%)
Thesis and dissertations	Lagos	80 (41.5%)	113 (58.5%)	193 (100.0%)
	Durban	54 (30.9%)	121 (69.1%)	175 (100.0%)
CD Rom	Lagos	77 (39.9%)	116 (60.1%)	193 (100.0%)
	Durban	50 (28.6%)	125 (71.4%)	175 (100.0%)
Monographs	Lagos	67 (34.7%)	126 (65.3%)	193 (100.0%)
	Durban	31(17.7%)	144 (82.3%)	175 (100.0%)
Electronic books	Lagos	109 (56.5%)	84 (43.5%)	193 (100.0%)
	Durban	47(26.9%)	128 (73.1%	175 (100.0%)
Reports	Lagos	73(37.8%)	120 (62.2%)	193 (100.0%)
	Durban	59(33.7%)	116 (66.3%)	175 (100.0%)
Grey literature	Lagos	59 (30.6%)	134 (69.4%)	193 (100.0%)
	Durban	59 (33.7%)	116 (66.3%)	175 (100.0%)
Indexes	Lagos	92(47.7%)	101 (52.3%)	193 (100.0%)
	Durban	40 (22.9%)	135 (77.1%)	175 (100.0%)
Journals	Lagos	128 (66.3%)	65 (33.7%)	193 (100.0%)
	Durban	69 (39.4%)	106 (60.6%)	175 (100.0%)
Audio-visual	Lagos	85(44.1%)	108(55.9%)	193 (100.0%)

Resources	Durban	64(36.6%)	111 (63.4%)	175 (100.0%)
YouTube	Lagos	65 (33.7%)	128 (66.3%)	193 (100.0%)
	Durban	46(26.3%)	129 (73.7%)	175 (100.0%)
Wikis	Lagos	58 (30.1%)	135 (69.9%)	193 (100.0%)
	Durban	42(24.0%)	133(76.0%)	175 (100.0%)
Blogs	Lagos	65 (33.7%)	128 (66.3%)	193 (100.0%)
	Durban	36 (20.6%)	139 (79.4%)	175 (100.0%)

6.6   The frequency of use of various information resources by secondary school teachers.

Frequency of information use implies more interaction with information sources. The reason for this question is to investigate the relationship between Lagos and Durban teachers' use of information resources held in their school libraries.

Table 6.7 presents the frequency of use of various information resources by secondary school teachers in Lagos and Durban. It shows those resources in frequent use by the teachers in secondary schools in those cities. The breakdown of the outcomes revealed that most teachers in Lagos frequently use a computer system (114, 63%), and in Durban teachers use one more frequently (126, 71.9%). Slightly more teachers in Lagos frequently make use of the Internet (117, 60.5%) than those in Durban (104, 59.4%). The use of newspapers, library resources, email and books (121, 62.6%), (102, 52.7%), (109, 56.9%) and (140, 72.5%) in Lagos and Durban (114, 65%), (84, 58.3%) (124, 76.9%) is quite close. On the other hand, fewer than 50% of secondary school teachers in Lagos make frequent use of the following: electronic resources, electronic libraries, theses and dissertations, CD-Rom, monographs, electronic books, reports, indexes, journals and audio-visual resources (94, 48.6%), (75, 38.7%), (47, 24.2%), (45, 23.2%), (38, 19.6%), (42, 21.7%), (66, 36.5%), (45, 31.5%) and (72, 46.8%) respectively, and in Durban (73, 41.6%), (82, 46.8%), (54, 30.8%), (40, 22.8%), (55, 31.3%), (24, 13.7%), (23, 13.1%), (50, 28.6%), (20, 11.5%), (51, 38.3%) and (61, 44.2%) respectively. The inference to be drawn from the information provided below is that teachers in the two cities do not use electronic resources frequently. This may suggest that either the

teachers do not have access to those electronic resources, or they lack the ability to use them appropriately.

Table 6.7: Frequency of use of information resources by teachers

Information resources	Cities	VF	F	NF	NA	Total
Computer	Lagos	57(31.5%)	57(31.5%)	53(29.3%)	26(13.4%)	193 (100.0%)
	Durban	58(33.1%)	68(38.8%)	24(13.7%)	25(14.2%)	175 (100.0%)
Internet	Lagos	49(25.3%)	68(35.2%)	48(24.8%)	26(13.4%)	193 (100.0%)
	Durban	59(33.7%)	45(25.7%)	37(21.1%)	47(26.8%)	175 (100.0%)
E-resources	Lagos	32(16.5%)	62(32.1%)	44(22.7%)	55(28.4%)	193 (100.0%)
	Durban	37(21.1%)	36(20.5%)	36(20.5%)	66(37.7%)	175 (100.0%)
Newspapers	Lagos	48(24.8%)	73(37.8%)	39(20.2%)	33(41.4%)	193 (100.0%)
	Durban	71(40.5%)	43(24.5%)	30(17.1%)	31(7.4%)	175 (47.7%)
Email	Lagos	35(18.1%)	74(38.8%)	12(6.2%)	36(18.6%)	193 (100.0%)
	Durban	40(22.8%)	42(24.0%)	38(21.7%)	55(31.4%)	175 (100.0%)
Library resources	Lagos	38(19.6%)	64(33.1%)	41(21.2%)	17(8.8%)	193 (100.0%)

	Durban	37(25.7%)	47(32.6%)	35(24.3%)	56(17.4%)	175(100.0%)
Electronic libraries	Lagos	33(17.0%)	42(21.7%)	36(18.6%)	82(42.4%)	193 (100.0%)
	Durban	34(19.4%)	20(11.4%)	28(16.0%)	93(53.1%)	175 (100.0%)
Books	Lagos	83(43.0%)	57(29.5%)	20(10.3%)	33(7.25%)	193 (100.0%)
	Durban	82(52.9%)	42(24.0%)	10(5.71%)	41(23.4%)	175 (100.0%)
Theses and dissertations	Lagos	11(5.6%)	36(18.6%)	37(19.2%)	11(56.9%)	193 (100.0%)
	Durban	23(13.1%)	17(9.7%)	18(10.2%)	114(64.1%)	175 (100.0%)
CD Rom	Lagos	12(6.2%)	33(17.0%)	52(26.9%)	96(18.2%)	193(100.0%)
	Durban	22(12.5%)	33(18.8%)	22(12.5%)	98(42.1%)	175 (100.0%)
Monographs	Lagos	11(5.7%)	27(13.9%)	32(16.6%)	123(63.7%)	193 (100.0%)
	Durban	14(8.0%)	10(5.7%)	21(12.0%)	130(74.2%)	175 (100.0%)
Electronic books	Lagos	18(9.3%)	24(12.4%)	42(21.8%)	109(56.5%)	193(100.0%)
	Durban	13(7.4%)	10(5.7%)	29(16.5%)	60(34.2%)	175(100.0%)

		VF	F	NF	NA	Total
Reports	Lagos	22(11.4%)	44(25.1%)	52(26.9%)	75(38.8%)	193(100.0%)
	Durban	25(14.3%)	25(14.3%)	30(17.1%)	50(28.6%)	175(100.0%)
Grey literature	Lagos	8(4.1%)	34(17.60%)	37(19.1%)	114(59.1%)	193(100.0%)
	Durban	13(7.4%)	15(8.6%)	24(13.7%)	123(70.3%)	175(100.0%)
Indexes	Lagos	14(8.6%)	31(22.9%)	36(18.7%)	114(59.0%)	193(100.0%)
	Durban	7(4.0%)	13(7.5%)	20(11.4%)	135(77.1%)	175(100.0%)
Journals	Lagos	16(10.4)	56(36.4%)	49(31.8%)	33(21.4%)	154(100.0%)
	Durban	20(15.0)	31(23.3%)	31(23.3%)	51(38.3)	133(100.0%
Audio-Visual resources	Lagos	37(23.3%)	45(28.3%)	58(36.5%)	19(11.9%)	159(100.0%)
	Durban	34(24.6%)	27(19.6%)	35(25.4%)	42(30.4%)	138(100.0%)

Key: Very frequently = VF; Frequently = F; Not frequently = NF; Not at all = NA

Further analysis was done by testing the hypothesis. Thus: H_{03}: There is no significant difference in the frequency of use of information by teachers in Lagos and Durban.

Table 6.8 presents information to determine if there is any significant difference in frequency of use of information by teachers in Lagos and Durban. The results showed that there is a significant difference in the level of information being used frequently by teachers in both cities in favour of teachers in Durban ($F_{(2,366)} = 4.280$; $P < 0.05$). Therefore, the null hypothesis is rejected. Teachers in Durban were found to use more information resources ($\chi = 28.87$) than their counterparts in Lagos ($\chi = 25.65$).

Table 6.8: Summary of t-test on information use of teachers in Lagos and Durban.

Variable	Cities	N	Mean	Std Dev	F	Df	Sig	Decision
Information use	Lagos	193	25.65	8.266	4.280	366	.039	
	Durban	175	28.87	9.972				Rejected

6.7 Information search strategy of teachers in using online information resources.

Information search strategy involves the ability to search, locate, access and retrieve relevant information and investigate the approach employed by information seekers in getting information (Diekema & Olsen, 2014). The rationale for asking teachers these questions was to identify their familiarity with certain strategies to help them access information resources, For instance, according to Pazer (2013). a Boolean search represents the type of search strategy that allows a combination of keywords with operators like AND, OR and NOT to limit, broaden or define information search in order to acquire appropriate results. Limiting a search strategy is done to control information resources by applying specified parameters like date, material type, format, location or language; this is done in order to eliminate irrelevant information (University of Illinois, 2013). Weideman and Chambers (2005) argue that a meta-tag search strategy is used to search items stored, searched for and retrieved through the use of bibliographical citation that consists of various fields such as author, title, journal descriptors, abstract, etc. Bothma, et al. (2011:96) state that proximity search techniques are used to signify the position and order of words used as search terms. They can also be used to differentiate formats: for example, WITHIN, NEAR, BEFORE and AFTER. This method is similar to the Boolean method except that it makes the search more restricted.

Table 6.9 presents information on the search strategy being used by teachers in Lagos and Durban in retrieving information resources for use. It reveals natural language (Lagos = 160, 82.5, Durban = 118, 67.4%), word and phrase search (Lagos = 121, 62.7%, Durban = 108, 61.7%), and keyword (Lagos = 137, 70.9%, Durban = 111, 63.4%) as the only search strategies being used by teachers in both cities. Other search strategies such as truncation, proximity, field or meta-tag search, limiting search, and Boolean operators search are not being used by teachers in either city.

Table 6.9: Information search strategy being used by teachers in their use of online information resources

Search Strategies	Cities	Yes	No	Total
Natural language	Lagos	160 (82.9%)	33 (17.1%)	193 (100.0%)
	Durban	118 (67.4%)	57 (32.6%)	175 (100.0%)
Word and phrase search	Lagos	121 (62.7%)	72 (37.3%)	193 (100.0%)
	Durban	108 (61.7%)	67 (38.3%)	175 (100.0%)
Keywords	Lagos	137 (70.9%)	56 (29.1%)	193 (100.0%)
	Durban	111 (63.4%)	64 (36.6%)	175 (100.0%)
Truncation	Lagos	59 (30.6%)	134 (69.4%)	193 (100.0%)
	Durban	50 (28.6%)	125 (71.4%)	175 (100.0%)
Proximity	Lagos	70 (36.3%)	123 (63.7%)	193 (100.0%)
	Durban	43 (24.6%)	132 (75.4%)	175 (100.0%)
Field or metatag search	Lagos	45 (21.7%)	148 (78.3%)	193 (100.0%)
	Durban	44 (25.1%)	131 (74.9%)	175 (100.0%)
Limiting search	Lagos	41 (21.2%)	152 (78.8%)	193 (100.0%)
	Durban	44 (25.1%)	131 (74.9%)	175 (100.0%)
Boolean operators	Lagos	37 (19.2%)	156 (80.8%)	193 (100.0%)
	Durban	33 (18.9%)	142 (81.1%)	175 (100.0%)

In order to get deeper insight into the responses received a hypothesis testing was done as follows:

H$_{04}$: There is no significant difference in the search strategy of teaches in Lagos and Durban.

Table 6.10 presents information to determine if there is any significant difference in the search strategies of teachers in Lagos and Durban, and it shows that there is no significant difference (F $_{(2,366)}$ = .637; P>0.05). Therefore, the null hypothesis is accepted. It can thus be inferred that there is no significant difference in the search strategies being adopted by teachers in Lagos and Durban.

Table 6.10: Summary of T-Test on Search Strategy of Teachers in Lagos and Durban.

Variable	Cities	N	Mean	Std Dev	F	df	Sig	Decision
Search strategy	Lagos	193	12.62		.637	366	.425	Accepted
	Durban	175	13.27					

6.8 Information self-concept level of teachers in secondary schools.

As has been pointed out in the review of literature chapter, Lawrence (2006:2) describes self-concept as the sum total of an individual's mental and physical features and evaluation of self which manifest in the cognitive (thinking), the affective (feeling) and the psychomotor (action). The reason for inquiring about the information self-concept of teachers is to ascertain how they absorb, process and retain information after acquiring new knowledge; in other words to determine the cognitive, emotional and environmental influences in relation to teachers' information literacy skill as well as previous experience and knowledge, and how they all play a significant role in how information is acquired and deployed.

Table 6.11 presents insight into the self-concept of respondents, and the results show that most of the teachers in both cities affirmed their agreement with statements that supported the possession of a favourable information self-concept among teachers in Lagos and Durban. It can thus be deduced that teachers in those cities have a high information self-concept level.

Further analysis of the results revealed similarity in the information self-concept of teachers in the two cities; Most of the teachers in Lagos (174, 90.2%) and Durban (118, 67.4%) agree that they "can search information on the Internet by using key words". Most of the teachers in Lagos (137, 71%) and Durban (112, 64.0%) agreed that they "use the Internet to communicate professionally with fellow teachers". Most of the teachers in Lagos (164, 84.8%) and Durban (126, 72.0%) also agreed that they can "use the Internet to update in teaching". Most teachers in Lagos (150, 77.7%), but slightly fewer in Durban (93, 53.1%), agreed that they can talk to other teachers using online chat rooms. A substantial minority of teachers in Lagos (88, 45.6%), but a majority in Durban (91, 52.0%), agreed that they "find it difficult to use a computer unaided". A substantial minority of teachers in Lagos (84, 43.5%), but a majority in Durban (89, 50.9%), said that they sometimes find using search engines like Google and Yahoo difficult. The implication of this is that a majority of teachers in Durban did not find it difficult to using search engine like Google and Yahoo while their counterparts in Lagos find it difficult to use.

Table 6.11: Information self-concept level of teachers

Statement	Cities	SD	D	A	SA	Total
I can search information on the internet by using key words.	Lagos	10 (5.2%)	9 (4.7%)	110 (56.9%)	64 (33.2%)	193 (100.0%)
	Durban	14 (8.0%)	43 (24.6%)	49 (28.0%)	69 (39.4%)	175 (100.0%)
I use the internet to communicate professionally with fellow teachers.	Lagos	14 (7.3%)	42 (21.8%)	84 (43.5%)	53 (27.5%)	193 (100.0%)
	Durban	20 (11.4%)	43 (24.6%)	54 (30.9%)	58 (33.1%)	175 (100.0%)
I use the internet to update in teaching.	Lagos	14 (7.3%)	15 (7.8%)	103 (53.4%)	61 (31.6%)	193 (100.0%)
	Durban	13 (7.4%)	36 (20.6%)	55 (31.4%)	71 (40.6%)	175 (100.0%)

I find it difficult to use a computer unaided	Lagos	46 (23.8%)	59 (30.6%)	51 (26.4%)	37 (19.2%)	193 (100.0%)
	Durban	30 (17.1%)	54 (30.9%)	47 (26.9%)	44 (25.1%)	175 (100.0%)
I think I can talk to other teachers in online chat room.	Lagos	16 (8.3%)	27 (13.9%)	98 (50.9%)	52 (26.9%)	193 (100.0%)
	Durban	23 (13.1%)	59 (33.7%)	49 (28.0%)	44 (25.1%)	175 (100.0%)
I find using e-mail very easy.	Lagos	8 (4.1%)	32 (16.6%)	85 (44.0%)	68 (35.2%)	193 (100.0%)
	Durban	12 (6.9%)	31 (17.7%)	65 (37.1%)	67 (38.3%)	175 (100.0%)
I can usually sort out any access problems I may have on the internet.	Lagos	24 (12.4%)	36 (18.7%)	79 (40.9%)	54 (27.9%)	193 (100.0%)
	Durban	26 (14.6%)	44 (25.1%)	63 (36.0%)	42 (24.0%)	175 (100.0%)
I don't have any problems downloading relevant information for students for solving problems.	Lagos	9 (4.7%)	44 (22.8%)	86 (44.6%)	54 (27.9%)	193 (100.0%)
	Durban	21 (12.0%)	40 (22.9%)	65 (37.1%)	49 (28.0%)	175 (100.0%)
I sometimes find using search engines like Google and Yahoo difficult	Lagos	56 (29.0%)	53 (27.5%)	47 (24.3%)	37 (19.2%)	193 (100.0%)
	Durban	44 (25.1%)	42 (24.0%)	47 (26.9%)	42 (24.0%)	175 (100.0%)
I rarely have problems finding what I am looking for on the	Lagos	26 (13.4%)	66 (34.2%)	54 (27.9%)	47 (24.4%)	193 (100.0%)

		SD	D	A	SA	Total
internet.	Durban	31 (17.7%)	35 (20.0%)	55 (31.4%)	54 (30.9%)	175 (100.0%)
I am confident of my ability to get information through the use of internet and other databases.	Lagos	19 (9.8%)	32 (16.6%)	85 (44.0%)	57 (29.5%)	193 (100.0%)
	Durban	27 (15.4%)	28 (16.0%)	60 (34.3%)	60 (34.3%)	175 (100.0%)
I am always ashamed to seek for assistance in using computers and the internet.	Lagos	69 (35.8%)	69 (35.8%)	22 (11.4%)	33 (17.1%)	193 (100.0%)
	Durban	60 (34.3%)	38 (21.7%)	33 (18.9%)	44 (25.1%)	175 (100.0%)

Key: Strongly Disagree = SD; Disagree = D; Agree = A; Strongly Agree = SA

H$_{05:}$ There is no significant relationship between information literacy skills and information self-concept of teachers.

Table 6.12 shown below the relationship between information literacy skills and the information self-concepts of teachers based on 358 respondents. The data show the absolute value near to .5 is considered positive correlation. This means that the two variables have a strong tendency to vary together. This indicates that there is a significant relationship between information literacy skills and the information self-concepts of teachers. From the table, r = 0.43, and P> 0.05, therefore the finding is not consistent with the stated null hypothesis. This implies that teachers' information literacy skills can determine their information self-concepts.

Table 6:12: Relationship between information literacy skills and information self-concept of teachers

Variables	Mean	Std. Deviation	N	R	P	Remark
information literacy skills	28.2895	7.65961	368			
information self-concept of teachers	30.1257	7.21305	368	0.43	0.05	S**

S - Significant**

6.9 Metacognitive abilities of teachers in the use of information resources in classroom instruction.

Metacognitive ability is considered as the ability to think critically before embarking on any action. According to Lai (2011: 4), it comprises knowledge and understanding about oneself in relation to factors that might affect performance, strategic knowledge, and knowledge to be applied based on present challenges. Pressley (2005:1) considers information literacy to be a foremost metacognitive skill; that is, information literacy skills are exactly the expertise people need to be able to take control of their own thinking and learning in order to find the best information for their needs. To be information literate demands self-awareness, i.e., an attentiveness to, and understanding of, learning processes. In achieving these results, questions were asked concerning the respondents' personal knowledge, task and procedural knowledge, strategic and declarative knowledge, conditional knowledge and planning ability. (For details of questions asked to establish metacognitive ability, see Appendix A).

Table 6.13 presents information on metacognitive abilities possessed by teachers in secondary schools in Lagos and Durban. It reveals that a large proportion of teachers in Lagos and Durban possessed metacognitive abilities such as personal knowledge (Lagos = 184, 95.3%; Durban = 168, 96.0%), strategic and declarative knowledge (Lagos = 171, 88.6%; Durban = 160, 91.4%), conditional knowledge (Lagos = 158, 81.9%; Durban = 151, 86.3%), and planning ability (Lagos = 164, 85.0%; Durban = 153, 87.4%). The scores for procedural knowledge as affirmed by 173 (89.5%) and 148 (84.6%) teachers from Lagos and Durban respectively were slightly lower, but still high. It can be inferred from the results shown below that teachers in Lagos and Durban possess metacognitive abilities.

Table 6.13 Metacognitive Abilities Possessed by Teachers

Metacognitive abilities	Cities	SD	D	A	SA	Total
Personal knowledge	Lagos	2 (1.0%)	7 (3.6%)	107 (55.4%)	77 (39.9%)	193 (100.0%)
	Durban	1 (0.6%)	6 (3.4%)	71 (40.6%)	97 (55.4%)	175 (100.0%)
Task and procedural knowledge	Lagos	164 (84.9%)	9 (4.6%)	20 (10.4%)	2 (1.0%)	193 (100.0%)
	Durban	117 (66.9%)	31 (17.7%)	4 (2.3%)	23 (13.1%)	175 (100.0%)
Strategic and declarative knowledge	Lagos	8 (4.1%)	14 (7.3%)	115 (59.6%)	56 (29.0%)	193 (100.0%)
	Durban	1 (0.5%)	14 (8.0%)	105 (60.0%)	55 (31.4%)	175 (100.0%)
Conditional knowledge	Lagos	8 (4.1%)	27 (13.9%)	114 (59.1%)	44 (22.8%)	193 (100.0%)
	Durban	4 (2.3%)	20 (11.4%)	97 (55.4%)	54 (30.9%)	175 (100.0%)
Planning ability	Lagos	8 (4.1%)	21 (10.9%)	88 (45.6%)	76 (39.4%)	193 (100.0%)
	Durban	2 (1.1%)	10 (5.7%)	93 (53.1%)	60 (34.3%)	175 (100.0%)

Key: Strongly Disagree = SD; Disagree = D; Agree = A; Strongly Agree = SA

Further analysis was done to establish what relationship exists between information literacy skills and the metacognitive ability of teachers (viz., personal knowledge, tasks and procedural knowledge, strategies and declarative knowledge, conditional knowledge and planning ability).

Information from Table 6.14 shows the results of analysis on the relationship between teachers' information literacy skills and metacognitive abilities. It can be deduced from the table that all the elements of metacognitive abilities of teachers have significant positive relationships with information literacy skills, with values as follows: personal knowledge

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(r=.194, p<0.05), task and procedural knowledge (r=.289, p<0.05), strategic and declarative knowledge (r=.209, p<0.05), conditional knowledge (.300, p<0.05) and planning ability (r=.182, p<0.05). Thus, the positive relationship means that an increase in the level of teachers' personal knowledge, task and procedural knowledge, strategic and declarative knowledge, conditional knowledge and planning ability would lead to an increase in the information literacy skills of secondary school teachers in Lagos and Durban. Overall, it can be inferred that an increase in teachers' metacognitive abilities would result in an increase in their information literacy.

On the level of increase achievable, it can be deduced from the result that for every increase in the personal knowledge of teachers, a 3.7% increase in information literacy would be achieved; and for every level of increase in the task and procedural knowledge of teachers, an 8.4% increase in information literacy would be achieved. On the other hand, for every increase in teachers' strategic and declarative knowledge, conditional knowledge and planning ability, a 4.4% 9.0% and 3.3% increase respectively would be achieved in their information literacy.

Table 6.14: Summary of correlation analysis showing relationship between information literacy skills and metacognitive abilities of teachers (personal knowledge, task and procedural knowledge, strategic and declarative knowledge, conditional knowledge and planning ability)

Variable	N	Mean	Std Dev	r	r^2	P
Information literacy skills	368	2.68	.720			1.000
Personal knowledge	368	3.36	.610	.194	.037	.002
Task and procedural knowledge	368	1.16	.444	.289	.084	.000
Strategic and declarative knowledge	368	3.08	.644	.209	.044	.000
Conditional knowledge	368	2.94	.697	.300	.09	.000
Planning ability	368	3.31	.674	.182	.033	.002

**Sig at 0.01 level

In addition, the responses were subjected to further analysis by testing the hypothesis as follows H$_{06}$: There is no significant relationship between information literacy skills and metacognitive abilities of teachers for instructional delivery.

Table 6:15 below shows the relationship between information literacy and metacognitive abilities of teachers for instructional delivery. The data shows the absolute value near to .5 is considered positive correlation. This means that the two variables have a strong tendency to vary together. This indicates that there is significant relationship between information literacy literacy and metacognitive abilities of teachers for instructional delivery. From the table, r = 0.36, and P> 0.05, therefore the finding is not consistent with the stated null hypothesis. This implies that teachers information literacy candetermine metacognitive abilities of teachers for instructional delivery.

Table 6:15: Information Literacy and Metacongtive Abilities of Teachers

	Mean	Std. Deviation	N	R	P	Remark
metacognitive abilities of teachers	28.6093	7.59571	368			
				0.36	0.05	S**
Information Literacy Skills	32.4373	7.80433	368			

S - Significant**

H$_{07}$: There is no significant joint contribution of information literacy skills variables (viz: information need, information access, information evaluation and information self-concept, information evaluation and information use) to metacognitive abilities of teachers.

Table 6:16 reveals that inter-correlation exists between the overall teacher's information literacy skills score and the other related factors/measures. The results showed that teachers Task and Procedural Knowledge had the highest correlation with techers metacognitive abilities (r = 0.67). This is followed by Strategic and Declarative Knowledge (r = 0.66) while Teachers Personal Knowledge followed with (r = 0.62). Next to it is Information evaluation with (r = 0.39) and Information Literacy Skills and self-efficacy of Teachers with (r = 0.24). The correlations by other variables are extremely low. This suggests that only five of the factors (teachers Task and Procedural Knowledge, Strategic and Declarative Knowledge,

Teachers Personal Knowledge, Information evaluation, Information Literacy Skills and self-efficacy of Teachers correlate with techers metacognitive abilities.

Table 6:16 Descriptive Statistics and Inter-correlation Matrix among Factors

	Mean	Std. Deviation	N
metacognitive abilities of teachers	99.5552	20.09310	368
Information need	37.0866	9.62881	368
Information access	8.6716	4.93366	368
information evaluation	6.3642	2.95453	368
information self-concept	30.3910	6.65438	368
information use	36.8299	16.41630	368

Table 6:17: Regression of teachers' information literacy skills and metacognitive abilities for instructional delivery

Table 6:17 presents the results of the regression of teachers' information literacy skills and metacognitive abilities of teacher for instructional delivery on the ten related variables. The regression results show an adjusted R-square value of 0.13 Table 5(a), and an F-ratio of 9.471 (Table 6.17 (b), the latter of which is significant at 0.05 level (0.000 < 0.05). These results indicate that the three independent variables (*Information need, IA = Information Access, IE= Information evaluation, ILSSEC= Information Literacy Skills and self-efficacy of Teachers, PK= Personal Knowledge, TPK= Task and Procedural Knowledge, SDK= Strategic and Declarative Knowledge, CK= Conditional Knowledge, PA = Planning Ability*) jointly (as indicated by the R-square value) explained 13% of the variations in the teachers' information literacy skills and metacognitive abilities of teacher for instructional delivery. The prediction is also significant, as indicated by the F-ratio.

(a) Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Square Change	F Change
1	.355[a]	.126	.113	18.92868	.126	9.471

(b) ANOVA[a]

	Model	Sum of Squares	Df	Mean Square	F	Sig.
	Regression	16967.703	5	3393.541	9.471	.000[b]
1	Residual	117879.025	329	358.295		
	Total	134846.728	334			

a. Dependent Variable: metacognitive abilities of teachers

b. Predictors: (Constant), information use, information self-concept, Information need, Information access, information evaluation

Table 6:18 (c) provides information on the individual contributions of each of the ten factors in predicting teachers' information literacy skills and metacognitive abilities of teacher for instructional delivery. The results showed, firstly, that each of the factors makes significant contributions to the prediction (as indicated by the significance of the t values, which are higher than 0.05, as shown in the 't' column of the table (except information access t = -- 1.741), which made negative lower contribution.

Secondly, the standardised coefficients (Beta values) which indicate relative strength of each factor in the prediction of teachers' metacognitive abilities for instructional delivery showed that information evaluation contributed most to the prediction of teachers' metacognitive abilities for instructional delivery (Beta value .218). This is followed by information self-efficacy (Beta value = .217), followed in declining order of strength information need (Beta value of .121).

Although information and information use had Beta value of -.100 and -.009, their contribution is not significant, as indicated in the final column (Sig less than 0.05). These results imply that three of the six factors that enter the final regression step exerted significant contribution to the explanation and prediction of teachers' information literacy skills and metacognitive abilities of teacher for instructional delivery

(c) Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T
	B	Std. Error	Beta	
(Constant)	64.786	6.912		9.373
Information need	.253	.111	.121	2.291
Information access	-.408	.235	-.100	-1.741
information evaluation	1.485	.402	.218	3.694
information self-concept	.654	.161	.217	4.049
information use	-.011	.065	-.009	-.167

(Model column shows "1" for this block)

6.10 Summary

This chapter has presented and analysed the findings of the study quantitatively based on questionnaire responses. The demographic description of the respondents revealed that secondary school teachers were selected from Lagos in Nigeria and Durban in South Africa. Among the respondents, there was a mixture of both male and female, with differences in age, but most of the teachers were above 36 years of age. There were differences in years of work experience, but most of the respondents from both Lagos and Durban had worked for between 11 and 30 years. The teachers were largely well qualified, and some had acquired postgraduate degrees. Regarding teachers' perceptions about the need for information literacy skills in teaching secondary school subjects, it was established that teachers in secondary schools in Lagos and Durban were not sure of the need for information literacy as key to their ability to function well in their duties. When it came to the type of information resources

teachers access for teaching purposes, it emerged that the sampled teachers from both cities did not make use of specialized databases, theses and dissertations, CD-ROM, monographs, reports, grey literature, indexes, audio-visual resources, YouTube, wikis and blogs, but only of computer resources, Internet resources, newspapers, e-mail, library resources and books.

The research also revealed that search strategies used by the sampled teachers in the cities excluded truncation, proximity, field or meta-tag search, limiting search, and Boolean operators search. It can also be inferred that the teachers in Lagos and Durban had high information self-concept levels based on their agreement with most of the statements that supported information self-concept, and disagreement with statements that supported poor information self-concept. The study infers that the teachers in Lagos and Durban possessed metacognitive abilities. At the same time it can also be deduced that the metacognitive abilities variable shows negative influence on the use of information resources among the teachers in secondary schools in Lagos and Durban, such that an increase in metacognitive abilities would lead to a decrease in the use of information resources among the teachers.

Further analysis revealed that gender, years of experience and academic qualifications have a direct positive influence on information literacy. This suggests that for every increase in age, years of experience and academic qualification, a 0.2%, 0.1% and 0.8% increase respectively would be achieved in information literacy. On the other hand, the negative relationship established between age and the information literacy of teachers implies that older teachers are less information literate than their younger counterparts.

The chapter has also tested hypotheses to establish the significance of the relationship between teachers' perceptions of the importance of information literacy and their use of information resources. The results revealed that there is no significant relationship between teachers' perceptions of the importance of information literacy skills and their use of information resources. There is no significant relationship between demographic variables (gender, age, years of experience and level of education) and information literacy skills (information need, information access, information search strategy, information literacy self-concept, information evaluation and information use) of teachers. The results showed that there is no significant relationship between teachers' information literacy skills and their metacognitive abilities. It can be inferred that information literacy skills variables (viz.: information need, information access, information evaluation and information self-concept,

information evaluation and information use) were found not to make a significant joint contribution to teachers' metacognitive abilities. There were more similarities than differences among the respondents in relation to the analysed variables in this chapter.

The next chapter presents a summary of the data analysis, presentation and interpretation of interview and observation responses.

DATA ANALYSIS, PRESENTATION AND INTERPRETATION: INTERVIEWS AND OBSERVATION RESPONSES

7.1 Introduction

As pointed out in Chapter Five of this study, interviews and observation have been used as part of a qualitative data collection technique to triangulate, complement and validate quantitative findings in Chapter Six. The interview schedule used for this study is presented in Appendix B. The results of the interview conducted with librarians or teacher librarians and the transcript are presented below. The respondents' interview for this study is listed in Table 7. The observation results are discussed in Section 7.3, and the instrument for observation is appended (see appendix: C).

The main purpose of this chapter is to present the interview and observation results that can be used to triangulate and validate the research results obtained by the questionnaire reported in Chapter Six. Ngulube (2015:137) considered triangulation as imperative to qualitative and quantitative investigation because it is a way of improving trustworthiness, validity and reliability of quantitative studies. In view of this, the present study used triangulation as a means of fact finding to authenticate the results in Chapter Six, This gave the researcher the latitude to ascertain the authenticity of teachers' responses to the research questions.

It is recognised that a well-equipped school library in the two cities that meet IFLA UNESCO school library standards (1999) is difficult to find as there are hardly any school libraries in the two cities. For example, .a South Africa study reported by Equal Education (2010:21) found that only 8% of schools in South Africa have libraries. Even with such a minimal number of school libraries, the quality of the existing school libraries in the two cities is not the same because the quality of teaching and learning in any urban centre, or country, for that matter, is not the same, even among public schools in general and within urban centres in particular. The disparity in facilities available in school libraries in Durban is especially in favour of schools in urban centres, whereas many historically disadvantaged black community schools have no libraries. In Lagos, however, no statistics exist to show the distribution of school libraries, but evidence from the fieldwork reveals that there is inequality in the distribution of learning and teaching facilities in the cities. Four schools

were identified in two affluent areas in Durban, and two from poor townships. The same pattern was used for selection of schools in Lagos.

The interview focused on the following four research questions highlighted in Chapter One and reflected in Table 7.0 below.

Table: 7.0   Alignment of research questions and interview questions

SN	Research Questions	Interview Questions
1	What are the teachers' perceptions about the need for information literacy in teaching secondary schools subjects?	5. Do teachers perceive the library and librarian as a partner in classroom activities?
		6. To what extent do teachers use library and information resources independently?
		7. Are teachers satisfied with the library services?
		8. Do teachers consider the library a place that can meet their information needs?
		9. Do you consider teachers as having information literacy ability?
		10. How do teachers perceive the responsibilities of the library?
		23. Does the library organise information literacy for teachers?
		25. How often does the library staff undergo training?
2	For what purposes do secondary school teachers need information?	2. What are the library's opening and closing times?

		3. Is the library open for teachers? 4. Comment on the suitability of the library's facilities for teachers
3	What types of information resources do teachers access for teaching purposes?	11. How do you determine the information resources needed by teachers? 12. Does the library consult the teachers before new acquisition? 13. Does the library inform teachers of information resources that can help classroom instruction? 14. How adequate are the information resources in the library? 15. Does the library package information resources to assist classroom instruction? 16. What type of material is mostly used and in which subject areas?
4	How often do teachers use the information resources in the library?	17. How frequently do teachers use the information resources in the library? 18. How up to date are the resources in the library? 19. Is the library connected to the internet? 20. Are there functional computer systems in the library? 21. How fast is the internet in the

			library?
			22. Does the library subscribe to any electronic resources?
			24. To what extent do you think libraries support teaching and learning?

The data below are a transcribed record of interviews with librarians. Observation results are provided in Section Two (7.3) of this chapter.

7.2 . Section one: Interview responses

7.2.1. Demographic characteristics of the respondents:

Data gathered focused on the location of the participating librarians, designations, qualifications and the secondary schools from where they operate.

Table 7.1:   Characteristics of participating schools in Lagos and Durban   (N = 8)

SN	Secondary Schools	Designation	Qualification	Remarks
1.	Eva Adelaja High School, Lagos	Teacher-Librarian	BEd (History)	The number of schools willing to participate in the interview was eight, four in Lagos and four in Durban. As has been stated above, these were the schools willing to participate. Information gathered revealed that none of the officers manning
2.	Ojota Senior Secondary school, Lagos.	Chief Clerical Officer	GCE (Advanced level)	
3.	Agidingbi Secondary School, Lagos.	Chief Clerical Officer	S75	
4.	Ikeja High School, Lagos.	Teacher-Librarian	Master's Degree	
5.	Durban High School,	School	Degree (Library	

	Durban.	Librarian	and Information Science)	the libraries in Lagos are professional librarians. Two of the four interviewed are not even university graduates. Whereas in Durban, two of the four interviewed are qualified professional librarians, and the remaining two have gone through information literacy training while on the job
6.	Queensbury High School, Durban.	Media Centre Administrator	Matric (13 years of working experience)	
7.	Umlazi Commercial High School, Durban.	Teacher Librarian	Teachers Diploma and Advance Certificate.	
8.	Swelihle High School, Durban.	School Librarian	Degree (Library and Information Science.	

7.2.2 What are the library's opening and closing times?

The reason for this question was to establish the period for which the library is open to secondary school teachers.

Table 7.2: The opening hours of the library   (N = 8)

Lagos	Durban	Remarks
*7:30 am to 3:30 pm *7:30 am to 3:30 pm *8:00 am to 2:00 pm *8:00 am to 2:00 pm	*Mondays - Thursdays 7:45 am to 2:15 pm. And Fridays it opens at 7: 45 am to 1:30pm or 2:00 pm, depending on how the library operates. * 8 am to 2 pm	The interviews revealed that the libraries are open for the duration of the official opening hours of secondary schools in both cities.

	* 7:30 am to 4:00 pm *8:30 am to 4:00 pm; but because of security concerns in that area the library usually closes when the school closes at 2:00 pm.	

7.2.3 Is the library open for teachers?

This question was asked to establish whether or not the school library is open for use by secondary school teachers in Lagos and Durban.

Table 7.3:   Opening library for the teachers   (N=8)

Lagos	Durban	Remarks
*Yes *Yes *Not really *The library is not designed for teachers, but some of them use it.	* Yes, The library can accommodate teachers conveniently. *Yes *Yes * Yes, and to the entire community.	According to all the librarians interviewed in Durban, the library is available for teachers' use. In Lagos, on the other hand, some libraries are open for teachers to use, but others are not.

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7.2.4: Is the library suitable for teachers?

This section indicates whether or not the school library is suitable for secondary school teachers.

Table 7.4: Suitability of library for teachers (N = 8)

Lagos	Durban	Remarks
* It is suitable because teachers see it as a place where they can prepare their lesson notes in a very quiet atmosphere. * It is suitable for teachers; they read, and write lesson notes. * Teachers come to the library to avoid noise. * The library is suitable for the use of teachers.	* Yes, the librarian has tried to customise the library to accommodate both students and teachers. Students are the main focus, but a lot of teachers use the resources. * The library is open to teachers who want a suitable place to use a desktop computer, laptop, ipad, books and other information resources available in the library. * The library is suitable for teachers because there are materials that are useful for them in the classroom; they also make use of teaching aids available in the library. * The teachers use the library as a reference point because virtually all they need is available, and publishing companies exhibit their books there.	The librarians in both cities agreed that their libraries are suitable for the use of teachers. In Lagos the librarians think that their library offers a space for teachers to prepare lesson notes, and avoid noise in the classroom. However, in Durban the libraries have resources suitable for teachers. They use desktop computers, laptops and ipads, and have resources to meet their teaching needs, and reference materials for professional and self-development. One librarian acknowledged that teachers need a more advanced library collection.

7.2.5 Do teachers perceive the library and librarians as partners in classroom activities?

The reason for this question was to establish how teachers perceive the roles and responsibilities of the library and librarians in assisting their teaching.

Table 7.5: Perceptions of teachers about the library and librarians as partners in classroom activities? (N = 8)

Lagos	Durban	Remarks
* The teachers perceive the library as a conducive environment preparing their lesson notes and consulting books in order to deepen their knowledge. * The library and teachers work hand in hand; the teachers borrow books from the library. * The library is basically for students, not really for teachers. * Yes, they do.	* Some do and some do not. Some use the library as a partner; others view it as just a vehicle for taking out and returning books, and using the media facilities like computers, etc. * Yes, the library always assists teachers in need of information and other facilities available within the library, and photocopies and prints from online resources. * Yes, they do. Many of the teachers and their students come to consult books needed in the classroom.	The responses from Lagos show that teachers use the library as a conducive environment in which to write their lesson notes and borrow books, and others perceived lt as a partner in classroom activities. In Durban teachers perceive the library as a place to borrow and return books, make photocopies, print from online resources, get teaching aids, and reserve information to meet their needs.

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7.2.6 To what extent do teachers use the library and information resources independently?

The essence of this question was to ascertain the ability of teachers in navigating information resources without anyone's help. This will help to determine their level of information literacy.

Table 7.6: Extent of teachers' independent use of the library (N = 8)

Lagos	Durban	Remarks
* The teachers can use information resources independently, because the shelves are well labelled. But if they cannot get the book they need they usually request it from the librarian. * No, they don't have the ability to use the library independently. * Many of the teachers don't come to the library unless they want to choose a book that will be used by students or set exam questions * Well, teachers come to the library and use information available, but they often request the help of the librarian to access	* Of course yes, for electronic media they often need a lot of assistance. * The library assists teachers in getting information based on their request. Even though many of them can use the resources independently, they give assignments that will warrant students coming to consult the library for assistance. * Most of the teachers are familiar with how to get information in the library. Whenever they experience difficulties, there is a chart directing them to various subject areas with shelf numbers. * The teachers use the library independently,	The information from the libraries in Lagos shows that some teachers can use the library independently, but others seek help to access information. In Durban, however, teachers can use resources in the library independently because they are familiar with the library chart, but for the use of electronic media some of them require assistance. From the information gathered, many of them use the computers and the internet to access information.

information.	especially now that there is a computer there. Many of them use the computer to access information. But most of the books on the computers are not basic material. The library always encourages teachers to make use of the library.	

7.2.7 Are teachers satisfied with the library services?

The question wished to establish the degree of satisfaction of teachers with the information services rendered by the library.

Table 7.7: Teachers' satisfaction with the library services   (N=8)

Lagos	Durban	Remarks
* It is impossible to satisfy every human being, but to a large extent teachers are satisfied and often commend the library services. * Yes, they do. * Yes. *Yes, to some extent.	* The librarian believes the teaching staff is pretty satisfied with the library services, because a good relationship exists between the library and teachers. * Many of the teachers that visit the library are quite satisfied; especially with the use of projectors and other media they make use of in the classroom. * Yes, they are. The teachers fight to use the	Analysis of the responses from Lagos show that teachers are satisfied with the use of the library, but the answers did not offer the degree of satisfaction. In Durban, the librarians were optimistic about teachers using libraries. Many of them observed that the level of satisfaction has led to a friendly atmosphere between the teachers and

	library, because it used to be closed. It was through the efforts of the teachers that the library opened.	the library. Many teachers make use of the facilities and teaching aids in the library, Librarians arrange for book loans to meet teachers' information needs. In one school the teachers successfully agitated for a library.

7.2.8 Do teachers consider the library a place that can meet their information needs?

The reason for this question was to establish whether teachers understand the role and responsibility of the library in meeting their information needs.

Table 7.8: Teachers understanding of the library as a place to meet information needs (N = 8)

Lagos	Durban	Remarks
* Not exactly, many of them come to the library with a personal computer to be able to access information from the internet. Very soon the library will get better, based on the promises of the government. *Yes.	* Yes, they do. * Apart from making use of the projector and other classroom media, the teachers also direct students to the library to be assisted with their assignments. * Yes. * Yes, they do.	The responses of the librarians in Lagos show that teachers there consider a library to be a place that can meet their information needs. In Durban the librarians think that teachers consider a library a place that can meet their information needs, and

		some of them encouraged the students to go to the library for assistance with their assignments.
*No. * Yes, I suppose they do		

7.2.9 Do you think teachers are information literate?

The reason for this question was to independently confirm the extent of information literacy of teachers from the librarians who are expected to be information managers.

Table 7.9: Information literacy of need teachers (N = 8)

Lagos	Durban	Remarks
* Many teachers don't usually want to read these days, because of the availability of information on the internet; the teachers do not need to be guided to know what to do. * No, they don't really know how to navigate the resources *No * Yes, I suppose they are	* From our school, yes, but on the technical side maybe not as much as they should be. But information literacy is versatility in the use of both printed books and electronic sources. I would certainly say from the printed book's point of view, yes; with electronic books, some are literate, some are not. * Yes, the few teachers that come to the library are familiar with the arrangement of the information resources, and they use desktop computers	Librarians from Lagos hold that some teachers lack information literacy. On the other hand, in Durban the librarians think teachers are information literate, especially in relation to physical books, but in the use of electronic resources some are information literate, but some are not. The teachers are familiar with the arrangement of information resources and have learnt to use modern information facilities. The librarians

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	and laptops fairly well, and they also connect to the wireless facilities through their cell phones. * Some of them are information literate, and some are not.	in Durban say that information literacy skills are passed on to teachers through short courses organised by government.

7.2.10: How do teachers perceive the responsibilities of the library?

The reason for this question was to ascertain how teachers perceive the roles and responsibilities of librarians and libraries generally in information management.

Table 7.10: Perception of library's responsibilities by the teachers   (N = 8)

Lagos	Durban	Remarks
* The teachers perceived the library as a controlled area devoid of distraction. * Yes, teachers understand the role of a library because it responds to them at any time they request. * I don't know. * I am not sure of their perception.	* From the teachers' responses, they do view the library as an important resource area. * The teachers drop a request relevant to their classroom activities with the librarian to source for both physical and electronic resources. The librarian goes online to find the sources not available in the library and repackage them for the use of teachers.	The response from librarians in Lagos shows that teachers recognise a library as a silent place for reading, where librarians respond to an information request. But some are not sure how teachers perceive the library. In Durban teachers sees a library as a place that has sufficient information resources, both physical and electronic, to meet their

	* The teachers perceive the library as an information centre that is set up to meet their needs.	needs. They also come to the library to consult books relevant to their classroom activities, or to read newspapers for personal development and awareness.

7.2.11 How do you determine the information resources needed by teachers?

The reasons for this question were to establish whether librarians have the competence to envisage the information need of teachers.

Table 7.11: Determination of information resources wanted by teachers (N = 8)

Lagos	Durban	Remarks
* It is difficult to determine what information resources are needed, since many teachers using the library do not disclose what they are reading. But if teachers cannot get what they want, they ask the librarian. * It is not the responsibility of the library to determine the information needs of the teachers. *Not aware. * Sometimes they come to	* Most of the teachers come in and ask for various resources, and where it is imperative, the library facilitates the purchase of the resources, Sometimes the librarians go online and access all sorts of media. We do our best to bring in whatever the teachers need to support their classroom activities and personal development. * Information needs of teachers are determined by	According to some librarians in Lagos, they find it difficult to determine the information resources needed by the teachers, and others believe that it is not their responsibility. On the other hand, in Durban, the librarian facilitates the purchase of information resources needed by the teachers, or assists in getting

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the library and ask for whatever they need.	request. The first job is to browse the library shelves for solutions. In case of unavailability within the library, the librarian goes to Google to look for information, even with the problem of authenticity associated with Google. The major challenge is that the library has not subscribed to electronic resources. * The library regularly consults with the teachers to determine their information needs, for which the library consults the sponsor of the library, which is the Nampak Packaging Company, which usually supplies the needed information.	information online. Some send a request form to teachers to identify their information needs. Librarians also meet the information needs of teachers by making newspapers and magazines available. Some librarians consult the teachers to ascertain their information needs, and whenever it is not available the request is sent to the sponsor of the library.

7.2.12 Does the library consult the teachers before new acquisitions?

The reason for this question was to know whether or not the librarians seek advice from the teachers before they acquire new information resources.

Table 7.12:   Consultation with teacher on new acquisitions   (N = 8)

Lagos	Durban	Remarks
* New books are discussed at a meeting with teachers, and also at the departmental level. * No, government just supplies books to the library directly. * No, the principal is the one in charge of that. * No.	* No, the teachers consult the library when they have a specific need; they trust the judgement of the librarian enough to acquire the right materials. The library is also in contact with book publishers and booksellers to update resources. * No, the librarian does not consult the teachers before acquisition. Materials are acquired at their own discretion, except for books relating to the Zulu language, and that is because of the language barrier, * Yes, the library consults teachers before acquisition. * No, because of the changing curriculum the library usually waits until	Information from librarians in Lagos revealed that new acquisitions are usually discussed with teachers at the departmental level, Some said that it was the government or school principal who sees to the acquisition of new library resources. In Durban, however, some librarians claimed that the library contacts publishers whenever they need to update their information resources, Some librarians acquire resources at their own discretion, some consult teachers before acquisition, and others wait to confirm the introduction of the new curriculum before

	the new curriculum is out before deciding what to buy.	acquisition.

7.2.13 Does the library inform teachers of information resources that can help classroom instruction?

The rationale behind this question is to ascertain whether librarian organise exhibition of new acquisition to draw the attention of teachers to new collection that will be useful in the curriculum delivery.

Table 7.13: Informing teachers about resources for classroom instruction (N = 8)

Lagos	Durban	Remarks
* The teacher-librarian usually discusses resources that will be of benefit to the teachers, and personal donation is also encouraged because government is not able to provide all the needed resources. *No. * Sometimes they know through the principal. * We don't need to inform them; whenever they come to the library they see the information resources available.	* The library does not really interact much with teachers from that point of view. When they need information resources, they talk to the librarian and we order them. We mainly deal with textbooks for the classroom. * Teachers see new acquisitions whenever they come to the library for meetings, but there is no strategic arrangement to inform them. * The library displays the new acquisitions for teachers to see. This is a	Responses from librarians in Lagos show some of them discuss information resources with the teachers, but many of them do not, and some assume that teachers will get to know of them through the school principal. In Durban, on the other hand, some librarians display new acquisitions for teachers, but others assume that teachers will see them when they come for general meetings in the library.

	way of creating awareness about new materials. * Yes, the library usually sends the publisher's catalogue to them to make a selection, and fortunately the librarian is also a trained teacher who knows how to get their attention.	One librarian holds that teachers are expected to approach the library for their information, but others claimed not to expect this. One librarian sends publishers' catalogues to teachers to make their selection.

7.2.14 How adequate are the information resources in the library?

The reason for this question was to ascertain whether teachers are exposed to adequate information resources to meet their curriculum delivery.

Table 7.14: Adequacy of information resources in the library   (N = 8)

Lagos	Durban	Remarks
* The teacher-librarian claimed that the information resources in the library are below average, but there is an effort to reach out to NGOs and philanthropists to assist in order to improve the library facilities. * They are adequate. The teacher population is about 50.	* Information resources in the library are reasonably adequate compared to other schools around. This observation is based on many requests for books and other items from other schools. Textbooks are the main focus of the library, as far as the information resources are concerned. * Not adequate at all: the	In Lagos it was acknowledged that the information resources in the library are inadequate, even though efforts have been made to approach the NGOs for assistance. In Durban, some librarians hold that their resources are adequate, more than in other

* Not adequate. * Well, not so adequate.	library works within its budget, which is usually very low, although non-fiction books are now very expensive. * The library does not have enough resources in relation to the size and population of the school, which is huge in terms of teachers and learners, The facilities in the library do not meet the needs of the users. In terms of space and information resources it is grossly inadequate to meet the information needs of the school. * The information resources in the library are adequate; in fact there are so many more books in the store for the benefit of those who need them.	schools around based on the requests for book loan from other libraries. Some librarians claimed that the resources are so abundant that some are kept in storage. Other librarians believe that the resources are not adequate in relation to the teacher population. Some libraries just do not have the resources they need.

7.2.15   Does the library package information resources to assist classroom instruction?

The essence of this question was to establish the fact that the libraries meet their responsibilities to the teachers by making relevant information that could meet their information needs and help classroom instruction, available to them.

Table 7.15: Packaging information resources to assist classroom instruction (N=8)

Lagos	Durban	Remarks
* Many types of cardboard are hung in the library communicating to teachers the existence of certain information. *No. *No. *Yes.	* The library often makes online information resources available to teachers, since demand for physical books is very much on the decline. So the library makes available electronic resources for various subject areas. All the information resources are already packaged for easy use and access in a user-friendly environment. *No. * The library has information resources meant to assist classroom instruction. It lends books to students who do not have them, and collects them immediately after the class. * No.	In Lagos a librarian holds that availability of information is communicated to teachers through posters hung in the library, while others believe that that is not done. On the other hand, in Durban, a librarian thinks that all the necessary information resources are available online for teachers to use. Another librarian thinks that a library just lends books, and another library does not package resources.

7.2.16   What type of material is mostly used, and in which subject areas?

The reason for this question was to determine the extent of use of library resources by teachers, and the preferred resources.

Table 7.16:   Frequency of material use in the library   (N = 8)

Lagos	Durban	Remarks
* Material in History is mostly used because many teachers want to know about past events. * It depends on the subject area. * No record. *No idea.	* Teachers from different subject backgrounds come in and out of the library frequently. Some of them come more often than the rest. Many of them can access electronic resources in the comfort of their home, especially the subscription resources of the library. * Arts and culture, life orientation, business studies and technology. * Books are usually consulted in all subject areas. Some teachers use the books in the library and later return them immediately after classroom exercises. * The library usually encourages them to read fiction in order to	The response from Lagos shows that teachers use books in the area of History. Librarians agreed that teachers use resources in the library based on their subject areas. In Durban, however, the librarians agreed that teachers use library resources based on their subject areas. Many of them access the resources in their offices as a result of the subscription databases of the school. Others agreed that arts and culture, life orientation, business studies and technology are mostly used. Some libraries encouraged the reading of fiction to improve the

	encourage them to speak English, and reference material like encyclopaedias is also frequently used.	readers' ability to speak English.

7.2.17 How frequently do teachers use the information resources in the library?

The reason for this question was to establish whether teachers use the information resources available in the library.

Table 7.17: Frequency of information use by teachers (N = 8)

Lagos	Durban	Remarks
* Teachers don't use the library frequently, because apart from teaching they have many other things to do. * Frequently. * No idea. * Not so frequently.	* Some come to the library frequently, and some do not. * The teachers come to the library only when they need something. * Teachers use the library every day, but not all of them. Many of them come to use the internet for personal use like checking their email, not for their classroom activities. * Use is not as frequent as the librarians would love it to be.	In Lagos it was agreed that teachers do not use the library frequently. Some do not have any idea of frequency of use; others said the teachers use the library frequently. In Durban some teachers use the library frequently, others don't.

7.2.18 How up to date are the resources in the library?

The reason for this question was to establish whether the resources in the libraries are up to date. This will help to determine the level of attraction to library resources for teachers.

Table 7.18: Up to date information resources in the library   (N = 8)

Lagos	Durban	Remarks
* The resources in the library are up to date because recently government supplied the library with books. Apart from that, NGOs have promised to assist the library with modern facilities. * Up to date. * Relatively up to date. * Most of the curriculum-based textbooks are relatively up to date.	* Very up to date. * The information resources in the library are not up to date at all. Most of them are inherited from the time the school was established in the 70s. * The major challenge with the library at the moment is that the books are not up to date, because there isn't enough money for new books. The books that are relatively new in the library are the curriculum-based textbooks. * Many of the new books are from the United States of America. The librarian is not certain if the US is throwing books away.	Most of the librarians in Lagos think that the library collections are up to date. Others said that they had just got a new supply from the government. In Durban a librarian confirmed that the collection is very up to date. Some librarians claimed to have received up to date books from the United States of America. Others said the collection is not up to date because funds were short. One librarian claims to be making efforts to upgrade the library's resources.

7.2.19   Is the library connected to the internet?

The reason for this question was to ascertain whether teachers have access to information that is available on the internet.

Table 7.19: Internet connection in the library   **(N = 8).**

Lagos	Durban	Remarks
*No. *No. *No. *No.	*Yes. * Yes, the library is connected to the internet, but only one computer system has the facilities. The library is too small to accommodate more computer systems. There used to be enough space for 10 computer systems, but that is no longer possible as the library has now been partitioned. * Yes, the library is connected to the internet, which is very fast, except when there are many people on the internet at the same time. * Yes.	None of the libraries visited in Lagos have access to the internet. However, in Durban all the librarians visited have access to the internet through the local area network (LAN) and Wi-Fi. The libraries also have computers for easy accessibility.

7.2.20   Are there functional computer systems in the library?

The reason for this question was to ascertain whether the libraries have computer facilities to enable teachers to access information.

Table 7.20: Functional computers in the library   (N = 8)

Lagos	Durban	Remarks
*No. *No. *No. *No.	*Yes, there are many computer systems in the library. * Only one computer is available now, as a result of the restructuring of the library. * There are functional computer systems in the library, 18 in all. * Yes, about 45 computer systems.	None of the libraries visited in Lagos have computer access to information. In Durban, however, all the librarians confirmed that there are functional computer systems available as access points for information in their libraries.

7.2.21   How fast is the internet in the library?

The reason for this question was to ascertain how quickly teachers can have access to the information available on the internet in the library.

Table 7.21: Fast internet connection in the library   (N = 8)

Lagos	Durban	Remarks
*N/A. *N/A.	* The speed is good, and the internet facilities were recently upgraded to accommodate more users	This question is not applicable to Lagos since none of the libraries have internet facilities or

*N/A.	conveniently at a good speed.	computer systems.
*N/A.	*Very fast.	On the other hand, three libraries visited in Durban have very fast internet facilities, while only one cannot ascertain their speed.
	* Very fast. And the internet has a timer to regulate its use.	
	* Cannot really say.	

7.2.22 *Does the library subscribe to any electronic resources?*

The motive for asking this question was to ascertain whether or not teachers have electronic access to information as an alternative to using physical information facilities in the library.

Table 7.22: **Subscription of electronic resources in the library** **(N = 8)**

Lagos	Durban	Remarks
*No.	*Yes.	None of the libraries visited in Lagos have access to electronic resources.
*No.	*No.	
*No.	* Yes, there is an e-learning platform that the school subscribes to which is available to both teachers and students.	Meanwhile, in Durban, two libraries confirmed having electronic resources available to teachers, and two claimed not to have them.
*No.	No.	

7.2.23   Does the library organise information literacy training for teachers?

The reason for this question was to determine whether librarians as information professionals organise information literacy training for teachers to enable them to access both electronic and physical information resources effectively.

Table 7.23: Organisation of information literacy training for teachers   (N = 8)

Lagos	Durban	Remarks
*No. * No training organised for librarians, so the librarians cannot organise any training for teachers. *No. *No.	*Yes. *No. * Yes, the library organises information literacy training for teachers once in every term. It also trains teachers who do not know how to access information on the internet. The officials from the Department of Education come to the school to teach teachers how to use and access the e-learning platform. * Yes, the Department of Education organises information literacy training, and teachers are encouraged to participate, but not all at the same time. Some of them attend the information literacy	It was confirmed in the interviews with librarians in Lagos that information literacy training is not organised. In Durban, however, most of the librarians affirmed that they arranged information literacy training for teachers. And the Department of Education encourages teachers to attend the information literacy training at UKZN.

Lagos	Durban	Remarks
training at UKZN.		

7.2.24 To what extent do you think libraries support teaching and learning?

This question was asked in order to find out whether the libraries directly support teaching, learning and curriculum delivery.

Table 7.24: Extent of support of library for teaching and learning (N = 8)

Lagos	Durban	Remarks
* To a large extent. * Not sure. *Don't know. * To the extent that students come to the library to do their assignments, teachers come to write their lecture notes, and mark student examination scripts and tests.	* The library and the school management are in the process of formulating different courses for teachers, basic, middle and advanced, because it has been observed that there is a bit of a gap in their IT skills. The school has tried from time to time to introduce skill acquisition, but it has not always worked. So before the programme is launched it is important to ensure that the library has appropriate materials to deal with the needs of different levels of teachers. A lot of teachers do not want to admit that	According to the response from some librarians in Lagos, libraries support teaching to a large extent, but no details of the support were stated. Others are not sure of the extent of support their library offers. Some don't even know if the library offers any support at all. In Durban, on the other hand, a librarian acknowledged the involvement of libraries in supporting teachers. There is in fact a need to organise training for

they need the basic course, so we are going about this in a diplomatic way to establish who needs what to make it accessible and friendly so that everyone will participate and learn. The boss wants to make it compulsory, so that everybody will learn more. The school authority wants to ensure that everybody takes part and learns at the level that is convenient for them, because the number of teachers who are not computer literate is currently scary.

* The library supports teaching and learning based on the existing capacity.

* To a large extent the library supports teaching and learning activities by providing teachers with teaching aids and learning materials. The library has one library assistant and 20 library monitors who are students with an interest in

teachers in order for them to use information resources well, even though there is resistance to the training because teachers do not want to acknowledge their limitations in the use of new technology to access information. Some librarians acknowledge that their library supports teaching and learning by making teaching aids available.

	library activities.	
	* The library supports teaching and learning in a lot of ways. The librarian is often sent to go and observe how libraries operate in other schools so as to improve service delivery to teachers in this school.	

7.2.25: How often does the library staff undergo training?

The purpose of this question is to ascertain how often, and at what level, librarians are exposed to training that will help them to meet the needs of teachers.

Table 7.25: Training for library staff (N = 8)

Lagos	Durban	Remarks
* None, no training about information management at all. *None. *None. *None.	* Not very often. * Not at all. * The teacher-librarian is sent for regular training on the proper use of the library. * Twice every year.	The librarians in Lagos acknowledge that they do not undergo training. In Durban some librarians attend training regularly, some not often, and others not at all.

7.2.26 What would you say are the library's strengths and challenges?

The reason for asking this question was to identify certain competitive advantages of libraries, and the limiting factors that may affect service delivery to teachers in secondary schools.

Table 7.26: Strengths and challenges of the libraries (N = 8)

Lagos	Durban	Remarks
* The major challenge is that the library has not been developed to the proper standard. * The library is not conducive enough for teachers' work. It is located in the middle of the school, where the noise can be distracting, electricity is not constant, and there is no alternative source of power. * It's so difficult to control a crowd in the library. * The library is not adequately funded, There are no modern ICT facilities, the space is derisory, and the resources are scanty.	* The strength is that the library is fully available, and very well resourced. The school has worked really hard to ensure that it has ultramodern resources and everything needed to function properly. If there are innovations to be had, the school tries very hard to get them and implement what is necessary as fast as possible. Approximately 80 computer systems are available for use. 25 are on site, 25 in the reading room and 30 in the formal area. The biggest weakness is the lack of funds to obtain a Wi-Fi internet connection so that the community can access the subscription electronic resources, and students can use the	The librarians identified some of the challenges facing the library services in secondary schools; for example, the low standards: too much noise, erratic electricity, no alternative source of power, problematic crowd control, lack of space, no modern ICT facilities, shortage of money. On the other hand, some libraries in Durban listed some of their strengths: up to date resources, ultramodern ICT facilities, some have 80 computer systems, some have 25 computer systems. Some of the libraries complain about inadequate reading

	network anywhere in the school compound whenever they need to. At the moment all the computer systems are connected using the cable network before they use the library's electronic information resources The library has 25 functional computers systems but they are not enough. So from the electronic point of view, that is our weakness.

The library also needs another printer because it is always hectic during project season, with too many students wanting to print at the same time. Apart from these deficiencies I think we are pretty good. We are not over or understaffed

* The library is facing a serious problem about space. There is not enough for the use of both teachers and students.

* The major obstacle to the development of the library | space, and want more funding from government so that they don't have to rely on donors. |

	is the insufficient funding for teacher-librarians. . The library depends on being creative in raising funds to update resources. This is a persistent problem for teacher librarians. Even the computers in the library are donated. The Department of Education does not attend to the teacher-librarians as much as it does the teachers. * One of the major problems is space. Sometimes the library struggles to get books for teachers only for them to be stolen. 50 dictionaries were stolen in the library at one time. Nonetheless, the library's strength is that because of its facilities some of the students are among the best in the province, and able to get admission to top-rated universities.	

7.3   Section Two: Observation

The study used structured observation for data collection from the sampled secondary school libraries in Lagos and Durban in order to verify data obtained through questionnaires and interviews for triangulation and further validation of the research results. The observation centred on the facilities in the secondary school libraries, most importantly physical location, size, lighting, adequate and up to date information resources, shelving arrangements, sitting space, library guides, availability of computer systems and ICT equipment, collection outlook and usage, arrangement of information resources, and internet access. The observation was based on the following research questions:

A.   Physical location

B.   Size, lighting

C.   Adequacy of information resources in the library

D.   Up to date condition of library and information resources

E.   Shelving arrangements

F.   Sitting space

F.   Library guides

G.   Availability of computers and other ICTs

H.   Collection outlook and usage (browse date stamps)

I.   Arrangement of information resources

J.   Internet access

(See Appendix C) for observation schedules and (See the Appendix I) for pictures of Libraries observed in Lagos and (see Appendix J) for photographs of all the libraries observed in Durban.

7.3.1   Observation in secondary school libraries

Observations were conducted in eight secondary school libraries. They were:

- ❖ Eva Adelaja High School, Bariga, Lagos.

- ❖ Ojota Senior Secondary School, Ojota, Lagos.

- ❖ Agidingbi Secondary School, Lagos.

- ❖ Ikeja High School, Ikeja, Lagos.

- ❖ Durban, High School, Durban.

- ❖ Queensburgh High School, Durban.

- ❖ Umlazi Commercial High School, Durban.

- ❖ Swelihle High School, Durban.

7.3.2.   Physical location

The purpose of observing the physical location of the libraries was to ascertain whether or not the environment was conducive to promoting access to information.

Table 7.27: Location of the libraries

Lagos	Durban	Remarks
From the observable evidence, all the libraries visited in Lagos were located within the premises of secondary schools. Most of the libraries were not intentionally built for their purpose, but were classrooms converted to be used as libraries. Of all the libraries observed in Lagos, only one was	In Durban all the libraries observed were located within the premises of the secondary schools, and were purposely built as libraries. All the libraries are separated from the classroom areas. Most of them have what the teachers and learners basically need for	From observation in Lagos, locating a library among classrooms is not a good idea on account of the students' noise. It was also observed that the public secondary schools in Lagos were not built to accommodate a library, which explains why classrooms were

separated from the classrooms. Most of them lack what teachers basically need for information.	information.	converted into libraries, and basically lack the means to satisfy the information needs of teachers.

In Durban, on the other hand, most of the libraries were purposely constructed to function as libraries, especially at Durban High School, with its ultramodern facilities to give access to information. Most of the libraries are separated from the classrooms, and thus unpolluted by student noise |

7.3.3 Size, Lighting

The purpose of observing the size of libraries and their lighting was to establish the level of comfort of teachers when using the libraries.

Table 7.28: Size and illumination of the library

Lagos	Durban	Remarks
The secondary school libraries observed in Lagos, were too small for the school population because they were	Most of the libraries visited and observed are of average capacity in relation to the population of the school, while some are big	Based on the researcher's observation, most of the secondary school libraries are too small, are in a state of

Lagos	Durban	Remarks
classrooms that were converted into libraries. At the time of the visit electricity was not available, but some of them have an alternative power supply.	enough to accommodate many of the teachers, judging by their seating capacity. At the time of the visit the libraries had electricity in good working condition.	disrepair, and do not reflect what a real modern library should look like. It is obvious that electricity is a major problem in Lagos. In Durban, on the other hand, most of the libraries are of average capacity, far bigger than classrooms, and apparently purposely built to serve as libraries for both students and teachers. Even though the libraries were built for the students, teachers can use them as well. The libraries were well illuminated.

7.3.4   Adequacy of Information resources in the library

The rationale for observing the adequacy of information resources was to ascertain whether the available information in the secondary school libraries is sufficient to meet the information needs of teachers.

Table 7.29: Adequacy of information resources in the library

Lagos	Durban	Remarks
From all indications, and based on observable evidence, the secondary	From the evidence available, including photographs, most of the	The information resources in secondary school libraries in Lagos

school libraries visited in Lagos are not well stocked with physical and electronic resources. Most of the shelves were empty, and where they were not they were full of multiple copies of the same books, most of which were curriculum-based to assist learners in the classroom.	secondary school libraries in Durban have many books and have access to the internet. Shelves were full of books, newspapers and periodicals for the use of students and teachers.	are not adequate for the use of teachers. Most of the libraries observed in Durban have a lot of resources for teachers, and since the libraries have access to the internet, teachers can access information online to make up for the shortfall in physical information resources.

7.3.5.   Are library and information resources up to date?

The reason for observation was to ascertain whether secondary school teachers have access to current information resources so as to keep teachers abreast of developments in their profession.

Table 7.30: Up to date information resources in the library

Lagos	Durban	Remarks
Most of the books observed were current, but were curriculum-based, and not meant for the development of teachers. The information on the shelves was scanty. There were no internet facilities in the libraries either by LAN or Wi-Fi.	There were many up to date books in all the libraries observed in Durban, and most of the libraries had access to the internet for up to date information.	Some of the libraries observed in Lagos have up to date information resources, but they are for students, not teachers. However, the information resources observed in Durban are meant for both teachers

Lagos	Durban	Remarks
		and students, and there is internet to ensure access to the most current information.

7.3.6   Shelving arrangements

The reason for observing the shelving arrangements was to find out whether secondary school libraries arranged the shelves in a manner that would ensure quick access to information.

Table 7.31:   Shelving arrangements

Lagos	Durban	Remarks
Information on the shelves in the secondary school libraries observed in Lagos was not properly arranged. This is evident in the way most of the shelves were disorganised.	The information on the shelves was properly arranged using Dewey decimal classification (DDC), and well catalogued. In some cases the library shelves were properly labelled.	The shelving arrangements in Lagos secondary school libraries were not done in such a way as to enhance access to information resources. There was neither classification nor cataloguing of resources. In Durban, on the other hand, the libraries were properly labelled using the professionally acceptable Dewey decimal classification and catalogue, which makes it possible to access information and

		ensure security of the resources.

7.3.7   Seating space

The reason for observing the seating space of secondary school libraries was to ascertain whether the libraries were comfortable for teachers' use.

Table 7.32: Seating space

Lagos	Durban	Remarks
All the libraries observed in Lagos were of regular classroom size, which is obviously inadequate for teachers, except one library in Agidingbi Secondary School that is much larger than the rest.	All the secondary school libraries observed in Durban are relatively large and roomy. The library at Durban High School (DHS) is the largest, and the library at Queensburgh High School is the smallest.	Most of the libraries observed in Lagos, may not be comfortable for teachers' because there aren't enough seats. In Durban, on the other hand, most of the libraries have enough accommodation for teachers.

7.3.8   Library guides

The importance of observing the library guides was to establish whether the libraries provided a tool that would help to direct users to where they could locate and identify certain information resources.

Table 7.33: Library guide

Lagos	Durban	Remarks
There is no indication of any library tools guiding users to various information resources in the libraries observed in Lagos.	All the libraries observed in Durban have a library guide giving direction to all the information resources available in the library.	The libraries visited in Lagos have no library guide, because none of them are run by librarians, nor have those in charge gone for information literacy training to help them function in that capacity. All the libraries observed in Durban have library guides. This could be because those in charge have some knowledge of librarianship, or have gone for training in information literacy at various times.

7.3.9 Availability of computers and other ICTs

The reason for observing the availability of computers and ICT facilities was to establish if the teachers had access to modern ICT equipment to access information.

Table 7.34: Computers and ICTs

Lagos	Durban	Remarks
There is no evidence of ICT equipment in all the libraries observed in	Most of the secondary school libraries observed in Durban have computers	The secondary school libraries in Lagos have not been integrated with

Lagos.	and ICT equipment. For instance Durban High School (DHS) has state of the art ICT facilities like computers, internet, Wi-Fi, photocopying machines, barcode readers, electronic books, RFID technology, OPAC, 3M and Reuter. Other libraries have computer systems and internet facilities.	ICT facilities. There is evidence of improved ICT facilities in most of the secondary school libraries in Durban, even though the trend is not widespread in the township areas.

7.3.10   Collection outlook and usage (browse date stamps)

The reason for confirming the collection outlook and usage was to establish the nature of collection and the extent of usage.

Table 7.35: Level of usage of library resources

Lagos	Durban	Remarks
The libraries are used by students because most of the resources are targeted for their use. There are not enough of them for teachers' personal development.	Most of the libraries observed in Durban are well resourced for students and a little less well for teachers.	From all indications the libraries in Lagos were not designed to meet the needs of teachers. The libraries in Durban were designed to meet the needs of students, but also have facilities for teachers.

7.3.11 Arrangement of information resources

The reason for observing the arrangement of the information resources was to ascertain whether the libraries are arranged to enable quick access to information resources.

Table 7.36: Arrangement of information resources

Lagos	Durban	Remarks
Based on the observable evidence in secondary school libraries in Lagos, many of the books are placed on the shelves without classification marks, even though some shelves are labelled according to broad subjects.	All the libraries observed in Durban are catalogued and classified, using Dewey Decimal Classification (DDC).	The libraries observed in Lagos were not professionally well arranged. The reason could be that none of the "librarians" have gone through information literacy training. The libraries observed in Durban were professionally arranged.

7.3.12 Internet access

The reason for observing the internet connection was to establish whether teachers in secondary schools had access to the internet as a means to having access to information.

Table 7.37: Internet access

Lagos	Durban	Remarks
None of the secondary school libraries observed in Lagos have access to internet facilities, either through LAN or wireless means.	All the libraries observed have internet connectivity. There are Wi-Fi facilities to encourage teachers to use them.	Secondary school libraries in Lagos are without internet connection. This is a major disadvantage, especially for teachers who need quick and

| | | timely information that can help them personally, academically and professionally. |
| | | All the secondary school libraries in Durban have access to the internet, which is an obvious advantage for teachers' professional and academic development. |

7.4 Summary

This chapter has examined the findings acquired from interviews with librarians and observation of the information environments of selected secondary schools. This has led to a better understanding of the status of teachers' information literacy. Eight librarians participated in the interviews: four in Lagos, and four in Durban. In addition, the environments where the interviews were conducted were also observed for confirmation of the claims of teachers and librarians. In Lagos it was discovered that none of the officers operating in the library were librarians, nor had they gone through information literacy training in information management. Two of the librarians had first degrees in areas not relevant to information management or librarianship. Of the remaining two, one had completed secondary education, and the other had not, In Durban, however, there are trained librarians with a first degree to show for it, with various levels of working experience. Those who are not trained librarians have gone through information literacy training organised by the Department of Education, which makes them functional in information management.

Based on the observation of the researcher, secondary school libraries in Lagos have not benefited from personal, alumni or corporate organisations. In Durban, for instance, corporate organisations support library development. At Durban High School two of their alumni,

George Bennett (class of 1977) and Jean-Paul Rey (class of 1980) donated many computer systems and all accessories to the library; at Swelihle High School, Durban, corporate organisations also donated computer systems and books to the library; and at Umlazi Commercial High School, Durban, there is evidence of corporate social responsibility in the school. All this puts the secondary school libraries at an advantage, especially in having access to up to date information on the internet.

Another major challenge confronting secondary school libraries in Lagos is staffing, as observed in the quality of their expression during the interviews, which showed a lack of knowledge of information management. This was because none of them had studied librarianship, nor gone for information literacy training to equip them in managing information resources, and guiding the teachers in the proper use of information. Evidently the information in the libraries is not properly classified and catalogued, which prevents quick access. The staff in most of the libraries in Durban is either trained professionals or have gone through information literacy training organised by the Department of Education.

Observation of and testimony from the librarians in secondary school libraries in Lagos, made clear that they do not have modern facilities like computer systems, internet, photocopying machines, 3 M security facilities, Wi-Fi and bar code readers; whereas in secondary school libraries visited in Durban, there are modern facilities required of functional libraries: many computer systems used as access points for information; internet facilities to enhance quick access to information; Wi-Fi to enable access to the internet regardless of the location of teachers in the school; photocopying machines to ensure duplication of library resources, especially reference materials that cannot be used outside the library; and some of the libraries have 3M security to help detect stealing of information resources.

The data obtained from the interviews and observation compared to questionnaire responses raise fundamental contradictions to be discussed in the next chapter, which discusses the findings of the researc

8.1   Introduction

The previous chapter presented the data analysis, presentation and interpretation of the interview and observation responses. Data were gathered from secondary school librarians in Lagos, Nigeria and Durban, South Africa both quantitatively (with a survey through questionnaires) and qualitatively (through content analysis, document analysis and literature review, interviews and observation). Triangulating the three data sets improved on the reliability and validity of the data collected.

The discussion is based on the research goals stated in Chapter One, namely: to investigate teachers' perceptions about the need for information literacy skills in teaching secondary school subjects; to examine for what purposes secondary school teachers need information to enhance their teaching ability; to determine the type of information resources that teachers need for teaching purposes; to find out the frequency of use of various information resources by secondary school teachers; to investigate how the information search strategy of the secondary school teachers influences their use of and satisfaction with online resources; to investigate the effects of self-concept on the information literacy skills of secondary school teachers; and to identify the metacognitive abilities of teachers in the use of information resources in classroom instruction.

8.2   Characteristics of the respondents

This section describes the characteristics of respondents participating in the research in secondary schools. The respondents were drawn from secondary school teachers in Lagos, Nigeria and Durban, South Africa. Copies of questionnaires were given to 710 teachers, and 368 returned them from the six educational districts (EDs) in Lagos and four administrative districts (ADs) in Durban. The return rate was 193 (52.4%) in Lagos and 175 (47.6) in Durban. Eight librarians (four in Lagos and four in Durban).were also interviewed, and data obtained from their information environment through observation.

The librarians at two of the four libraries were interviewed. The other two were not librarians, but had attended training in information management in Durban. In Lagos two of the four librarians were actually teachers, but seconded to work and operate as "librarians"; the other

two were clerical officers who were secondary school certificate holders. This mixture of professional and non-professional librarians working in libraries is widespread among the sample.

The study revealed the diversity of the teaching profession in the sample by gender, with more female teachers (116, 60.1%) in Lagos than male (77, 39.9%), and in Durban more female (132, 75.4%) than male (43, 24.6%), thereby indicating that there are more female teachers in secondary schools in Lagos and Durban than male teachers, and confirming related studies where females appear to dominate the teaching profession (Menter, Hartshorn, Hextall, Howell & Smyth, 2006; UNESCO, 2011; Al-Yaseen, 2011; Dundar, 2014). The survey results relating to the years of working experience show that most of the respondents in Lagos and Durban were 36 years old and above (e.g. Lagos 123, or 63.7%, and 113 or 64.6% in Durban). Working experience may have had a positive effect on the ability of teachers to seek for career-related information, and enhanced their teaching skills.

Survey results describing the level of teachers' qualifications indicates that most secondary school teachers in both cities have a bachelor's degree: 152 (78.8%) and 87 (49.7%) in Lagos and Durban respectively. Further analysis of the results from both cities shows that most of the teachers possessed professional qualifications: 136 (70.5%) in Lagos and 10 (60.4%) in Durban. This suggests that most of the teachers in Lagos and Durban were qualified professionals, and some of them had post-graduate qualifications in education in Lagos (30, 15.6%) and Durban (31, 16.9%). It may be assumed that the better the qualifications of secondary school teachers, the better will be their use of information resources for teaching. Comparing the results from the interviews with librarians from the school libraries in Lagos and Durban, the librarians in the sampled secondary school libraries in Durban were more professionally qualified than those in Lagos. However, some school librarians had a bachelor's degree not related to librarianship, and could be ill-equipped to function effectively as school librarians. It was noted that in the Durban sample, trained professional librarians were employed to manage the library, and in cases where they were not qualified, they were exposed to the knowledge of information literacy skills provided by the Department of Education.

Studies have emphasized the importance of teachers' qualifications: for instance, Son, et al. (2013) state that basic professional development can advance classroom practice. Livingston (2014) affirms that the quality of teachers is significant for good learning outcomes.

Many studies have confirmed the importance of teaching experience in strengthening a teacher's performance. In the opinion of Rice (2010), experience acquired over a long period enhances the knowledge, skills, understanding and productivity of workers. Rice cautions that experience is especially influential during the early years of teaching, after which marginal returns diminish. Constant training is therefore important to keep teachers up to date in their profession and expose them to current activities that will enhance their performance. Ünal and Ünal (2011) hold that teaching experience also affects classroom management.

Regression analysis on the significance of the relationship between demographic variables (gender, age, years of experience and level of education) and information literacy skills (information need, information access, information search strategy, information literacy self-concept, information evaluation and information use) shows no significant relationship between demographic variables and information literacy skills of teachers in Lagos and Durban, as indicated in Table 6:2 ($F_{(1, 368)}$, .664; p>0.05). Therefore, the null hypothesis is not rejected. Also, demographic variables had multiple correlations with information literacy skills of teachers (R = 0.010, P>0.05).

Many studies have shown a positive correlation of the teaching profession with information literacy. For example, Ash-Argyle and Shoham (2014) reveal that there is a positive correlation of teachers' working experience with information literacy to the extent that they were equipped to assist students at various stages of the research assignments. Soleymani (2014) shows the significant positive relationship between teachers and information literacy, and the affirmative effect it has on student academic performance. Xu and Chen (2015) affirm the notably positive effects of information literacy on teaching methods.

Thus information literacy skills will increase with years of teaching experience and level of academic qualification. Since there are more female teachers than male, female teachers will tend to possess a higher level of information literacy than their male counterparts. On the other hand, the negative relationship between the age of teachers and their information literacy indicates that younger teachers tend to be more information literate than older ones.

Therefore for every increase in age, years of experience and academic qualification, a 0.2%, 0.1% and 0.8% increase respectively will be achieved in information literacy.

Many contemporary studies have confirmed the relevance of teachers' working experience. For example Ramos, Esslinger and Pyle (2015) reveal that teachers' working experience provides students with opportunities to interact well in the teaching environment. Kumi-Yeboah and James (2012) emphasize the transformational effect of teachers' working experience, but they acknowledge the challenges faced by novice teachers, and suggest perseverance in gathering experience as a panacea for the problem. Caires, Almeida and Vieira (2012) maintain that for developing a broad understanding of the complications, dynamics and idiosyncrasies involved in teaching, working experience is considered indispensable.

On the relationship between years of experience and teachers' information literacy, it can be inferred from the results that these skills increase with years of teaching experience. Furthermore, results from the study, which established a positive relationship between information literacy and academic qualifications, indicate that teachers with higher academic qualifications are more information literate than teachers less qualified.

On the other hand, the negative relationship established between age and information literacy indicates that older teachers are less information literate than their younger counterparts. This is a cause for concern since it is expected that older teachers who have more experience should possess a higher level of information literacy than younger teachers. This may be due to the attitude of teachers towards information literacy skills development and information self-efficacy of teachers, or to a failure to organize continuous learning for teachers that will gradually improve their information literacy skills. However, there may be need for an empirical study on this to ascertain the reasons.

8.3   What are the teachers' perceptions about the need for information literacy skills in the implementation of secondary schools subjects' instruction?

The study looked at teachers' perceptions about the need for information literacy skills in the teaching of secondary school subjects' instruction. The questionnaire dataset in Table 6.5 shows the perceptions of teachers about the need for information literacy skills, and reveals

that teachers in Lagos are not certain of their need for information literacy skills, as is shown in most of the statements that emphasized the need for information literacy skills. The inference to be drawn from the above result is that teachers in secondary schools in Lagos do not perceive information literacy as key to their ability to function well in class. The results of the survey also show that teachers in Lagos (104, 53.9%) were not certain when asked whether they need information literacy to effectively use a library. Further breakdown of the results of the survey has shown that 109 (62.3%) of teachers in Durban and 74 (38.3%) of teachers in Lagos agreed with the statement "I need information literacy skills to be an effective teacher". This shows that most teachers in Durban recognize the importance of information literacy to be effective teachers. It is obvious that teachers in the two countries do not perceive the effective use of the library as being related to information literacy.

The study by Stockham and Collins (2012) shows that teachers do not exhibit definite understanding of information literacy, which is an obvious priority for teaching K-12 classrooms. According to Leong (2009), teachers find it difficult to understand various terms in information literacy, which is a major impediment to their ability to collaborate with other staff. Probert (2008) points out the growing lack of information literacy among teachers, and decries the resulting disadvantage to students.

The analysis of the qualitative content (i.e. interviews and observation) provided more insight into the results obtained through the questionnaire dataset. For instance, the information on the characteristics of the personnel in charge of the library and the observation of the information environment can help to determine the reason for the perceptions of the teachers in Table 7.2. It shows that of the eight "librarians" interviewed in both cities, only two are professionally qualified librarians, and they are in Durban. The other two librarians in Durban have gone through information literacy training to enable them to manage the school libraries; but in Lagos, all four "librarians" interviewed were not professionally qualified, nor had they gone through information literacy training, which may affect the way teachers perceive information need. Other reasons that could affect the perceptions of the information need of teachers are as follows in Table 7.2.3, which shows that libraries in most government secondary schools in Lagos were not designed for the benefit of the teachers. In Table 7.2.4 it is noted that teachers perceived a library as merely a quiet environment to write lecture notes, but in Durban all the essential facilities to help teachers keep positive about the need for information resources are available.

Evidence in Tables 7.2.11 and 7.2.12 shows that librarians in Lagos find it difficult to determine the information resources needed by teachers. This suggests that there is no significant rapport between teachers and librarians. In Durban, for instance, it is the responsibility of librarians to facilitate the purchase of information resources. Table 7.2.24 shows that teachers in Durban regularly undergo information literacy training, which is not the case among the Lagos sample.

The observation in Table 7.3.2 shows that in Lagos libraries were located within the classroom, and so noisy students may be a major deterrent to teachers willing to use them. In Durban, on the other hand, most of the libraries were purposely constructed to function as libraries, especially at Durban High School, with its ultramodern facilities to enable access to information. Most of the sampled libraries were separated from the classroom area, and thus untroubled by noisy students. Evidence from observation shows other effects on teachers' perceptions of information literacy. For instance, in Lagos, the secondary school libraries are too small, and most are in a state of disrepair that does not reflect what a good modern library should look like. It is obvious that electricity is a major problem in Lagos as well. In Durban, on the other hand, most of the sampled libraries are of at least adequate capacity, far bigger than a classroom, and built for the students they serve, although teachers can use them as well.

The results, based on respondents in the two cities, showing the relationship between teachers' perceptions of the importance of information literacy skills and information resources for teaching, show the absolute value near to .5 which is considered a positive correlation, meaning that the two variables have a strong tendency to vary together. This indicates that there is a significant relationship between teachers' perceptions of the importance of information literacy and information resources for teaching. The finding is therefore inconsistent with the stated null hypothesis. This implies that teachers' perceptions of the importance of information literacy skills can determine the use of information resources for teaching.

The result from the evaluation of the hypothesis in confirming whether there is a significant relationship in the information literacy of teachers in Lagos and Durban confirms the position of the null hypothesis that says there is no significant difference.

The TAM reveals that a user's qualified acceptance can constitute a major hindrance to the use of information resources. Davis (1993:475) argues that there are fundamental relationships between perceived usefulness, system design characteristics, perceived ease of use, mindset towards use, and actual usage behaviour. The author asserts that the effects of system design on usage behaviour accounts for 36% of the variation in usage, while perceived usefulness was 50% more significant than ease of use in determining usage. This underscores the value of integrating the proper purposeful capabilities in new systems.

Teo (2013:81) itemizes diverse reasons that can lead to the use and acceptance, or rejection, of technology in accessing information: individual differences, social influences, beliefs, attitudes and situational influences are factors that promote the intention to use technology and the ability to accept or reject it.

8.4. For what purposes do secondary school teachers need information?

The purposes for which teachers use information can determine their level of productivity. Most of the respondents from both countries as presented in Table 6.6 agreed that they use information for teaching preparation (Lagos = 167, 86.5% and Durban = 129, 73.7%), guiding students' classroom activities (Lagos = 143, 75.0% and Durban = 123, 70.3%), supporting curriculum development (Lagos = 152, 78.7% and Durban = 121, 69.1%), developing competence (Lagos = 154, 79.8% and Durban = 123, 70.3%), and keeping up with current trends (Lagos = 156, 80.8% and Durban = 128, 73.2%). Further inference from the analysis reveals that there is no difference in the purposes for which teachers in both countries need information. The inference to be drawn from this is that teachers in the countries of study need information on a regular basis mainly for the purposes of teaching and professional development.

Various researchers support these views on why professional teachers use information (Bartlett & Toms, 2005; Bratianu & Orzea, 2010; Adetoro, 2010; Bitso & Fourie, 2011). For instance, Bartlett and Toms (2005:1) believe that information can be used to create knowledge and help to find solutions to problems. Adetoro (2010) states that information is important to a purposeful life.

The TAM reveals that information is used to predict the eagerness and motivation to perform a particular skill. Such intention is determined by three factors: first, the personal factor,

showing in human attitudes; second, subjective norms, which show social influence; and third, perceived behavioural control (Huda, et al., 2012:272).

The information from the interviews corroborated the information from the survey, with some variation between the two cities. For instance, in Table 7.2.6 librarians from Lagos claimed that some teachers are capable of using libraries independently, but others need help. In Durban, librarians claimed that teachers are able to use the library independently because they are familiar with the classification method used. They can also access information through the Internet on computers in the library. The response of librarians in Table 7.2.9 shows that some teachers are information literate, but some are not. This judgement of the librarians is doubtful, especially because many of them are not professionally qualified. In Durban many teachers go through information literacy training organized from time to time by the government.

Putting information into positive use in teaching depends on the adequacy of information resources. In Table 7.2.14 librarians in Lagos acknowledged the inadequacy of information resources, but in Durban, librarians find resources adequate, with some claiming that there are extra resources kept in storage. However, some librarians believe that the resources are not adequate in relation to the teaching population.

8.5. What types of information resource do teachers access for teaching purposes?

The reason why the respondents were asked to react to the above question was to establish the category of information resources they use for teaching. The questionnaire dataset in Table 6.7 showed that most of the teachers (119, 61.7%) in Lagos make use of electronic resources, but relatively few (71, 40.6%) in Durban do. The results reveal that more teachers in Lagos (148, 76.7%) make use of reference materials than teachers in Durban (85, 48.6%), just as more teachers in Lagos (128, 66.3%) than in Durban (109, 56.5%) were found to make use of journals and electronic books. Further breakdown of the results of analysis revealed that teachers in both countries do not make use of specialized databases, theses and dissertations, CD-Rom, monographs, reports, grey literature, indexes, audio-visual resources, YouTube, wikis and blogs, but do make use of computers, the Internet, newspapers, e-mail and libraries.

The evidence from interviews and observation contradict the teachers' position. For instance, in Table 7.2.19 none of the librarians interviewed in Lagos do not have access to the Internet facilities within the school premises. However, in Durban all the librarians interviewed claimed that their libraries have access to the Internet through the local area network (LAN) and Wi-Fi. These views are also confirmed by observation of the facilities by the researcher. Table 7.2.2 shows that the libraries observed in Lagos have no computer systems, but all the libraries in Durban do. Table 7.2.22 reveals that all the libraries in Lagos did not subscribe to electronic resources. However, teachers may have access to computers, the Internet and electronic resources by private arrangement, or through mobile application.

The study reveals that most teachers in Lagos use computers, the Internet, electronic books, specialized databases and audio-visual resources, but there is no evidence to justify the claim as not all the resources are found within a library, so teachers in Lagos may have been using them elsewhere. The review of literature (e.g., Bambi, 2010) shows high Internet penetration of Lagos, which means that generally Internet use is high in Nigeria, especially Lagos, compared to other African countries. On the other hand, most teachers in Durban claimed not to be using electronic books, audio-visual resources, blogs and wikis, even though Internet and computer systems are available in some schools visited for the research. The observable evidence in Table 7.3.4 shows that information resources in secondary school libraries in Lagos are grossly inadequate. Most of the resources the teachers claimed to be using are not available in the libraries; the only reference material seen was a dictionary. Most of the libraries observed in Durban have resources for teachers, and since the libraries have access to the Internet, teachers can access information online to make up for the shortfall in physical resources.

Many researchers (e.g. Hicks, 2011; Meier, Ben & Schuppan, 2013; Khalil, 2013; Sever & Güven, 2014) in LIS professions have used technology acceptance theory to predict the effect of underusing information resources, and have come to the conclusion that these resources are grossly underused in many academic organizations, leading to colossal financial loss and professionals working less than they should. In view of this, many technology acceptance theories and models (e.g. Meier, Ben & Schuppan, 2013) have been developed and used to study and evaluate the nature, use and adoption of information technology as it relates to information use and deployment.

8.6: What is the frequency of use of various information resources by secondary school teachers?

The basis for asking this question is to establish how often secondary school teachers make use of information resources available in the school library. Ducey (2013:20) points out that the TAM, which includes perceived ease of use and perceived usefulness, can be an important determinant of technology acceptance and user behaviour. Consequently, it can be inferred that to use modern technology to access information, an individual must believe that the technology is easy to use. From the responses to the questionnaire dataset in Table 6.8, it seems most teachers in Lagos and Durban use some information resources frequently. For instance, most of the sampled teachers in Lagos (114, 63%) frequently use computers, and in Durban teachers use computers more frequently (126, 71.9%). Other resources which most teachers in both countries use frequently are Internet, newspapers, library resources, email and books. Furthermore, it can be established from the analysis of the survey that teachers in both countries do not frequently use the following information resources: electronic resources, electronic library, theses and dissertations, CD-Rom, monographs, electronic books, reports, indexes, journals and audio-visual resources. This suggests that the teachers either do not have access to them, or lack the ability to use them.

Evaluation of the frequency of use of information resources can be established according to the availability of resources. Frequency of use can contribute to personal knowledge accumulated and proved over time to possess permanent value acquired mainly through formal and informal training (Kuhn, et al., 1995:3 and 12). Another factor that could aid the frequency of use of information resources is task and procedural knowledge, which is a skill acquired from years of experience (Schumacher, et al., 2012:1); strategic and declarative knowledge, which is the ability to recall stored or acquired information (Christopher, 2005:3); and finally, conditional knowledge, which is the ability to decide when and why a particular approach is necessary for the purpose of problem solving (Jones, 2012). Results from the librarians in Table 7.2.2 show that the libraries are open to teachers only during school hours. Table 7.2.3 shows that all the libraries sampled in Durban are designed to accommodate teachers, but in Lagos most are not. Data provided in Table 7.2.14 prove that in Lagos the information resources in the libraries are inadequate; the teachers in Lagos often stay away. Table 7.2.17 shows in fact that the teachers in both cities do not often use them,

Tables 7.2.19, 7.2.20 and 7.2.22 indicate the lack of Internet access, computers and electronic resources in Lagos, contrary to the situation in Durban, where these facilities are available..

The questionnaire results were quite contradictory in this regard as well. The contradiction is worth further investigation to find out if access to e-resources occurs at facilities outside the school (at home, or in a cyber café, or by mobile phone). Secondary school teachers claimed to be using information resources frequently, but this contradicted the realities of what was observed, especially in secondary school libraries in Lagos that were bereft of modern information resources. Another contradiction was that regardless of the claim by teachers to be using electronic resources frequently for their teaching, the evidence gathered from a school librarian in the course of the interview revealed that the secondary school did not subscribe to electronic resources. But most of the sampled libraries observed in Durban have a lot of resources and access to the Internet for teachers. Teachers can therefore access information online to make up for the shortfall in physical information resources.

Careful analysis of the result of the hypothesis in determining the frequency of use of information resources in Lagos and Durban established that there is a significant difference in favour of Durban in the level of information that is frequently used.

The hypothesis test to determine the significant difference in the frequency of use of information by teachers in Lagos and Durban shows that there is a significant difference in favour of teachers in Durban (F $(2,366) = 4.280$; $P<0.05$). This implies that secondary school teachers in Durban use information resources more frequently than their counterparts in Lagos.

Technology acceptance theory points to the fact that infrequent use of information resources can also be a result of resistance to the use of new technology. Siegel observes (2008:2) that resistance and little incentive to use new technology pose a major difficulty that persists among many professionals all over the world. The author suggests that the possible solution is to offer adequate training in and motivation for the use of technology to surmount the cause of the resistance.

8.7 What information search strategy is being exploited by teachers in using online information resources?

The reason for investigating the search strategy of secondary school teachers is to establish how effectively they access and use information resources to meet the curriculum requirement. The result of the survey in Table 6.9 shows that most teachers in Lagos and Durban retrieved information using natural language, word and phrase search and keyword as the main search strategies. Other search strategies such as truncation, proximity, field or meta-tag search, limiting search, and Boolean operators search are not being used by teachers in either city. Studies by Kaufmann and Bernstein (2010) report that natural language provides a recognizable and convenient way of query access to semantic web data, especially for casual web information users. Lacy and Hsin-liang (2013) affirm that a keyword is used as an information search strategy more than sentences. Majid, et al. (2013) support the current study's finding that the Boolean operator is not used frequently for information search.

The result of the hypothesis to establish the level of significant difference in the search strategy used by teachers in the two cities of Lagos and Durban shows that there is no significant difference in search strategies adopted by teachers in both cities ($F_{(2,366)} = .637$; $P>0.05$). Therefore, the null hypothesis is accepted.

Access to information offers the possibility for improved human competence. Lombardi (2007:2) observes that the acquisition of capacity to access authentic information is prevented by users' reluctance to accept and use available strategies and techniques.

8.8: What is the information self-concept level of teachers in secondary schools?

Self-concept refers to the sum total of a person's mental and physical features and ability to evaluate self (Lawrence, 2006:2). It is important because many studies point out that personal ability can no longer be overlooked when investigating information literacy skills. For instance, Zahra (2010:17), Jackson, (2013:150), and Mahmood (2013:232), propose that self-concept is vital in order to scrutinize its connection with information literacy. Together they form the bedrock of personal abilities and academic attainment. This question was largely answered in responses to the questionnaire. The rationale behind the question is to establish

whether or not self-perception is a predictor of ability to use information effectively. The results from the questionnaire dataset in Table 6.10 reveal that most of the teachers in both cities affirmed their agreement with statements that supported possession of a favourable information self-concept. It can thus be concluded that teachers in Lagos and Durban have a high information self-concept level. Further analysis of the results revealed similarity in the information self-concept of teachers in the two cities: most of the teachers in Lagos (174, 90.2%) and Durban (118, 67.4%) agree that they "can search information on the Internet by using key words". Most of the teachers in Lagos (137, 71%) and Durban (112, 64.0%) agreed that they "use the Internet to communicate professionally with fellow teachers". Most of the teachers in Lagos (164, 84.8%) and Durban (126, 72.0%) also unanimously agreed that they can "use the Internet to update teaching". Most of the teachers in Lagos (150, 77.7%) and Durban (93, 53.1%) agreed that they can talk to other teachers using online chat rooms. Most of the teachers in Durban (91, 52.0%) agreed that they "find it difficult to use a computer unaided". A substantial minority of teachers in Lagos (88, 45.6%) find it difficult to use a computer without assistance, but teachers in Durban can do so. Most teachers in Lagos (84, 43.5%) find using search engines like Google and Yahoo difficult, whereas in Durban just over half the teachers (89, 50.9%) do not consider using them a problem.

The result of the hypothesis establishing a relationship between information literacy and self-concepts of teachers in the two cities, showing absolute value near to .5 is considered a positive correlation. The implication is that the two variables have a strong tendency to vary together. The result indicates that there is a significant relationship between information literacy and information self-concepts of teachers, therefore the finding is not consistent with the stated null hypothesis. This implies that teachers' information literacy can determine their information self-concepts.

Ying-Tien and Li-Jen (2015) concur with the present study that teachers generally show reasonable Internet self-efficacy and possess advanced ability to use information. Tanga and Tseng (2013) admit that teachers who have advanced self-efficacy for information seeking and expertise in information literacy exhibit higher self-efficacy for online learning. De Groote, Shultz and Blecic (2014) affirm the fact that Google and other free search engines are more frequently used than other online retrieval tools. Kabakçı, et al. (2010), in regard to teachers' use of search engines like Google, observe that they encounter problems like

inappropriate information, inadequate information, and accessing websites with virus threats. The authors suggest that in-house training for teachers is essential.

The observable evidence supports the fact that teachers in Durban are more competent in the use of search engines than their counterparts in Lagos. Observation of secondary school libraries in Lagos showed a lack of Internet and computers, whereas the libraries observed in Durban have Internet (including Wi-Fi) and computer systems. It may be possible for secondary school teachers in Lagos to have access to the Internet and computer facilities at home, in cyber cafés, or through mobile facilities.

Numerous studies have assessed the TAM as a model to clarify how self-concept can aid the adoption and use of information resources. Kurbanoglu, Akkoyunlu and Umay (2006:731) argue that success is not only based on the acquisition of expertise; it also requires confidence in the use of the skill. Tabak and Nguyen (2013) state that "personality variables that are proposed to affect self-concept and learners' perceived ease of use and perceived usefulness are conscientiousness, openness to experience, general self-efficacy, and risk propensity".

8.9 What are the metacognitive abilities of teachers in the use of information resources in classroom instruction?

Metacognitive abilities appear in many studies (e.g. Danuwong, 2006; Wilson & Bai, 2010; Lai, 2011; Leeder, 2014). Metacognitive knowledge entails knowledge and understanding about oneself in relation to factors that might affect performance: personal knowledge, strategic and declarative knowledge, conditional knowledge, task and procedural knowledge and planning ability to be applied based on information literacy. Pressley (2005:1) holds that information literacy is a principal metacognitive skill, which means that information literacy skills are exactly the expertise people need to be able to take control of their own thinking and learning in order to find the best information for their needs.

Lee and Schmitt (2014) recognize that metacognitive ability supports problem-solving, self-monitoring and self-correcting in literacy intervention teachers. Ying-Tien and Li-Jen (2015) similarly identify the potential factors that influence the teachers' Internet self-efficacy, and agree that generally teachers express acceptable Internet self-efficacy.

The reason to investigate the metacognitive or problem-solving abilities of secondary school teachers is to establish whether the ability is capable of reinforcing their information literacy skills as teachers. The information from the questionnaire dataset in Table 6.11 reveals that a very large percentage of teachers in Lagos and Durban possess metacognitive abilities such as personal knowledge (Lagos = 184, 95.3%; Durban = 168, 96.0%), strategic and declarative knowledge (Lagos = 171, 88.6%; Durban = 160, 91.4%), conditional knowledge (Lagos = 158, 81.9%; Durban = 151, 86.3%), and planning ability (Lagos = 164, 85.0%; Durban = 153, 87.4%). On the other hand, most teachers in both Lagos and Durban were found to lack task and procedural knowledge (173, 89.5% in Lagos and 148, 84.6% in Durban).

The results of the hypothesis show the relationship between information literacy and metacognitive abilities of teachers for teaching. The data show that the absolute value near to .5 is considered to be a positive correlation, meaning that the two variables have a strong tendency to vary together. This indicates that there is significant relationship between information literacy and metacognitive abilities of teachers for teaching. From the table, r = 0.36, and P> 0.05, therefore the finding is not consistent with the stated null hypothesis. This

implies that teachers' information literacy can determine metacognitive abilities of teachers for teaching.

Further evaluation of the hypothesis uses regression analysis to show the significant joint contribution of information literacy skills variables (viz: information need, information access, information evaluation and information self-concept, information evaluation and information use) to metacognitive abilities of teachers. The results show that intercorrelation exists between the overall teachers' information literacy skills score and the other related factors/measures. The results showed that teachers' task and procedural knowledge had the highest correlation with their metacognitive abilities ($r = 0.67$). This is followed by strategic and declarative knowledge ($r = 0.66$), personal knowledge followed with $r = 0.62$. Next to it is information evaluation with $r = 0.39$, and information literacy skills and self-efficacy of teachers with $r = 0.24$. The correlations by other variables are extremely low. The implication is that only the five factors above correlate with teachers' metacognitive abilities.

Results of the regression of teachers' information literacy skills and metacognitive abilities for instructional delivery teaching on the ten related variables:

The regression results show an adjusted R-square value of 0.13 and an F-ratio of 9.471, the latter of which is significant at 0.05 level ($0.000 < 0.05$). These results indicate that the three independent variables (*information need, IA = information access, IE = information evaluation, ILSSEC = information literacy skills and self-efficacy of teachers, PK = personal knowledge, TPK = task and procedural knowledge, SDK = strategic and declarative knowledge, CK = conditional knowledge, PA = planning ability*) jointly (as indicated by the R-square value) explained 13% of the variations in the teachers' information literacy skills and metacognitive abilities for teaching. The prediction is also significant, as indicated by the F-ratio.

Additional evaluation of analysis of the hypothesis to reveal information on the individual contributions of each of the ten factors in predicting teachers' information literacy skills and metacognitive abilities for teaching:

The results showed, firstly, that each of the factors makes significant contributions to the prediction (as indicated by the significance of the t values, which are higher than 0.05, as

shown in the "t" column of the table (except information access t = --1.741), which made a negative lower contribution.

Secondly, the standardized coefficients (Beta values) which indicate the relative strength of each factor in the prediction of teachers' metacognitive abilities for teaching showed that information evaluation contributed most to the prediction of teachers' metacognitive abilities for teaching (Beta value .218). This is followed by information self-efficacy (Beta value .217), and information need (Beta value .121).

Although information and information use had Beta values of -.100 and -.009, their contribution is not significant, as indicated in the final column (sig less than 0.05). These results imply that three of the six factors that enter the final regression step made a significant contribution to the explanation and prediction of teachers' information literacy skills and metacognitive abilities of teacher for teaching.

8.10 Summary

The respondents' profile was diversified. A negative relationship was established between age and information literacy skills of teachers, which implied that older teachers are less information literate than their younger counterparts. This may be attributed to teachers' attitudes to information literacy development, and the information self-efficacy of teachers. On the other hand, the age factor may be due to a failure to ensure continuous learning for teachers that will encourage an incremental upgrade of their information literacy.

Teachers were undecided in their perceptions of the need for information literacy. Evaluation of the results of the hypothesis shows that teachers in Durban had a sharper perception of the need for information literacy than their counterparts from Lagos. Although quantitative results showed that the teachers in Lagos make more use of electronic resources than their colleagues in Durban, qualitative results contradict this finding. No school libraries visited in Lagos had computer systems or Internet connection, unlike the school libraries in Durban. The hypothesis test shows that secondary school teachers in Durban use information resources more than teachers in Nigeria. The results also reveal that there is a significant difference in the way teachers from Lagos and Durban perceive the need for information literacy in favour of teachers from Durban. The results show that teachers in Durban more keenly perceive the need for information literacy than their counterparts in Lagos.

Evaluation of the metacognitive abilities of teachers – personal knowledge, strategic and declarative knowledge, conditional knowledge and planning ability – shows that teachers in both cities possess metacognitive abilities. The positive relationship between the variables of metacognitive abilities and information literacy shows the possibility exists that the more the teachers possess metacognitive skill the more the possibility of increasing information literacy among secondary school teachers in the two cities.

After further evaluation of the relationship existing between information literacy skills and metacognitive abilities of teachers (that is, personal knowledge, tasks and procedural knowledge, strategies and declarative knowledge, conditional knowledge and planning ability) using correlation analysis, it can be deduced that the metacognitive abilities of teachers have a significant positive relationship with information literacy skills with values as follows: personal knowledge (r=.194, p<0.05), task and procedural knowledge (r=.289, p<0.05), strategic and declarative knowledge (r=.209, p<0.05), conditional knowledge (.300, p<0.05) and planning ability (r=.182, p<0.05). This positive relationship between the variables of metacognitive abilities and information literacy shows the possibility exists that the more the teachers possess metacognitive skill the more the possibilities of increased information literacy skills among secondary school teachers in the two cities. Additional examination of the evidence of the analysis shows the likelihood of an increase in the personal knowledge of teachers. A 3.7% increase in information literacy would be achieved, while every increase in the task and procedural knowledge of teachers would result in an 8.4% increase in information literacy. On the other hand, for every increase in strategic and declarative knowledge, conditional knowledge and planning ability, a 4.4%, 9.0% and 3.3% increase respectively would be achieved in information literacy.

Analysis of the hypothesis on metacognitive abilities to establish a relationship between the teachers in the two cities shows no significant difference in the metacognitive abilities of teachers. Therefore the null hypothesis is accepted that there is no significant difference in the metacognitive abilities of teachers in Lagos and Durban.

The next chapter presents a summary of the findings, and the conclusions and recommendations of the study.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

9.1   Introduction

The purpose of this study was to determine the information literacy skills and personal abilities of secondary school teachers in Lagos and Durban. The research questions were:

(i)   What are the teachers' perceptions about the need for information literacy skills in the implementation of secondary school subjects' instruction?

(ii)   For what purposes do secondary school teachers need information?

(iii)   What types of information resource do teachers access for teaching purposes?

(iv)   What is the frequency of use of various information resources by secondary school teachers?

(v)   What information search strategy is being exploited by teachers in using online information resources?

(vi)   What is the information self-concept level of teachers in secondary schools?

(vii)   What are the metacognitive abilities of teachers in the use of information resources in classroom instruction?

(viii)   What is information literacy in the contexts of Lagos, Nigeria and Durban, South Africa?

(ix)   What conceptual model mechanisms can be used to ensure information literacy skills of teachers in Lagos and Durban?

The following null hypotheses were used for additional verification of this study:

$H_{01:}$ There is no significant relationship between demographic variables (gender, age, years of experience and level of education) and information literacy skills (information need, information access, information search strategy, information literacy self-concept, information evaluation and information use) of teachers.

H_{02}: There is no significant difference in the perceptions of the need for information literacy skills by teachers in Lagos and Durban.

H_{03}: There is no significant difference in the frequency of use of information by teachers in Lagos and Durban.

H_{04}: There is no significant difference in the search strategy of teaches in Lagos and Durban.

H_{05}: There is no significant relationship between information literacy skills and information self-concept of teachers.

H_{06}: There is no significant relationship between information literacy skills and metacognitive abilities of teachers for instructional delivery.

H_{07}: There is no significant joint contribution of information literacy skills variables (viz: information need, information access, information evaluation and information self-concept, information evaluation and information use) to metacognitive abilities of teachers.

The sample for the research was drawn from teachers in government secondary schools in Lagos and Durban. Lagos State is a city that has 20 local governments and a population of 8 329 teachers (*Directory of Public Senior Secondary Schools in Lagos State*, 2010). The city of Durban is divided into four circuits representing 16 wards. In all the wards, excluding primary schools, independent schools and combined secondary schools, the total number of secondary schools is 141, and the population of teachers is 4 887 (Department of Education, 2010).

The respondents were drawn from secondary school teachers in Lagos and Durban, with 368 valid questionnaires returned with useful responses, 193 (52.4%) in Lagos and 175 (47.6) in Durban. Eight librarians were also interviewed to validate the responses from the questionnaires, four from Lagos and four from Durban. As pointed out in Chapter Five of this study, interviews and observation were used as part of the qualitative data collection technique to triangulate, complement and validate quantitative data. The eight schools used for the qualitative study were selected from the two cities of Lagos and Durban, four in Lagos and four in Durban. Of the four librarians interviewed in Lagos, two were secondary school dropouts, and the other two were university graduates, but not professional librarians. In

Durban, two of the four librarians interviewed were qualified professional librarians, and the other two were teachers who had gone through information literacy training while on the job.

The reliability and validity of the research instrument (the questionnaire) were ascertained by professionals and experts in the Department of Information Studies at the University of Zululand. A pilot study was conducted to ascertain the dependability of the research instrument, which was tested among teacher-librarians at the University of Zululand, where 57 of them contributed to the instrument with useful responses. Cronbach alpha technique was used to further determine the reliability of the research instrument. Finally, the data collected for the research were subjected to a reliability coefficient test. The outcome showed that the overall reliability coefficient was .801 (r =.801). Therefore all the items in the questionnaire were found to be reliable, and as such the questionnaire was deemed to be reliable, trustworthy and dependable (see Table 5.3).

More female teachers (116, 60.1%) in Lagos than male (77, 39.9%), and more females in Durban (132, 75.4%) than males (43, 24.6%) took part in the study. Most of the respondents in Lagos and Durban were 36 years old and above. There were more teachers aged 21-25 in Durban (13, 7.4%) than in Lagos (11, 3.7%), and more teachers of 26-30 in Durban (21. 12.0%) than in Lagos (17, 8.8%). Most secondary school teachers sampled in both cities had a bachelor's degree, with 152 (78.8%) and 87 (49.7%) for Lagos and Durban respectively. Most of the teachers from both cities possessed professional qualifications (Lagos 136, 70.5% and Durban 105, 60.4%). These data suggested that most of the teachers in Lagos and Durban were qualified professionals. Some of them had postgraduate qualifications in Education in Lagos (30, 15.6%) and Durban (31, 16.9%). It was found that gender (r=.039, p>0.05), years of experience (r=.022, p>0.05), and academic qualification r=.092>0.05) were positively correlated with information literacy, whereas age (r=.041, p>0.05) was negatively correlated with it.

When female gender was assigned the highest value, female teachers would tend to possess a higher level of information literacy than their male counterparts. Teachers from both cities with more years of teaching experience and those with higher educational qualifications would possess higher information literacy skills than their counterparts with fewer years of teaching experience and lower educational qualifications. On the other hand, the negative relationship between the age of teachers and their information literacy meant that younger

teachers would tend to be more information literate than their older counterparts. For every increase in age, years of experience and academic qualification, a 0.2%, 0.1% and 0.8% increase respectively would be achieved in information literacy. On the other hand, the negative relationship established between age and information literacy implied that older teachers were less information literate than their younger counterparts.

9.2. Summary of the findings by research objective and corresponding research question(s)

The summary of the findings is organised in line with the research objective.

9.2.1 Objective 1: To investigate teachers' perceptions about the need for information literacy in teaching secondary school subjects.

The research question was:

What are the teachers' perceptions about the need for information literacy in teaching secondary school subjects?

The study tested the hypothesis below:

- **H_{02}: There is no significant difference in the perception of the need for information literacy skills by teachers in Lagos and Durban.**

The study determined the perceptions of teachers about the need for information literacy in teaching secondary school subjects. The information from the questionnaire revealed that secondary school teachers surveyed in the two cities of Lagos and Durban were not sure about their need for information literacy for teaching. This was established as a result of the undecided position (largely in Lagos) they took in the statement emphasizing the need for information literacy (see Table 6.3). This inference is troubling as teachers in the two cities do not consider information literacy as germane to their ability to function appropriately in a modern teaching environment. They were uncertain whether they needed information literacy to effectively use the library. Despite the uncertain perceptions about the need for information literacy among teachers in Lagos and Durban, they agreed that they needed information literacy to be effective teachers.

The above analysis can be understood better by evaluating the information revealed through the qualitative content (i.e. interviews and observation). The qualifications of library

personnel, their level of training and the way the information environment is organized can influence the perceptions of teachers about the need for information literacy, For instance, in Lagos the librarian confirmed that teachers use the library for writing their lecture notes and staff meetings; there is limited rapport between the teachers and librarians. In Durban, on the other hand, the librarians confirmed that teachers use the library for the resources meant for them, and the professional expertise of the librarians. They borrow and return books, make photocopies, print out from online resources, use the Internet, obtain teaching aids, and ask the library to reserve information to meet their needs. Nonetheless, there is a remarkable difference between libraries in the affluent inner city and those in the townships (the outer city).

The outcome of the hypothesis to determine the significant difference in perception of the need for information literacy by teachers in Lagos and Durban revealed absolute value near to .5, which is considered a positive correlation. This means that the two variables have a strong tendency to vary together. This shows that there is a significant relationship between teachers' perceptions of the importance of using information literacy skills and information resources for teaching. From the table, $r = 0.14$, and $P > 0.05$, therefore the finding is not consistent with the stated null hypothesis. This implies that teacher's perceptions of the importance of information literacy skills can determine the use of information resources for teaching.

The TAM itemizes perceptions that may lead to a user's acceptance of technology for the use of information resources. Davis (1993:475) argues that there are fundamental relationships between perceived usefulness, system design characteristics, perceived ease of use, mindset toward use, and actual usage behaviour. Teo (2013:81) suggests that individual differences, social and situational influences, beliefs and attitudes are factors that promote the intention to use technology and the ability to accept or reject it.

9.2.2. Objective 2: To examine why secondary school teachers need information to enhance their teaching ability.

The research question was:

Why do secondary school teachers need information?

- **H_{03}:** There is no significant difference in the information literacy of teachers in Lagos and Durban.

The study revealed the purposes for which teachers use information to increase their level of productivity (see Table 6.6). The results show that most of the teachers in both cities use information for preparing lessons, guiding students' classroom activities, supporting curriculum development, developing competence, and keeping up with current trends. Thus teachers in the two cities need information on a regular basis mainly for the purposes of teaching, administrative and professional development.

The information obtained from the interviews with the librarians in the two cities supports the above claim. For example, in Lagos it was claimed that some teachers are capable of using libraries and information centres independently, but others need help. In Durban, on the other hand, teachers can use the libraries independently because they are familiar with the classification method, and can access information resources available through the Internet on computers available in the libraries.

Observation of the facilities in the libraries in Lagos contradicts the librarians' assertions and the teachers' opinions. Firstly, it is doubtful if the librarians are qualified professionally, or if they have the knowledge of information management for the job. Secondly, there is no indication to show the frequency of reference activities, since there is no record of how teachers borrow books and return them. Thirdly, close observation of the libraries reveals that they do not have facilities befitting a modern library (see Appendix I). The libraries in Durban are generally well resourced (see Appendix K), even though there are variations in the facilities and resources in favour of the school libraries in urban centres. The hypothesis test revealed that there is no significant difference in the level of information literacy skills possessed by teachers in Lagos and Durban ($F_{(2,366)} = .037$; $P>0.05$). Therefore the null hypothesis is accepted.

9.2.3 Objective 3: To determine the type of information resources that teachers need for teaching purposes.

The research question was:

What type of information resources do teachers access for teaching purposes?

The current study revealed the type of information used by teachers for teaching purposes in the two cities (see Table 6.7). More teachers in Lagos use electronic resources (119, 61.7%) than in Durban (71, 40.6%). More teachers from Lagos (148, 76.7%) use reference materials than teachers in Durban (85, 48.6%). A majority of teachers in Lagos (128, 66.3) and Durban (109, 56.5%) were found to use journals and electronic books.

Unfortunately, information obtained through interviews and observation contradicts the above statement (Table 7.2.19). None of the librarians interviewed in Lagos have access to the Internet facilities, unlike the libraries in Durban, which have Internet and Wi-Fi. Observation of the facilities in the two cities also confirmed the status of libraries there (see Appendices I and J).

Most of the teachers in Lagos claimed to be using the Internet and other electronic resources, which leads one to speculate that although those resources are not available in the libraries observed in Lagos, the teachers could have access to them at home or through mobiles. Most teachers in Durban claimed not to be using electronic books, audio-visual resources, blogs and wikis, even though the Internet and computer systems were available to enable access to those resources in some schools visited for the research. Using the TAM to shed light on this gap, it is stated by Sever and Güven (2014), Meier, Ben and Schuppan (2013), Hicks (2011) and Khalil (2013) that underuse of information resources can be a major source of financial loss and teachers performing below productive capacity. The reason for these contradictions was not fully established.

9.2.4 Objective 4: To find out the frequency of use of various information resources by secondary school teachers.

The research question was:

What is the frequency of use of various information resources by secondary school teachers?

- **H_{03}: There is no significance difference in the frequency of use of information by teachers in Lagos and Durban**

The study revealed that most teachers in Lagos and Durban use certain information resources frequently (see Table 6.8). For instance, teachers frequently use computer systems in Lagos (114, 63%) and Durban (126, 71.9%). Other information resources used in the two cities are the Internet, newspapers, library resources, email and books, but teachers rarely use electronic resources such as e-books, nor theses and dissertations, CD-Rom, monographs, reports, indexes, journals and audio-visual resources. The implication of the above is that teachers in the two cities do not use electronic resources as often as expected, either because they do not have access to them, do not know how to use them, or do not want to use them.

The hypothesis test established that there is a significant difference in the level of information frequently used in favour of Durban $(2,366) = 4.280; P<0.05$. This suggests that secondary school teachers in Durban use information resources more than teachers in Lagos.

Observation of the library enrolment shows a contradiction, in that secondary school libraries in Lagos do not have modern information resources, but teachers claimed to be often using them. The evidence gathered from the school librarians in the course of interviews revealed that the secondary schools did not subscribe to electronic resources. The sampled libraries observed in Durban are well resourced, so teachers can access information online to make up for any lack in physical resources.

The TAM indicates that a reason for the infrequent use of information resources includes resistance to the use of new technology. Siegel (2008:2) observes that resistance to new technology and little incentive to use it pose a major difficulty that persists among many professionals all over the world. But the author advises that a possible solution is to offer sufficient technological training to overcome the resistance.

9.2.5 Objective 5: To investigate how the information search strategies of secondary school teachers influence their use of and satisfaction with online resources.

The research question was:

What information search strategies do teachers use to access online information resources?

- **H$_{04}$: There is no significant difference in the search strategies of teachers in Lagos and Durban**.

Most of the teachers in the two cities retrieved information using natural language, word and phrase search and keyword as the only search strategies. Other search strategies such as truncation, proximity, field or meta-tag search, limiting search, and Boolean operator's search are not being used in either city (see Table 6.9).

The hypothesis test confirmed that there is no significant difference in the search strategies of teachers in the two cities.

9.2.6 Objective 6: To investigate the effects of self-concept on the information literacy skills of secondary school teachers.

The research question was:

What is the information self-concept level of teachers in secondary schools?

- H$_{05}$: There is no significant relationship between information literacy skills and information self-concept of teachers.

The study shows that teachers in Lagos and Durban have high information self-concepts (see Table 6.10). Most of the teachers in Lagos (174, 90.2%) and Durban (118, 67.4%) agree that they "can search information on the Internet by using key words". Most of the teachers in Lagos (137, 71%) and Durban (112, 64.0%) agreed that they "use the Internet to communicate professionally with fellow teachers". Most of the teachers in Lagos (164, 84.8%) and Durban (126, 72.0%) also unanimously agreed that they can "use the Internet to update teaching". Most teachers in Lagos (150, 77.7%), but considerably fewer in Durban (93, 53.1%), agreed that they can talk to other teachers using online chat rooms. However, although most teachers in Durban agreed that they do not "find it difficult to use a computer

unaided", teachers in Lagos find it difficult. The teachers in Lagos find it difficult to use search engines like Google and Yahoo, but their counterparts in Durban do not. Overall, it can be inferred that teachers in Lagos and Durban have a high information self-concept level since they agreed with most of the statements that supported information self-concept. Observation showed differences in the work environment in the two cities, particularly in Lagos, which makes it difficult to draw conclusions about the level of competence. The use of search engines requires the Internet and computer systems, which are not available in all the secondary school libraries visited in Lagos. All the libraries visited in Durban have these facilities. It was difficult, during visits to observe conditions in the Lagos schools, to ascertain whether teachers used information resources outside the schools (e.g. on mobiles or at home).

The result of the hypothesis showing a relationship between information literacy and self-concept of teachers in the two cities of Lagos and Durban:

The absolute value near to .5 is considered a positive correlation. This means that the two variables have a strong tendency to vary together, and that there is a significant relationship between information literacy skills and information self-concepts of teachers. Therefore the finding is not consistent with the stated null hypothesis. This implies that teachers' information literacy skills can determine their information self-concepts.

9.2.7 Objective 7: Identify the metacognitive abilities of teachers in the use of information resources in classroom instruction.

The research question was:

What are the metacognitive abilities of teachers in the use of information resources in classroom instruction?

- **$H_{06:}$ There is no significant relationship between information literacy skills and metacognitive abilities of teachers for instructional delivery.**

- **$H_{07:}$ There is no significant joint contribution of information literacy skills variables (viz: information need, information access, information evaluation and information self-concept, information evaluation and information use) to metacognitive abilities of teachers.**

The reason for this question was to evaluate the metacognitive abilities of teachers in the use of information resources in classroom instruction. The results show that most teachers in Lagos and Durban possessed metacognitive abilities such as personal knowledge, strategic and declarative knowledge, conditional knowledge and planning ability (see Table 6.14).

A correlation analysis was made showing the relationship between the information literacy and metacognitive abilities of teachers (personal knowledge, task and procedural knowledge, strategic and declarative knowledge, conditional knowledge and planning ability).

The reason for correlation analysis is to compare dependent and independent variables, using it as a basis to understand the relationship between teachers' metacognitive abilities and the information literacy of teachers (see Table 6.14). Teachers in both cities revealed that metacognitive abilities have significant positive relationships with information literacy, with values as follows: personal knowledge ($r=.194$, $p<0.05$); task and procedural knowledge ($r=.289$, $p<0.05$); strategic and declarative knowledge ($r=.209$, $p<0.05$); conditional knowledge ($.300$, $p<0.05$); and planning ability ($r=.182$, $p<0.05$). The positive relationships mean that an increase in their metacognitive abilities would lead to an increase in the information literacy of secondary school teachers in Lagos and Durban. The next section will focus on the conclusions of the study.

The result of the hypothesis showed a relationship between teachers' information literacy and metacognitive abilities for teaching. The outcome shows the absolute value near to .5 is considered a positive correlation. This means that the two variables have a strong tendency to vary together, and indicates that there is significant relationship between teachers' information literacy and metacognitive abilities for instructional delivery.

The result of the hypothesis showing the joint contribution of information literacy skills variables (viz: information need, information access, information evaluation and information self-concept, information evaluation and information use) to the metacognitive abilities of teachers in the two cities of Lagos and Durban reveals that intercorrelation exists between the overall teachers' information literacy skills score and the other related factors/measures. The results also showed that teachers' task and procedural knowledge had the highest correlation with teachers' metacognitive abilities ($r = 0.67$), followed by strategic and declarative knowledge ($r = 0.66$), and teachers' personal knowledge followed ($r = 0.62$). Next is

information evaluation (r = 0.39) and information literacy skills and self-efficacy of teachers (r = 0.24). The correlations with other variables are extremely low. This suggests that only five of the factors (teachers' task and procedural knowledge, strategic and declarative knowledge, teachers' personal knowledge, information evaluation, information literacy skills and self-efficacy correlate with metacognitive abilities.

9.3 Conclusions

In this section the focus is on salient issues emerging from the study, the study's limitations and implications, its contributions and its novelty.

This study found that secondary school teachers in Lagos and Durban exhibit uncertainty about their need for information literacy, which could be attributed to their lack of training in it, to unqualified library personnel, and to inadequate basic library resources. Although only 7% of South African schools have school libraries, most of the sampled school librarians in Durban have had training in information literacy, have good library resources, with modern information equipment, receive government support, and support also from alumni bodies and corporates.

Most teachers sampled in Durban recognize the importance of information literacy in being effective teachers. However, teachers in the two cities do not perceive the effective use of a library as having any relationship with information literacy. The result of the hypothesis shows a significant difference in the way teachers in the two cities perceived the need for information literacy in favour of teachers in Durban.

Secondary school teachers in Lagos and Durban need information for preparing lessons guiding students' classroom activities, supporting curriculum development, developing competence, and keeping up with current trends. These needs are not unusual for schoolteachers, but the school libraries in Lagos did not seem to be prepared to support the teachers' information needs.

While most of the teachers in Lagos indicated that they use electronic resources, it was the Durban teachers who made more use of them. Most information resources the Lagos teachers claimed to be using were not seen in the libraries. This suggests that the respondents were either mendacious or using electronic resources with other tools such as mobile applications

outside the school, in cyber cafés in the city, or at home. Durban teachers could use electronic resources because they were largely available in their schools.

It was also found that most of the teachers in Lagos and Durban frequently made use of most information resources except for electronic resources (i.e. the Internet and other computer resources), electronic libraries, theses and dissertations, CD-Rom, monographs, electronic books, reports, indexes, journals and audio-visual resources. Again there was a gap between claims of frequent use and actual accessibility in reference to the Lagos respondents and their work environments. All the secondary school teachers in Durban use information resources more frequently than their counterparts in Lagos.

It was further established that most of the teachers in Lagos and Durban were retrieving information using natural language, word and phrase search and keyword as the only search strategies. The use of natural language search has been found popular in related studies. However, there was no significant difference in the search strategies of teachers in Lagos and Durban.

When we come to the information self-concepts of the secondary school teachers in the two cities, teachers in Lagos found it easier using a computer without any assistance than the teachers in Durban, which suggests that teachers in Lagos were more competent in the use of search strategies than their counterparts in Durban. On the whole, the sampled teachers in both Lagos and Durban have high information self-concept levels. However, although the teachers in Lagos showed more competence in the use of search engines and other information resources than their counterparts in Durban, in reality this is questionable in the absence in the schools of the information resources for which an information self-concept can be established.

Finally, the metacognitive abilities of teachers in the use of information resources for teaching shows that most teachers in Lagos and Durban possess metacognitive abilities such as personal knowledge, strategic and declarative knowledge, conditional knowledge and planning ability. On the other hand, teachers in the two cities lack task and procedural knowledge.

This study had its own limitations and challenges

First, as the study concentrated on the limited geographical locations and populations of Lagos and Durban, the results cannot be applied to Nigeria and South Africa in general. Second, as indicated earlier (see 5.24), despite permission from all the governmental authorities in both cities, some principals declined access to their schools for fear of wasting time, and distracting the teachers and school librarians. In some schools where permission was granted individual teachers declined to participate in the research. Some were on annual leave, and others lost their questionnaire, some libraries were under lock and key, and others were being used for staff meetings. Third, which is critical in Lagos, it was difficult to get honest opinions from some librarians, regardless of the assurance of confidentiality, and permission from the Ministry of Education, owing largely to the political atmosphere during the election campaign at that time that made it difficult for teachers and librarians to divulge information that politicians may have considered exposed their shortcomings. Fourth, during fieldwork, there was an outbreak of the Ebola virus disease (EVD) in Lagos State between July and October, 2014, and to curb the spread of the disease the state government made it mandatory for people to be scanned and disinfected before gaining access to the school premises, which affected data collection to some extent.

This study reveals that an individual's age has a negative correlation with information literacy, meaning that information literacy declines with the age of teachers in the two cities. A positive correlation exists between information literacy and years of working experience. This means that teachers with many years of working experience tend to be more information literate than those with less working experience. Teachers with higher qualifications are also more information literate.

The main contributions of this study are that:

1.   Regardless of government regulation stating clearly the qualifications of school librarians, many of them in the employment of the two cities were not professionally qualified.

2.   There is a significant degree of decline in information literacy in relation to a teacher's age. Hence younger teachers tend to be more information literate, which makes in-service training for older teachers imperative.

3. Female teachers possess a significantly higher level of information literacy than males.

4. Many of the libraries were an afterthought, and the specifications for library building and planning were not observed as itemized by IFLA library building guidelines.

5. The library environments show that the facilities were not specifically built for the teachers in terms of space, furniture and tables (see Appendices I and J).

6. The degree of interaction and collaboration between the teachers and librarians is limited.

7. The study provides new information in the literature review, contextualisation on IL in Nigeria and South Africa, and presents new empirical research findings.

8. The study develops an information literacy model that will address the information needs of secondary school teachers.

9.4   Recommendations

Recommendations are summarized by seven research objectives below:

Objective 1: To investigate teachers' perceptions about the need for information literacy in teaching secondary school subjects.

Since the study shows that teachers are not sure about their need for information literacy, it is recommended that teachers in the two cities should be given the opportunity for constant information literacy training in order for them to become efficient users of information resources. Furthermore, it is important to encourage information change agents among teachers to support the initiative to promote information literacy skills and uphold constructive attitudes towards the appropriate use of the information environment, and establish a tendency to incorporate information literary skill concepts into teaching and learning. It is also imperative to establish partnerships between teachers and librarians, while at the same time employing only qualified librarians capable of competently handling modern information facilities.

The information acquired through qualitative means shows that some school librarians are not qualified professionals. Therefore it is recommended that a qualified professional librarian be

employed to manage the school library, because it is his/her role to collaborate with teachers and progressively engage them in order to make information that will improve teaching available promptly. This is important because libraries have become sophisticated teaching and learning environments that present necessary skills for the improved performance of teachers both in the classroom and in their lives outside school.

Since the study also shows that school librarians find it difficult to determine the information resources needed by teachers, it is recommended that apart from insisting on professional qualifications for school librarians, the school should collaborate with teachers in bringing about an improved educational system through access to information. This will in no small measure promote teachers' positive perceptions about information literacy and familiarity with the information environment, and enhance rapport between teachers and school librarians.

The present study shows that the location of a library can be a discouraging factor, because some of the libraries are located close to the students' classrooms and playground, which can affect teachers' perceptions about information resources and the information environment. It is therefore recommended that libraries be purposely built far from a noisy environment to encourage teachers to use the facilities. There should also be a policy document to specify the basic requirement for libraries to accommodate teachers.

Objective 2: To examine why secondary school teachers need information to enhance their teaching ability.

Even though the results of the survey show that teachers use information resources for teaching preparation, guiding students' classroom activities, supporting curriculum development, developing competence, and keeping up with current trends, the information acquired from observation of the libraries revealed inadequate information resources in some of the libraries. It is therefore recommended that there be adequate funding for the school libraries, to ensure that they acquire their fair share of school budgets. The librarians should take part in the budgeting process and be able to identify their libraries' needs, which must include resources like books, periodicals, non-printed material, promotional material like posters to create awareness about information resources, and a budget for stationery and administration, the cost of ICT resources, software and subscription-based resources.

Objective 3: To determine the type of information resources that teachers need for teaching purposes.

The study shows that teachers rarely use electronic information resources. Thus government ministries and departments in charge of education should increase investment in ICT facilities such as the Internet, computer systems, Wi-Fi and virtual/digital collections. Government should join with all the stakeholders in education, corporates and alumni bodies to create an enabling ICT environment to support teachers in their teaching and improve the school environments to support sustainable Internet connectivity, especially in Lagos and rural areas of Durban where the deficiency is more noticeable.

To ensure adequate use of resources in the school libraries it is imperative to train and retrain school librarians who in turn will organize users' education for teachers to use information independently and be able to observe all the ethical rules surrounding its use. Teachers have to be encouraged and supported by the school authorities to attend workshops and conferences that will boost their knowledge of how to access and use electronic resources.

Objective 4: To find out the frequency of use of various information resources by secondary school teachers.

Regardless of the fact that teachers affirmed that they frequently use information resources, evidence obtained through observation shows that some libraries are not well resourced. Use of information resources and the school libraries have implications for LIS practice, especially training, curriculum development, recruitment and the overall quality of the professional body of teachers. The importance of the library and librarians cannot be overemphasized because of the significant role they play in information management and the quality of teaching. The study has positive implications for library and information professionals in revealing the urgent need to employ skilled personnel with relevant training in information resources, who can interact with teachers to meet their information needs and predict their future needs by keeping them abreast of developments, It is obvious from the study that some secondary school librarians lack the minimum basic requirements to manage information resources and identify their roles and responsibilities to their working environment, especially in Lagos. The professional bodies in the two cities and countries should capitalize on their deficiencies by taking a firm decision against hiring non-professionals to manage information resources. They can take their cue from medical

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practitioners, who frown at using quacks to work in hospitals. The school library is a catalyst for literacy, teaching and reading, and the quality of accessible information can encourage innovation and inquisitiveness, and promote problem solving. Therefore the library environment should be designed in such a manner as to support teachers and other staff by upholding high quality learning opportunities. The study has shown that most of the school libraries that came under observation had not been purposely designed for teachers, but were an afterthought and late adaptation to the school architecture after the school had been established, excluding only white-dominated schools in Durban. Professional bodies should make an appeal for patronage to redress this anomaly. Libraries should be built to accommodate teachers and meet their information requirements to enhance their professional and personal development, as this will encourage the frequent use by students of a library's resources. It is important that apart from their schools' hiring qualified and skilled librarians, teachers should also be compelled to acquire information literacy as this will help them identify their information needs, use information ethically, evaluate information sources, use electronic resources appropriately, and recognize the interrelationship that exists between the library and information professions.

Objective 5: To investigate how the information search strategies of the secondary school teachers influence their use of and satisfaction with online resources.

Information retrieval warrants appropriate search strategies. There is similarity in the trend of information retrieval in the two cities of Lagos and Durban. The results show that most of the teachers do not have the ability to access complex information resources. It is therefore recommended that teachers be trained in skills that will enable them to search for and retrieve any information and filter out any unwanted information to meet the demands of academic discipline.

Objective 6: To investigate the effects of self-concept in the information literacy skills of secondary school teachers.

The present study reveals similarity in the results from the two cities, and establishes the cause and effect relation between information literacy and self-concept. The result of the study shows that the teachers in the two cities of Lagos and Durban possess information self-concepts. Since there is no finishing line to self-development, it is recommended that teachers

should be dedicated to activities geared towards personal growth. To achieve this, the libraries should acquire information resources that can drive and improve self-concepts.

Objective 7: To identify the metacognitive abilities of teachers in the use of information resources in classroom instruction.

The study established that metacognitive ability can reinforce the information literacy of teachers. It is recommended that teachers should learn metacognitive strategies to aid them in becoming comfortable with their learning tasks, and able to think before they teach.

9.5. A proposed information support model

The ninth objective, as stated in Chapter 1, section 1.5, was to develop an information literacy model that would address the secondary school teachers in Lagos and Durban. The model is anchored on the findings of this study. Different variables that make up the model were explained in detail in Chapter 3.

The conceptual model explains the process and how the study will be done. The model proposes relationship between information literacy skills and personal attributes of secondary school teachers. The personal ability that has been identified in the study as helping to optimize the use of information is self-concept, which is the sum total of a person's mental and physical features and evaluation of self. As such it has three aspects: the cognitive (thinking), affective (feeling), and the psychomotor (action); and metacognitive abilities (personal knowledge, task and procedural knowledge, strategic and declarative knowledge and conditional knowledge). Based on the evaluation of hypotheses and analysis of research findings, other internal and external variables that can foster the use of information resources are: age, gender, working experience, working condition, academic qualifications, facility, aptitude quotient, user friendliness, personal awareness, incentive, comprehension and expertise of librarian. These will advance the use of information resources, which may be physical or electronic (e.g books, journals, electronic resources, subscription databases, audio-visual materials, electronic databases, digital materials, etc.)

Information Literacy and Personal Abilities

Information literacy of secondary school teachers

*Information need

*Information access

*Information use

*Information evaluation

Personal Abilities

Metacognitive

*Personal knowledge

*Task and procedural knowledge

*Strategic and declarative knowledge

*Conditional knowledge

Self-concept

Affective qualities

Psychomotor skills

Personality

Cognitive abilities

Self-assessment

Confidence

External and internal factors

Age

Gender

Working experience

Working condition

Academic qualifications

Qualities of facilities

Aptitude quotient

Use of information resources

Books/ e-books

Journals/ eJournals

Electronic databases

Ref. materials

Internet resources

Subscription based resources

Digital materials

Fig. 9.1: Conceptual Model of information literacy skills and personal abilities of secondary school teachers.

9.6 Suggestions for further studies

The focus of this study is on the information literacy and personal abilities of secondary school teachers in Lagos and Durban. The researcher believes it is imperative to do further research on the subject.

The suggestions for further studies are listed below:

1. The study revealed that a teacher's age is negatively correlated with information literacy, which means information literacy diminishes with age among secondary school teachers in Lagos and Durban. The reasons for this should be investigated. Perhaps the training is insufficient, or the working environment constitutes a major impediment to self-development.

2. Analysis of the survey revealed that teachers in both cities do not make use of specialized databases, theses and dissertations, CD-ROM, monographs, reports, grey literature, indexes, audio-visual resources, YouTube, wikis and blogs. Therefore there is a need to investigate whether resources are unused because they are unavailable, or because teachers do not know how to use them.

3. Access to information is an ethical issue as the quality of information determines the performance of teachers. There is therefore a need for further studies to ascertain the degree to which policy on information access has been implemented.

4. Information literacy is contextual, and its performance depends solely on people, policies and the environment where it operates. For this reason, further investigation is necessary into information literacy models that may be more suitable for a city environment.

5. This study did not sample rural schools. Future work should compare the situation in rural schools with those in this study.

6. Finally, the present research is limited to government secondary schools in Lagos and Durban. Further studies are suggested to shed light on information literacy activities in schools owned by private organizations in the two cities.

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Appendix A

Letter of introduction
University of Zululand
Department of Information Studies
P. Bag X1001
KwaDlangezwa
3886

Dear Respondent,

Request for Research Questionnaire Assistance

My name is Durodolu Oluwole and I am a PhD student in the Department of Information Studies, University of Zululand. I am seeking your assistance in this survey. I am researching on "Information Literacy Skills and personal abilities of Secondary School Teachers in Nigeria and South Africa"

The information you supply will be treated with the strictest of confidence. Data will only be presented in the aggregate, and responses will not be attributed to individuals. Please kindly assist by completing the attached questionnaire.
Thanking you in advance.

Yours truly,

Durodolu Oluwole

Section one: BIODATA

1.   Gender: Male ☐   Female ☐

2.   Age: 16-20 ☐   21-25 ☐   26-30 ☐   31-35 ☐   36 and above ☐

3.   Year of Experience 1-5 ☐ 6-10 ☐ 11-15 ☐ 6-20 ☐ 21-25 ☐ 26-30 ☐

4.   Academic qualification   _____

5.   Country: Nigeria ☐   South Africa ☐

Section two: Teachers' perception of the need for information literacy

1 = SD (Strongly Disagree), 2 = D (Disagree), 3 = UD (Undecided), 4 = A (Agree) and 5 = SA (Strongly Agree)

(i)   Information Literacy Skill Perception

		SD	D	A	SA
1	I need information literacy skill to be an effective teacher				
2	There is no relationship between my level of information literacy skills and job performance				
3	I need special training on how to effectively use the internet				
4	I need training on how to use academic electronic databases				
5	I need to be trained on the proper use of the library				
6	I need information literacy skill to effectively use a library				
7	I need Information literacy skill to effectively retrieve information in any format from any source				
8	I need Information literacy skill to avoid plagiarism				
9	I need Information literacy skill to effectively use search engine.				
10	I need strategic ability to login and retrieve information				

11	I need ability to recognize how current awareness technologies (e.g., RSS feeds, blogs, listservs) can be used to stay informed in areas of interest				
12	I need ability to recognize information overload and develop strategies to manage information anxiety				

(ii) Information need

For what purpose(s) do you need information?

1= Very frequently (VF); 2= Frequently (F); 3=Sometimes (S); 4= Rarely (R); 5= Never (N).

		VF	F	S	R	N
1	Teaching preparation					
2	Guiding student's classroom activities					
3	Support curriculum development					
4	Develop competence					
5	Keep up with current trend					
6	Preparation for promotion interview					
7	Preparing lecture notes					
8	Workshop and seminar presentations					
9	General awareness					
10	For job interview					
11	Service or job requirement					
12	Reading purposes only					
13	Carry out administrative work					

(iii)   Information Access

What are the challenges encountered in accessing information?

		Please tick (√)
1	Information is scattered in too many sources	
2	Information sources are very expensive	
3	Required material is not available	
4	Information sources are located far away	
5	Latest information sources are not available	
6	Information explosion or too much information	
7	Obsolescence of information resources	
8	Lack of access to the internet	
9	Non availability of electronic resource (e-journals and databases)	
10	Too many classes or administrative work	
11	Library staff is incompetent or not well-trained	
12	Lack of training in utilization of electronic resources	
13	Lack of computer hardware or software	
14	Lack of technical support	
15	Lack of support from library staff	
16	Lack of information about available sources	
17	Lack of knowledge in using the library	

(iv)   Information evaluation

Which ability to evaluate sources of information do you have?

		Please tick (√)
1	I have ability to differentiate between scholarly, trade, and popular sources of information	
2	I have ability to evaluate resources of information	

	for authority, accuracy, reliability, coverage, and timeliness	
3	I have ability to locate resources relevant to the topic and subject matter	
4	I can identify possible biases, discrimination and prejudices within sources of information	
5	I can seek feedback from peers and scholars	
6	I can make use of review tools to evaluate information sources (e.g., book reviews, annotated bibliographies, etc.)	
7	I can differentiate between types of research (e.g., qualitative, quantitative, etc.)	
8	I can evaluate research methods within studies	
9	I can apply evaluation criteria in the identification and use of key sources of information (e.g., journal impact factors)	
10	I can identify research biases within studies	

(v)   Ethical Use of Information

Do you have ability to use information ethically?

		Please tick (√)
1	I understand the legal and ethical repercussion of using information properly and responsibly	
2	I recognize the essentials of plagiarism and copyright issues	
3	I can cite sources of information appropriately	
4	I have developed an understanding of responsible use of information and types of plagiarism	
5	I recognize ethical and legal considerations particular to my discipline	
6	I can use information ethically as universal and local citizens	
7	I can decide whether to retain autho'sr rights for future use of research output	

8	I adhere to professional ethical guideline principles	
9	I acknowledge the owner of information content	
10	I can cite references using the appropriate reference styles	

(2) Which of the following Information Literacy Skill do you possess?

1= Strongly Disagree (SD), 2= Disagree (D), 3= Agree (A) and 4= Strongly Agree

Please, tick appropriately

		SD	D	A	SA
1	Ability to determine when information is needed				
2	Ability to access the needed information effectively and efficiently				
3	Ability to evaluate information and its services critically				
4	Ability to use information effectively to accomplish a specific goal				
5	Ability to understand the ethical use of information				
6	Ability to identify potential sources of information				
7	Ability to evaluate needed information				
8	Ability to integrate new information to existing body of knowledge				
9	Ability to develop successful search strategy				
10	Ability to retrieve information in any format from any source				

(3) What type of information resources do teachers access for teaching purposes?

		Please tick (√)
1	Computer resources	
2	Internet Resources	
3	Electronic resources	
4	Specialised databases	
4	Newspapers	
5	Email	
6	Library resources	
7	Reference materials	
8	Books	
9	Thesis and dissertation	
10	CD Rom	
11	Monographs	
12	Electronic book	
13	Reports	
14	Grey literature	
15	Indexes	
16	Journals	
17	Audio visual Resources	
18	Youtube	
19	Wikis	
20	Blogs	

(4) How frequently do you use the following information resources?

VF (Very frequently) F (Frequently) NF (Not frequently) NA (Not at All)

		VF	F	NF	NA
1	Computer				
2	Internet				
3	E-resources				
4	Newspapers				
5	Email				
6	Library resources				
7	Electronic library				
8	Books				
9	Thesis and dissertation				
10	CD Rom				
11	Monographs				
12	Electronic book				
13	Reports				
14	Grey literature				
15	Indexes				
16	Journals				
17	Audio visual Resources				

(5)   Which information search strategy do teachers possess?

		Please tick (√)
1	Natural language	
2	Word and phrase search	
3	Keywords	
4	Truncation	
5	Proximity	
6	Field or Meta tag search	
7	Limiting search	
8	Boolean operators	

Others specify**………………………………………………………………**

(6)   What are the effects of self-concept in the information literacy skills of teachers in secondary schools?

(i)   Information Literacy Skill and self-efficacy of Teachers

1= Strongly Disagree (SD), 2= Disagree (D), 3= Agree (A) and 4= Strongly Agree

Please, tick appropriately

		SD	D	A	SA
1	I can search information on the Internet by using key words				
2	I use the Internet to communicate professionally with fellow teachers				
3	I use the Internet to update in teaching				
4	I find it difficult to use computer unaided				
5	I think I can talk to other teachers in online chat room				
6	I find using e-mail very easy				
7	I can usually sort out any access problems I may have on the Internet				
8	I don't have any problems downloading relevant information for the students for solving problems.				
9	I sometimes find using search engines like Google and Yahoo difficult				

10	I rarely have problems finding what I am looking for on the Internet.				
11	I am confident of my ability to get needed information through the use of internet and other databases.				
12	I am always ashamed to seek for assistance in using computers and the internet.				

(7)   What are the metacognitive abilities of teachers in the use of information resources in classroom instruction?

1= Strongly Disagree (SD), 2= Disagree (D), 3= Agree (A) and 4= Strongly Agree

Please, tick appropriately

(i) Personal Knowledge

Rank	Items	SD	D	A	SA
1.	I have Positive attitudes towards Teaching				
2.	I believe Information literacy skill enables learning				
3	I believe Information literacy skill can enhance my achievement				
4	I believe I can overcome my difficulty in acquiring Information literacy skill				
5	Knowledge of Information literacy skill can motivate				
6	I have ability to identify my information need				
7	I have ability to evaluate sources of my information				
8	I have ability to access information from various sources				
9	I have ability to utilize information				
10	I am aware of various sources of information				

(ii)   Task and procedural Knowledge

Rank	Items	SD	D	A	SA
1.	Familiarity with Information literacy skill in carrying out my assignment				
2.	I try to use strategies that have worked in the past to access information				
3	I am aware of what strategies to use when evaluating sources of information				
4	I find myself using helpful strategies automatically to identify my information need				
5	I think about the originality of information I use				

(iii)   Strategic and Declarative Knowledge

1	I understand my intellectual strengths and weaknesses.				
2	I know the kind of information that will give me competitive edge				
3	I reflect seriously after I have use information pertaining to my work				
4	I am good at organizing information				
5	I know what is expected of me to be information literate.				
6	I am good at remembering information				
7	I teach better when I have sufficient information about a topic.				

(iv)   Conditional Knowledge

1	I use different strategies depending on the situation to access information				
2	I use my intellectual strengths to compensate for my Weaknesses				
3	I know when each strategy I use will be most effective				
4	I use my initiative to source for relevant information pertaining to my work				
5	I can motivate myself to teach when I need to				

(v)   Planning Ability

1	I think about necessary information relevant to classroom instruction before I begin a task.				
2	I pace myself while teaching in order to have enough time.				
3	I set specific goals before I begin a task.				
4	I read instructions carefully before I begin a task				
5	I organize my time to best accomplish my teaching Goals				

Interview schedule for school librarians

Date: ....

1. Background information

    i. School: ....

    ii. Department: ....

    iii. Name of official: ....

    iv. Designation: ....

    v. Qualifications...

2. What are the library's opening and closing times?

3. Is the library open for teachers?

4. Comment on the suitability of library's facilities for teachers

5. Do teachers perceive the library and librarian as a partner in classroom activities?

6. To what extent do teachers use library and information resources independently?

7. Are teachers satisfied with the library services?

8. Do teachers considered the library a place that can meet their information need?

9. In your opinion do you consider teachers as having information literacy ability?

10. How do teachers perceive the responsibilities of the library?

11. How do you determine the information resources needed by teachers?

12. Does the library consult the teachers before new acquisition?

13. Does the library inform teachers of information resources that can help classroom instruction?

14. How adequate are the information resources in the library?

15. Does the library package information resources to assist classroom instruction?

16. What type of material is mostly used and in which subject areas?

17. How frequently do teachers use the information resources in the library?

18. How up-to-date are the resources in the library?

19. Is the library connected to the internet?

20. Are there functional computer systems in the library?

21. How fast is the internet in the library?

22. Does the library subscribed to any electronic resources?

23. Does the library organise information literacy skill for teachers?

24. To what extent do you think library support teaching and learning?

25. How often does the library staff undergo training?

26. What would you say are the library' strengths and challenges?

Appendix C

Observation guide of facilities in Secondary Schools

Rationale:

To give an evaluation of the library and information resources in terms of:

A.   Physical location

B.   Size, lighting

C.   Adequacy of Information resources in the library

D.   Up-to-date of Library and Information Resources

E.   Shelving arrangement

F.   Sitting space

F.   Library guides

G.   Availability of computers and other ICTs

H.   Collection outlook and usage (browse date stamps)

I.   Arrangement of information resources

J.   Internet access

Appendix D

Department of Information Studies

23 July 2014

The Director
The Department of Education
Durban

Dear Sir/Madam

Re: Permission to conduct research: Mr O.O. Durodolu

Mr. Durodolu is currently studying towards his PhD in Library and Information Science in the Department of Information Studies, at the University of Zululand. The title of his PhD study is: "*Information literacy skills and personal abilities of secondary school teachers in Nigeria and South Africa*". To enable him to do his research he request permission to distribute questionnaires to teachers, do an interview with the school librarians, and to observe the school libraries in selected secondary schools in the Durban area.

I therefore kindly request that he be given permission to visit the Secondary schools to conduct his study.

If any further information is required, please feel free to contact me at 035 9026483.

Yours sincerely

B.J. Mostert (Prof)
Interim HOD

HEAD OF DEPARTMENT
INFORMATION STUDIES
UNIVERSITY OF ZULULAND

SIGNATURE
DATE: 23.7.2014.

301
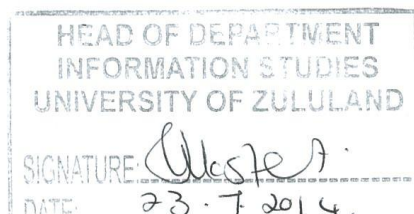
Appendix E

education

Department:
Education
PROVINCE OF KWAZULU-NATAL

Enquiries: Nomangisi Ngubane   Tel: 033 392 1004   Ref.:2/4/8/211

Mr O O Durodolu
Private Bag X1001
Kwadlangezwe
3886

Dear Mr Durodolu

PERMISSION TO CONDUCT RESEARCH IN THE KZN DoE INSTITUTIONS

Your application to conduct research entitled: **"Information Literacy Skills and Personal Abilities of Secondary School Teachers in Nigeria and South Africa"**, in the KwaZulu-Natal Department of Education Institutions has been approved. The conditions of the approval are as follows:

1. The researcher will make all the arrangements concerning the research and interviews.
2. The researcher must ensure that Educator and learning programmes are not interrupted.
3. Interviews are not conducted during the time of writing examinations in schools.
4. Learners, Educators, Schools and Institutions are not identifiable in any way from the results of the research.
5. A copy of this letter is submitted to District Managers, Principals and Heads of Institutions where the intended research and interviews are to be conducted.
6. The period of investigation is limited to the period from 01 August 2014 to 30 June 2015.
7. Your research and interviews will be limited to the schools you have proposed and approved by the Head of Department. Please note that Principals, Educators, Departmental Officials and Learners are under no obligation to participate or assist you in your investigation.
8. Should you wish to extend the period of your survey at the school(s), please contact Mr. Alwar at the contact numbers below.
9. Upon completion of the research, a brief summary of the findings, recommendations or a full report / dissertation / thesis must be submitted to the research office of the Department. Please address it to The Director-Resources Planning, Private Bag X9137, Pietermaritzburg, 3200.
10. Please note that your research and interviews will be limited to schools and institutions in KwaZulu-Natal Department of Education. (Umlazi district)

Nkosinathi S.P. Sishi, PhD
Head of Department: Education
Date: 08 August 2014

Appendix F

University of Zululand, Private Bag X1001, KwaDlangezwa, 3886

T: +27 35 902 6000/6646   W: www.unizulu.ac.za

UNIVERSITY OF
ZULULAND

30/11/2014

The Permanent Secretary,

Ministry of Education,

Lagos State Secretariat,

Alausa, Lagos State,

Nigeria.

Dear Sir/Madam,

Re: Permission to conduct research: Mr. O. O. Durodolu

Mr. Durodolu is currently studying for PhD in Information Studies in the Department of Information Studies at the University of Zululand. The title of his PhD is *"Information literacy skills and personal abilities of secondary school teachers in Nigeria and South Africa"*. To enable him to complete his research, it is imperative for him to distribute questionnaires among the teachers, interview the school librarian and observe the library facilities.

In view of the above I kindly request that permission be granted for him to carry out his research in selected secondary schools in Lagos State.

If any further information is required, please feel free to contact –2735 9026483.

Yours sincerely,

HEAD OF DEPARTMENT
INFORMATION STUDIES
UNIVERSITY OF ZULULAND
SIGNATURE
DATE

B.J. Mostert (Prof.)
Interim HOD: Department of Information Studies

Appendix G

LED/BES/S.191A/V/87   30th December, 2014

Tutor-General/Perm Sec,
Education District.1.-VI.

<u>RE: PERMISSION TO CONDUCT RESEARCH: MR. O.O. DURODOLU</u>

<u>LETTER OF APPROVAL</u>

    I am directed to refer to the request of Mr. O.O. Durodolu on the above subject and to convey approval for him to conduct the proposed research on Information Literacy Skills and Personal Abilities through the administration of questionnaire among Secondary Schools' Teachers in Public Senior Secondary Schools in the State.

2.   He has been advised to liaise with the Offices of Tutors-General/Permanent Secretaries of the Six Education Districts for modalities and further details.

3.   Thank you.

Sutton, S.B. (Mr.)
For: Permanent Secretary

CC: Mr. Durodolu, O.O.
       c/o University of Zululand,
       Private Bag, X1001, KwaDlangezwa, 3886,
       South Africa.

Appendix H

UNIVERSITY RESEARCH ETHICS COMMITTEE
(Reg No: UZREC 171110-30)

UNIVERSITY OF ZULULAND
Website: http://www.unizulu.ac.za

Private Bag X1001
KwaDlangezwa 3886

Tel: 035 902 6087
Fax: 035 902 6222
Email: MangeleS@unizulu.ac.za

ETHICAL CLEARANCE CERTIFICATE

Certificate Number	UZREC 171110-030 PGD 2013/45				
Project Title	Information Literacy Skills and Personal Abilities of Secondary School Teachers in Nigeria and South Africa				
Principal Researcher/ Investigator	DO Olumide				
Supervisor and Co-supervisor	Prof. DN Ocholla				
Department	Information Studies				
Nature of Project	Honours/4th Year	Master's	Doctoral	x	Departmental

The University of Zululand's Research Ethics Committee (UZREC) hereby gives ethical approval in respect of the undertakings contained in the above-mentioned project proposal and the documents listed on page 2 of this Certificate. Special conditions, if any, are also listed on page 2.

The Researcher may therefore commence with the research as from the date of this Certificate, using the reference number indicated above, but may not conduct any data collection using research instruments that are yet to be approved.

Please note that the UZREC must be informed immediately of

- Any material change in the conditions or undertakings mentioned in the documents that were presented to the UZREC
- Any material breaches of ethical undertakings or events that impact upon the ethical conduct of the research

The Principal Researcher must report to the UZREC in the prescribe format, where applicable, annually and at the end of the project, in respect of ethical compliance.

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Appendix I

Observed Libraries in Lagos State, Nigeria

Eva Adelaja High School, Lagos

Ojota Senior Secondary school, Lagos
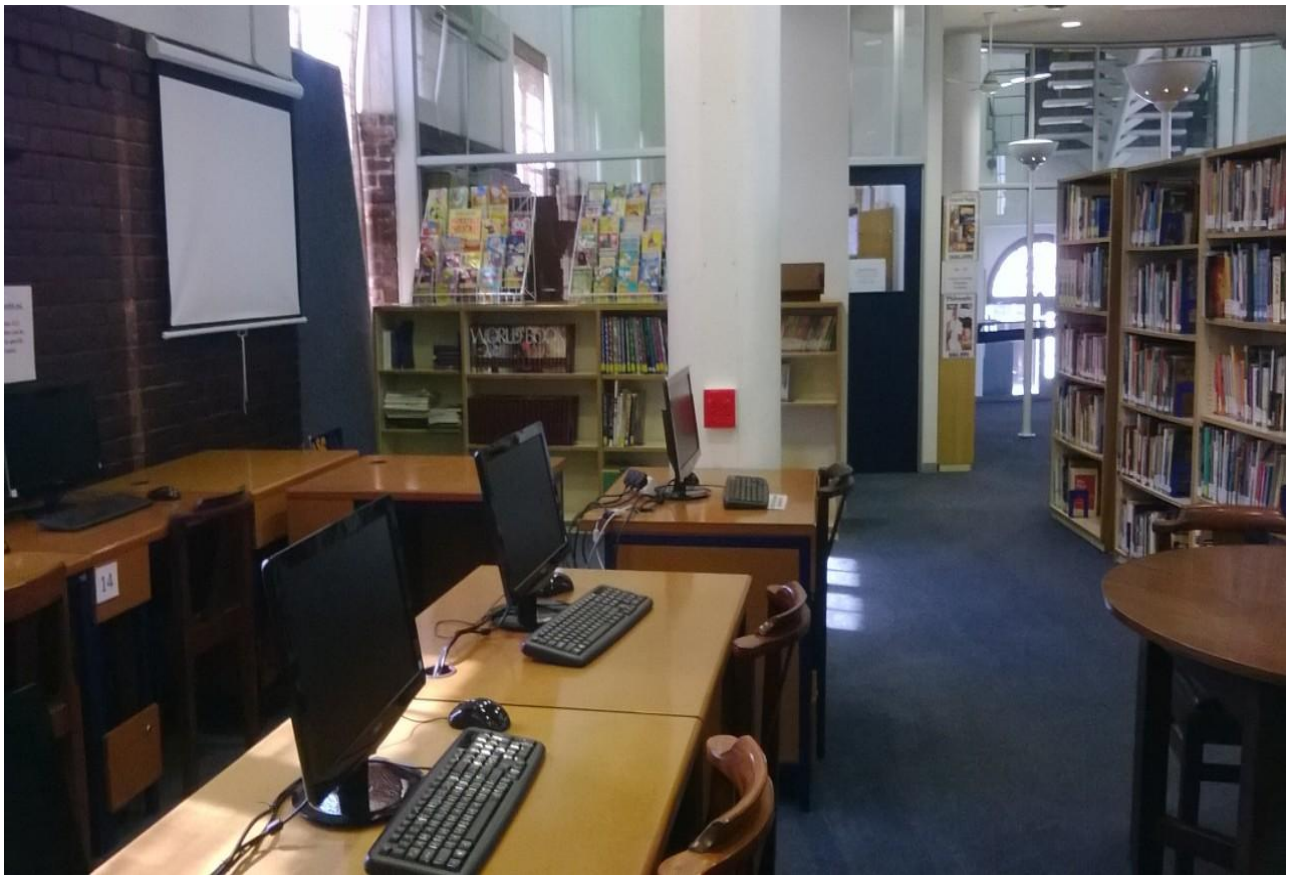
Agidingbi Secondary School, Lagos.
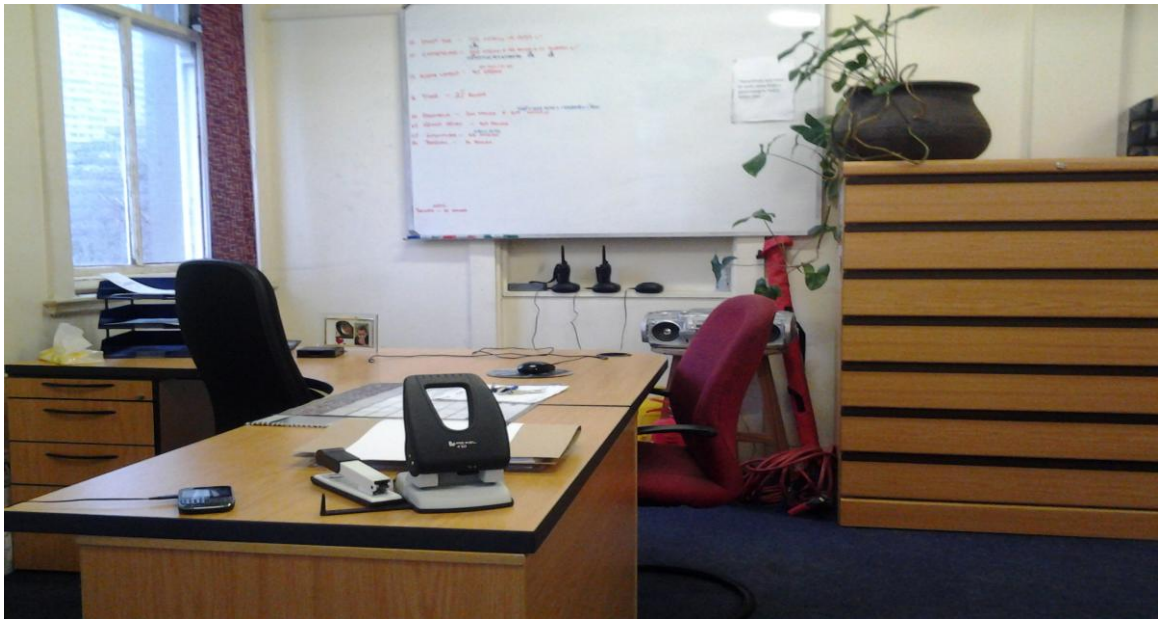
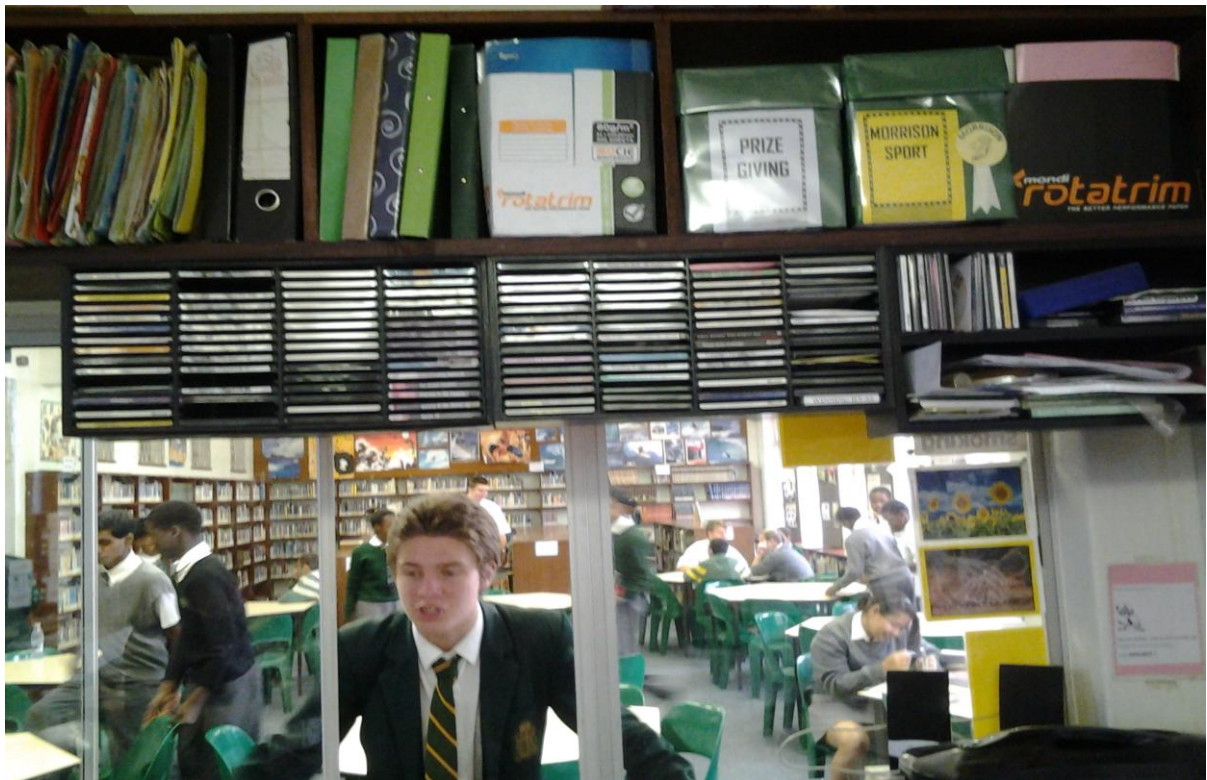**Observed Libraries in Durban, KZN South Africa**
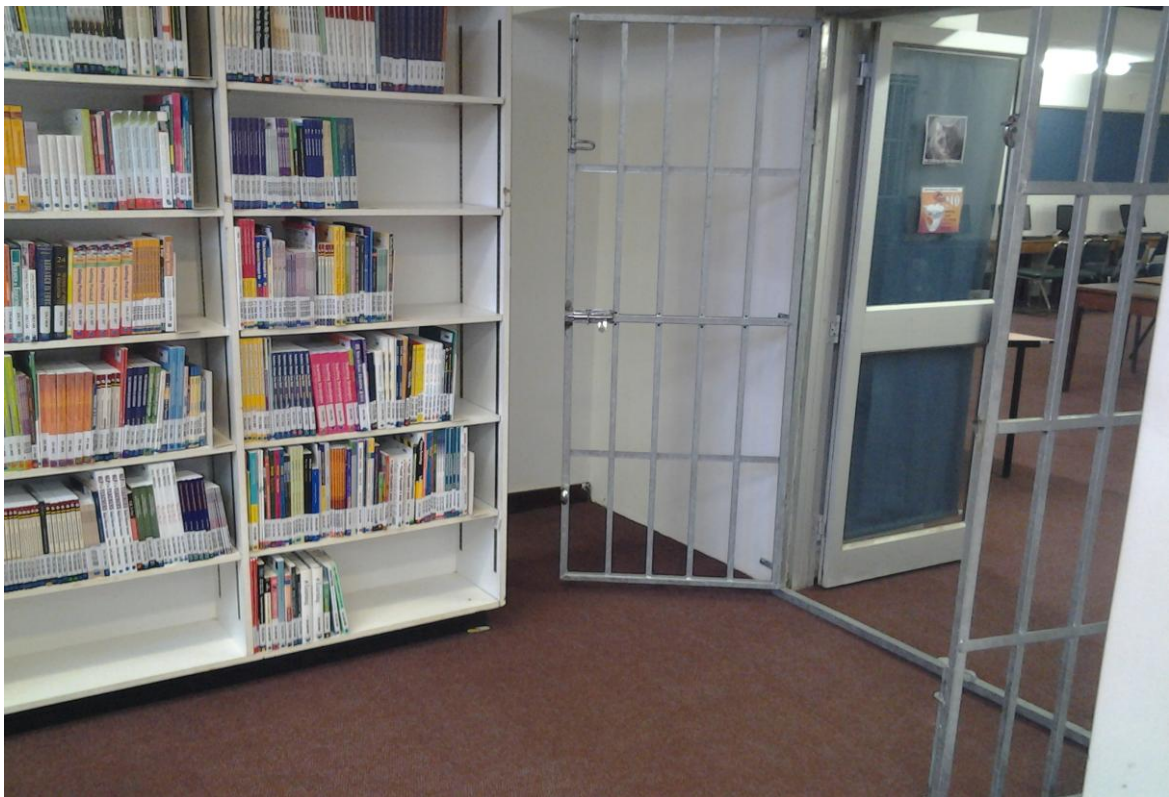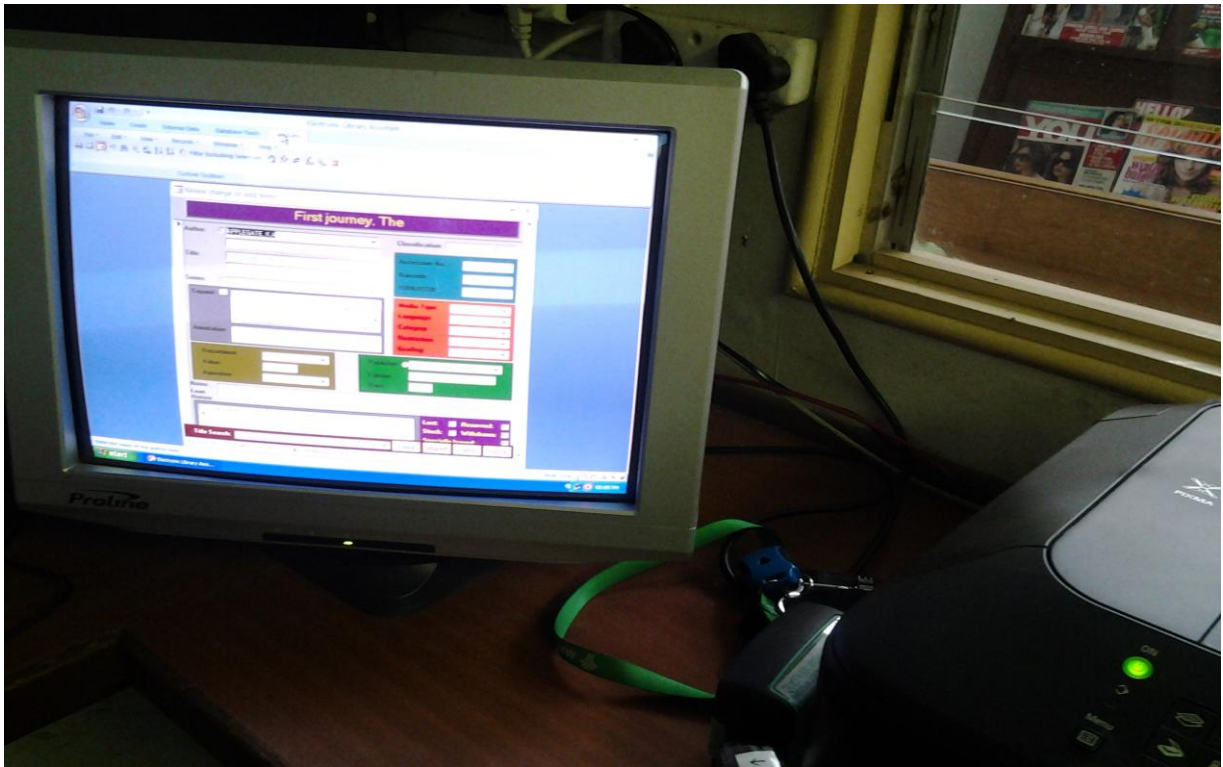
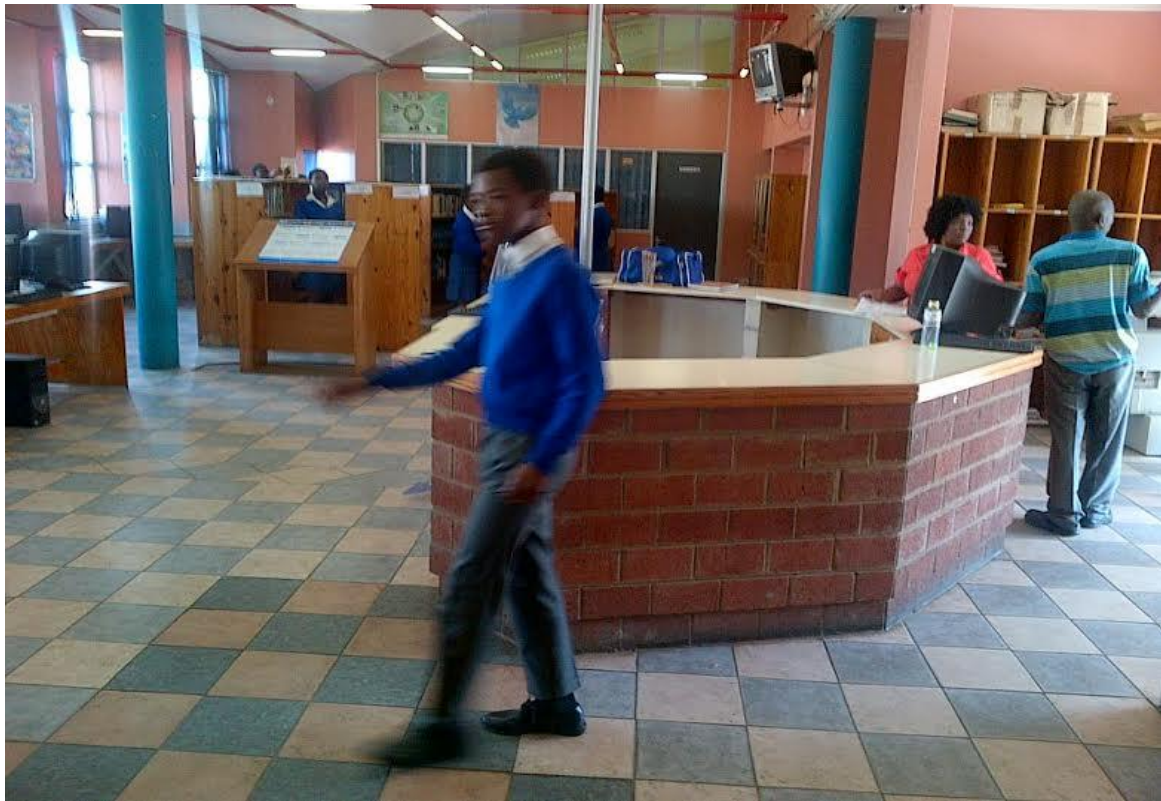**Durban High School, Durban**

Queensburg High School, Durban

COMTECH Grammar School, Durban

Swilihle High School, Durban