THE ROLE OF INFORMATION LITERACY IN THE UTILIZATION OF E-RESOURCES BY POSTGRADUATE STUDENTS IN FAITH-BASED UNIVERSITIES IN NAIROBI COUNTY, KENYA

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DECLARATION AND RECOMENDATION

Declaration

This thesis is my original work and has not been presented for the award of a degree or any other award in any other University.

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Recommendation

We confirm that the candidate carried out the work reported in this thesis under our supervision.

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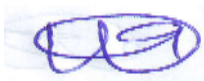
Signature:  Date:

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DEDICATION

This thesis is dedicated to my parents Rosemary and Peter Kinoti, your belief in my ambition is my muse.

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First and foremost, all glory and thanksgiving to God Almighty. This far has not been by my might, but be He who is within me.

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ABSTRACT

The need for postgraduate students to be well equipped with information, has resulted to the acquisition of e-resources by university libraries. Furthermore, Kenyan university libraries, have implemented information literacy policies with the objective of augmenting information literacy requisite proficiencies for effective use of e-resources. Despite the initiatives undertaken, e-resources are underutilized by postgraduate students. This raises the question on information searching skills of postgraduate students. This study examined the role of information literacy in the utilization of electronic resources by postgraduate users in faith-based universities in Nairobi County. The objectives of this study were to assess how the ability to recognize information need affects utilization of e-resources; evaluate how the ability to search for information affects utilization of e-resources; determine how the ability to evaluate information affects utilization of e-resources; assess how the ability to cite and reference information sources affect the utilization of e-resources. The study was underpinned by the SCONUL model and adopted a descriptive survey research design. The target population constituted of 843 postgraduate students from CUEA, KeMU, AIU and Daystar universities and 8 library staff. A sample size of 168 postgraduate students and 8 library staff participated in the study. The postgraduate students were picked through stratified and systematic sampling techniques, whereas the select librarians were purposively picked for this study. Data was collected through questionnaires and interviews. Pretesting was done to ensure reliability of the instruments. Quality of data was ensured through content and construct validity. Qualitative data was analyzed thematically and presented in categories of themes and narratives, while the quantitative data was analyzed using SPSS, where descriptive (mean and standard deviation) and inferential statistics (correlation and regression analysis) were computed and results presented using tables and figures. The findings revealed that combined abilities of recognizing, searching, evaluating, citing, and referencing information have a positive and significant impact on the utilization of electronic resources by postgraduate students. The study concluded that the abilities of recognizing information need, searching for information, evaluating information, citing and referencing information are significant predictors of utilization of e-resources by postgraduate students. Overall, the most significant predictors of e-resource utilization is the ability to cite and reference information, searching for information, recognizing information needs, and evaluating information. The study proposes that the university administration implements intensive and mandatory training for postgraduate students on information literacy, information retrieval, evaluating information sources, citing, and referencing information sources. These recommendations will improve library management and services, enhance information literacy policies and practices, and contribute to the academic success of postgraduate students, especially in faith-based universities.

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ACRONYMS

ACRL	Association of College and Research Libraries
AIU	African International University
ALA	American Library Association
ANZIIL	Australian and New Zealand Institute for Information Literacy
CAUL	Council for Australian University Librarians
CONZUL	Council of New Zealand University Librarians
CUE	Commission for University Education
CUEA	Catholic University of Eastern Africa
DRAA	Digital Resource Acquisition Alliance of Chinese Academic Libraries
DVD	Digital Versatile Disc
FBO	Faith-Based Organization
ICT	Information Communication Technology
IFLA	International Federation of Library Associations
IL	Information Literacy
IT	Information Technology
KeMU	Kenya Methodist University
KLISC	Kenya Library and Information Services Consortium
NACOSTI	National Commission for Science, Technology & Innovation
NGO	Non-Governmental Organization
OPAC	Online Public Access Catalogue
UNESCO	United Nations Educational, Scientific and Cultural Organization

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The dawn of the information age, information society and the World Wide Web, has experienced advancements in science and technology, in key sectors of the economy, all over the world. Education, being one of these crucial sectors, has greatly benefited from innovations in information and communication technologies, infrastructure, networks and policies. These advancements have significantly facilitated the automation of academic libraries, which serve as hubs for education, research and instruction in academic institutions. This automation incorporates new technology trends and systems that contribute to the growth of education, research, and innovation in the country. The automation of academic libraries has further enabled the development of collections in institutional libraries by adopting electronic resources to complement the existing print media. In addition, information literacy has over the years become more profound both as a subject and a discipline locally and international as well. This study investigated the role that information literacy plays in the utilization of electronic resources. This chapter covers the background study of the main variables of the study, the statement of the problem, the purpose of the study, research objectives, the hypothesis, the significance, scope, limitations, assumptions, and the operational definition of terms of this study.

1.1.1 Electronic resources utilization by postgraduate students

Electronic resources keep revolutionizing in the digital age, as innovations and technology keep being harnessed in everyday life to make work easier. E-resources have taken various formats since their inception, gradually advancing into more reliable, accessible and secure formats for the modern age. The inter-operability nature of these formats, sophisticated

features, and innovative complexion of the more neoteric nature of e-resources is making the primal versions of e-resources obsolete, among the digital natives of the modern day.

Utilization in this context is the action of using electronic resources provided within university libraries in an effective way. This entails practical approaches in the use of electronic resource materials in a profitable manner and in such a way that it is of value to the consumer or user of that information material. University libraries provide a whole range of electronic resources to their users that primarily consist of staff, lecturers, undergraduate and postgraduate students enrolled. There are a broad range of electronic resources utilized by postgraduate students in the modern age in the pursuit for academic excellence, quality research output and general knowledge. Studies opine that postgraduate students utilize electronic resources for a variety of reasons namely: to study, in research writing, to gain specific knowledge and stay up to date with current affairs (Jogan, 2015; Nkoyo & Egbe, 2016; Sateesh et al., 2015).

Scholars and researchers have delved in the study of e-resources over the years, leading to varying definitions of what e-resources constitutes. Thanuskodi (2012) inferred that they are processed data with meaning, encoded through a format that necessitates the use of technological devices to get enlightened. Years later, Tlakula and Fombad (2017) defined electronic resources as information resources that the library provides through computers and electronic format. A more recent study, described electronic resources as information in digital format accessible via computers, electricity, network connectivity, other subsidiary components, and human personnel (Agyapong et al., 2019). Despite the slight differences in definition, all these scholars agree that electronic resources come in a variety of formats namely: texts, videos, audios, maps, articles, tables, journals, pictures, OPACs, newspapers, graphics, theses, e-books, dissertations and databases (Agyapong et al., 2019; Dhanavandan et al., 2012). The influx proliferation of electronic resources can be

attributed to the characteristics and advantages it has over print media, among them: its accessibility by multiple users, at any time, from any location, and ability to be stored in huge amount (Kenchakkanavar, 2014). These merits have led to widespread use of electronic resources.

Utilization of electronic resources in university libraries is an indication that user needs are being met, the collection development policy is user-need centered and the university library is meeting its objective. For efficacy in the utilization of electronic resources, the university library firstly has to have a sound ICT infrastructure, which includes great internet connection, a vibrant interactive library website, adequate computers, an efficient electronic resource management system, and a fast reliable server. Moreover, the library should take on electronic resources and databases awareness initiatives, orientation and training of all university library users on effective access to and use of electronic resources. On the global context, developed countries like France, the USA and China, with more advanced technologies, have integrated sophisticated systems and technologies in university libraries with an aim of improving access to e-resources hence increased utilization of e-resources provided. For example, the American University library's (2022) fusion of futuristic system technologies has facilitated accessibility to scholarly journals, e-books and e-newspapers through an array of databases whilst hosting an interactive library website that facilitates access to reference and library services that enhance utilization of e-resources. In China and France, whereby in-depth usage statistics has been carried out through the respective consortiums namely, DRAA and COUPERIN, reveal postgraduate students make up the most user clientele of e-resources, in the respective countries. Usage statistics collected within these developed nations have been used for promotion, user support and collection management of e-resources, whilst sensitizing on the utilization of e-resources (Boukacem-Zeghmouri & Schöpfel, 2012; Ye et al., 2018).

The study of e-resource use is not only of significance in developed nations of the world, but also developing and third world countries as well. Studies done in the developing countries of Asia and Africa deduce that e-resources utilization contribute to the scholastic achievement of university students (Ankrah & Atuase, 2018; Joshua, 2014; Nkoyo & Egbe, 2016). Studies in India infer that digital natives interact more with e-resources compared to the older university students (Dhanavandan et al., 2012; Sateesh et al., 2015), as a result of exposure to computers and the internet, a finding that resonates with a study carried out in Pakistan (Ahmed & Amjad, 2014). Moreover, inadequate ICT infrastructure, power outages, lack of training, inadequate IT and IL skills have been identified as impediments that have contributed to low usage. In Africa, studies in Ghana infer that there is a correlation between the availability of e-resources and their use, thus recommending the acquisition and subscription to more e-resources (Ankrah & Atuase, 2018). Moreover, inadequate technologies, low power supply, inadequate network connectivity, insufficient computers and inadequate literacy skills have contributed to low use of e-resources across universities in Uganda and Tanzania (Gakibayo et al., 2013; Mwantimwa et al., 2017). Various studies have mentioned aspects of information literacy like awareness, locating and searching for information among the challenges faced, thereby deducing the significance of information literacy in e-resource use.

In Kenya, university libraries have embraced innovations and inventions in information and communication technologies, in provision of a digital and virtual environment setting, whereby students, faculty and staff as well, can interact with an array of e-resources provided to suit their immediate information needs. University libraries in faith-based universities in Kenya have made immense strides in the automation of their library in the provision of information resources and services to their users. CUEA, AIU, Daystar and KeMU libraries offer an array of information resources and services through their website

namely: e-resource databases, institutional repository, electronic books, information literacy guides, off-campus access, library catalog, open access database and ask a librarian service (Africa International University, 2022; Catholic University of Eastern Africa, 2022; Daystar University, 2023; Kenya Methodist University, 2017.). Despite the endeavors by these faith-based institutions to provide an interactive virtual environment, with a motley collection of resourceful electronic materials, statistical tools report and confirm Amunga's (2011) findings that electronic materials are underutilized. However, limited studies have been done to investigate the role of information literacy on e-resource utilization in faith-based universities in Nairobi County, hence the need for this study.

1.1.2 Information literacy

Information literacy, is not only a skill or competence, but is a subject and discipline that has grown in eminence in the age of information society. Tunney and Gwenn (2018) have defined information literacy as the capacity to define information needed, the propensity to search for, find, retrieve, assess, effectively apply and communicate information in different formats. The Association of College and Research Libraries (ACRL, 2016) further describes a person with information literacy competency as one who can clearly recognize their information need, search for, locate, retrieve, organize, and apply/ use the information acquired while maintaining the compliance laws in regard to information and knowledge management. Therefore, information literacy components constitute: ability to define information need, ability to search for/ find/ locate, ability to evaluate, ability to organize/ repackage, ability to use citations and referencing, and ethical use of information.

Information literacy was first conceived during a summit, by the former president of Information industry association, Zurkowski, in 1970s (Leaning, 2019; Weiner, 2011). This initiated a series of studies and research on information literacy over the years, leading not only to documentations and publications, but also policies on the subject discipline.

By the early 2000s, global standards on information literacy had been enacted with notable mentions like the ALA, ACRL of America and the ANZIIL & CAUL standards of Europe. A notable historical landmark of information history, was the proclamation of October, as the national information literacy month in USA by the POTUS, Barack Obama, in 2009. Major milestones in information literacy initiatives have since been adopted not only in America and Europe, but also in African countries as well.

In the global context, information literacy has widely been adopted by academic and research libraries in America and Europe. This has facilitated the creation, implementation, and integration of international standards for information literacy across universities, colleges and research libraries. The ALA and ACRL competency standards, created, formulated and instituted in the USA, have been widely accepted by academic libraries in America (American Library Association [ALA], 2017; ACRL, 2016).

The initial standards have since been revised and replaced by a framework that lays focus on information literacy for tertiary education, which complements IFLA guidelines on information literacy designed for lifelong learning, with the purpose of equipping students with information literacy skills (Lau & Elliott, 2006). In Europe, the association and collaboration of librarians in Australia and the New Zealand led to the formulation and inauguration of the ANZIIL & CAUL standards, that have since adopted an information literacy framework, widely integrated into university libraries across Europe, which aims at equipping of information literacy skills and competencies expected of an academic student (Bundy, 2004).

Developing countries in Asia and Africa have also delved in information literacy study and practice, whilst inaugurating the development of its policy framework. Studies carried out in Africa underpin the relevancy of information literacy and its influence on lifelong learning, academic performance and information usage (Banik & Kumar, 2019; Mudave,

2016; Soleymani, 2014). IL initiatives in Africa are not universal and will range from one country to another. Mudave (2016) opines that in Africa IL initiatives may not be as structured and included into tertiary curriculum and will only embody activities such as library orientation, user instruction and user manuals. However, some African countries like South Africa and Kenya have taken major strides in enacting IL initiatives that have been integrated as standards that encompass pedagogical approaches and IL programmes that have been adopted in the university curricula for enrolled students.

In Kenya, information literacy has been embraced as a standard that university libraries should strive to integrate as a key component for achieving academic success. University libraries have developed and implemented institutional information literacy policies. Additionally, university librarians have introduced information literacy as an academic program at both undergraduate and postgraduate levels. However, despite the significant efforts made by university libraries in implementing information literacy and competency initiatives, there remains a gap in understanding the role that information literacy plays in the utilization of e-resources in faith-based universities, which this study seeks to explore.

1.1.3 Faith-based Universities in Nairobi County

The county of Nairobi, not only holds the city capital and the Central Business District, but is also an educational hub, boasting a number of accredited faith-based universities that not only serve students of Kenyan nationality, but other nationalities as well. Faith-based universities fall under private group of universities, since they are funded, supported and run by religions/ religious groups. Faith-based universities mission aim at balancing meeting of both academic goals and needs beyond the institution into the world, this includes integration of religious doctrines in nurturing the body mind and spirit. The faith-based universities located in Nairobi County are the Africa International University, African Nazarene University, Daystar University, KAG East University, Kenya Methodist University, Pan African Christian University, St. Paul University, Presbyterian University

of East Africa and the Catholic University of Eastern Africa. This study was not carried out on the universe, but select faith-based universities namely: the Catholic University of Eastern Africa, Africa International University, Daystar University and Kenya Methodist University.

1.1.3.1 The situation at the Catholic University of Eastern Africa, Africa International University, Daystar University and Kenya Methodist University

CUEA is a private university, supported by the Catholic Church, having been awarded a civil charter in 1992 by CUE. It is located along Bogani East Road, within the city of Nairobi, Kenya. The mission of CUEA focuses on upholding traditions of the Catholic Church by embracing moral values in tandem with fostering academia, while nurturing research among its students and the community at large. CUEA offers both graduate and undergraduate programs to its students. CUEA has an ultra-modern library, that holds a collection of information resources accessible by the student community (Catholic University of Eastern Africa, 2014).

Daystar University, is a private university bound on the Christianity faith, having been awarded its charter in 1994. Daystar University's philosophy is based on Christian doctrine, values and the biblical teachings. The main campus is located in Athi River, however the Nairobi Campus, widely assumed to be the main, is located at the Ngong Road junction in Nairobi County. The university offers undergraduate and postgraduate programs to students of varying diversities from all over the world. Daystar offers a wide range of postgraduate programs in arts, social sciences, applied human sciences, economics, law, nursing, engineering and health. Daystar University offers a revamped virtual platform that allows access to a wide range of electronic library resources for its users (Daystar University, 2017).

AIU, formerly known as the Nairobi Evangelical Graduate School, is a private Christian university having been awarded its chartership in the year 2001. It offers undergraduate,

graduate and doctoral programs students from over 32 countries across the world who are enrolled at the university. The postgraduate academic programmes offered are in theology, business, arts and social sciences discipline. AIU endeavors to offer education in tandem with God's word, values and teachings.

KeMU is a private university, founded by the Methodist Church of Kenya. In 2016, KeMU received chartership. Albeit, the main campus is located in the highlands of Meru, KeMU boasts of a vibrant campus at the heart of the Central Business District of Nairobi that has produced great alumni network. KeMU offers certificate, undergraduate and postgraduate programs for the enrolled students. In addition, KeMU offers an array of academic programmes in the field of business, technology, education, social sciences, economics, medicine, health sciences, leadership and professional development.

The CUEA, AIU, Daystar and KeMU institutional libraries are equipped with vibrant ICT infrastructure that facilitate access to virtual library services. In addition, they have implemented the standards for university libraries (Commission for University Education [CUE], 2014), that advocate for the integration of information literacy and competency initiatives among its users. Moreover, membership to KLISC consortium, has facilitated access to a wide range access to electronic resources at subsidized prices (Kenya Library and Information Services Consortium [KLISC], 2022). However, statistics and reports generated opine that the e-resources in these universities are underutilized, despite annual budget allocation for the purchase of electronic information resources. Nonetheless, limited studies have been done to examine the role information literacy plays on the utilization of electronic resources by postgraduate students in faith-based universities, hence the need for this study.

1.2 Problem Statement

The proliferation of electronic resources has not only implicated library's budgetary allocation but has also necessitated need for information retrieval skills for staff and students. The Kenya Library and Information Services Consortium (KLISC) plays a major role in facilitating access to information resources (KLISC, 2022). Amunga (2011) notes that through KLISC, university libraries are able to pool funds to meet subscriptions at subsidized prices. To ensure gainful utilization, the university libraries are expected to implement the CUE standards for university libraries that have emphasized on information literacy and competency standards (Commission for University Education [CUE], 2014). In addition, the CUE standards stipulates that at least 10% of the university annual budget is allocated for the acquisition of information resources, both print and electronic. The interoperability of electronic resources over a variety of devices, facilitates their adoption and utilization by university students.

However, despite the hefty annual subscriptions on electronic resources, recent studies from scholars such as Ankrah and Atuase (2018) indicate that they are under-utilized. The most recurrent reason for under-utilization of e-resources among many scholars and researchers is inadequate ICT infrastructure, poor internet connection, inadequate computers, inadequate power supply and slow servers (Agyapong et al., 2019; Jogan, 2015; Kenchakkanavar, 2014; Merande et al., 2021). Other notable reasons include lack of awareness, inadequate training, and inadequate IT and IL skills (Nyamboga et al., 2014; Pandit, 2019). Tlakula and Fombad (2017) infer that to mitigate underutilization of e-resources, a pedagogical approach to information literacy with academic qualification is imperative. However, the extent to which each component of IL affects utilization has not been established.

Studies done in Bangladesh and Kenya respectively associate low e-resource usage with low scholastic achievement (Banik & Kumar, 2019; Chelulei, 2020); a finding resonating

with studies that infer that low e-resource usage affects teaching, learning and research at the institutional level (Akussah et al., 2015; Ate, 2019). Another consequence of low usage is that, it may force university libraries not to renew their subscriptions for e-resources, leading to the collapse of consortia, as a result of reduced buying power, reduced financial and human resources (Chadwell, 2011; Moghaddam & Talawar, 2009). In addition, studies have been done in the past to examine the complexities of e-resources, perceptions and satisfaction, information literacy skills and its association with lifelong learning among university students (Adeleke & Emeahara, 2016; Kanori et al., 2018; Murithi et al., 2020; Nyamboga et al., 2014), all of which have deduced the importance of information literacy but have not explored the role information literacy plays on harnessing electronic resources use by postgraduate students in faith-based universities, highlighting the need for this study to address this research gap.

1.3 Purpose of this Study

The purpose of this study was to examine the role of information literacy in enhancing utilization of electronic resources among postgraduate students in faith-based universities in Nairobi County, Kenya, with a view to suggesting strategies for improving utilization of electronic resources.

1.4 Research Objectives

The objectives of the study sought to:

i. Assess how the ability to recognize information needs affects the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County
ii. Evaluate how the ability to search for information affects the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County

iii. Determine how the ability to evaluate information sources affects the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County

iv. Assess how the ability to cite and reference information sources affects the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County

1.5 Research Hypotheses

The following hypotheses served as a guide for the study:

i. $H_0$1: The ability to recognize information needs does not significantly affect the utilization of e-resources by postgraduate in faith-based universities in Nairobi County

ii. $H_0$2: The ability to search for information does not significantly affect the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County

iii. $H_0$3: The ability to evaluate information sources does not significantly affect the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County

iv. $H_0$4: The ability to cite and reference information sources does not significantly affect the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County

1.6 Significance of the Study

Firstly, the results from this study will provide practical solutions that will enhance the utilization of e-resources. The role of information literacy will be much more defined thus necessitating a revamp in training, orientation and pedagogical approaches of information literacy. The study's findings will provide valuable guidance to faith-based university lecturers who are engaged in crafting and implementing an IL curriculum, with the aim of

optimizing IL competencies. Moreover, librarians will offer more hands-on training on information literacy and conduct periodical orientation and training to new users. Postgraduate students will acquire information literacy competencies through the University administration's facilitation of IL competency initiatives.

Universities will benefit from quality research output and teaching due to the influx of scholarly and current e-resource materials available. KLISC will have more bargaining power, with increased financial and human resources from subscription fees generated. E-resource vendors will collaborate with KLISC in revolutionizing the marketing approach of e-resources, with a focus on the diverse institutional information needs, provision of an array of e-resource formats and integration of accessible technologies among users.

There will be a seamless transition of quality professionals into the job market with adequate IL skills. This will facilitate continuous research in a bid to addressing issues within the society, providing solutions and overall making life easier. This will foster sustainability among individuals at the local, national, and global scale.

Furthermore, this research will contribute to the existing body of knowledge on information literacy, with a specific focus on postgraduate students. It will elucidate the pivotal role of information literacy in optimizing the utilization of e-resources in faith-based universities in Nairobi County.

1.7 Scope of the Study

This research was undertaken at the Catholic University of Eastern Africa, Africa International University, Daystar University and Kenya Methodist University. The study explored the role that information literacy plays in the utilization of electronic resources in faith-based universities in Nairobi County. Key constructs of information literacy namely: information need identification, information evaluation, searching for information, citation and referencing ability were tested. Other concepts such as

organization and repackaging of information were not covered in this study. Data was collected from the postgraduate students and the library staff of KeMU, AIU, Daystar and CUEA campuses located within Nairobi County. The study primarily focused on the systems librarian and the University Librarian, and not the other library staff.

1.8 Limitations of the Study

Limitations are facets in studies that negatively affect the findings of a study, that the researcher has no control over (Mugenda & Mugenda, 2019). Limitations could be as a result of environmental or even social factors. In addition, research methodology undertaken could bring about limitations. In this case, the study was only limited to the main campus of Catholic University of Eastern Africa, Africa International University main, Daystar and KeMU Nairobi campuses. This was a cross-section study, and therefore did not employ a longitudinal approach due to the timeline provided for this study. However, the cross-sectional approach was effective in meeting the objectives guiding this study.

1.9 Assumptions of the Study

According to the following assumptions, the study was carried out:

- The instruments used drew accurate feedback
- The respondents did comprehend the inquiries completely and, to the greatest of their abilities, offered truthful feedback
- That the faith-based universities had an information literacy program
- That postgraduate students were exposed to e-resources

1.10 Operational Definition of Terms

Accreditation: It is a procedure conducted by an authorized commission to officially recognize an institution or academic programme of a university (Commission for University Education [CUE], 2014).

Electronic resources: Information resources in digital format accessible via computers, electricity, network connectivity, other subsidiary components, and human personnel (Agyapong et al., 2019).

Information literacy: The capacity to define the need for information, ability to search for, find, retrieve, assess, evaluate, organize, effectively apply and communicate information in different formats (Tunney & Wilson, 2018).

Online electronic resources: These are electronic resources accessed via internet connectivity via electronic devices, for instance e-journals and e-books on electronic databases and Dspace (Pandit, 2019).

Offline electronic resources: Electronic resources accessed via electronic devices but do not require internet connectivity, for instance CD-ROMs and DVDs (Pandit, 2019).

Postgraduate students: These are graduate students that have enrolled further studies for a second or third qualification, for instance a master's degree or a doctorate degree (PhD) (Jogan, 2015).

University library: This an academic library instituted, managed and supported by the university, to support the institution's academic goals by becoming the hub for learning, research and teaching for the faculty, staff and student community.

Utilization: Using practical and profitable use of something in an effective way (Cambridge University Press, 2022).

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provides reviews of literature related to utilization of electronic resources and information literacy. The literature has been systematically and critically analyzed from scholastic materials that ranged from books, electronic journals, articles, dissertations, reports, organizational and government publications. This chapter delves into the guiding variables of this study, namely: utilization of electronic resources, information literacy, recognizing information needs, searching for information, evaluation of information sources, citing and referencing information sources. In addition, it covers the theoretical framework and the conceptual framework.

2.2 Utilization of Electronic Resources by Postgraduate Students

The introduction, and worldwide widespread integration of the internet, has since revolutionized the world; governments, organizations, institutions, economies and societies as well, which have improved quality of life. Information and communication technologies have had an impact in education, with higher education institutions benefitting the most through the automation of their institutional libraries to meet the modern, and current user needs. Information and knowledge resources have since become available and accessible to the people, in the age of information society, which through sound technology infrastructure have facilitated the ‘paperless society’. The paperless society, also known as the age of electronic resources, has gradually replaced the print resources era in due fashion, and continues to burgeon outstandingly. Collection development policies in university libraries have since been revamped to accommodate the virtual electronic resources environment (Pandit, 2019).

Collection development practice plays an integral function in the operations and management of university libraries. Collection development management in the digital age involves acquisition of not only print but also e-resources. Electronic resources continue to be widely accepted as indispensable tools, in teaching, learning and research across university libraries (Akussah et al., 2015; Dadzie, 2005). Online electronic resources offer more reliability, since they can be accessed both on and off-campus. Online electronic resources can be classified as either digitized or digital e-resources. Digitized e-resources are information resources that were converted from their original format, either through scanning, photo-capture, emulation, canonicalization or encapsulation. The process of digitization is done to improve access-ability, accountability, preservation, save on cost and to keep up with technology (Nzioka, 2022; Warwick et al., 2012). However, digital e-resources are borne digital and have not been converted from any other form, for example, word documents, written computer codes, published journals and articles in web-based format (Nzioka, 2022; Pandit, 2019).

Individuals, organizations and institutions, among them university libraries part with hefty subscription fees in purchase of proprietary electronic resources for utilization by its users. In recent times, there has been an upsurge in operations, development and growth of library consortia. Library consortia are collaborations and cooperation between two or more libraries, for purposes of achieving shared purchasing, materials, union catalog, in the execution of library services and functions (Chadwell, 2011; Moghaddam & Talawar, 2009). In America, an example of a consortium, is the Ohio College Libraries Centre formed in the late 1960s and the Online Computerized Library of Congress (Moghaddam & Talawar, 2009; Pandit, 2019). In New Zealand, we have the CONZUL, CAUL, whereas here in Kenya, we have the KLISC. KLISC (2022) facilitates university libraries

subscription to electronic resources and databases, for utilization by the library users, who are mainly the students and staff.

Theories have been used in studies to examine postgraduate students electronic resources usage. Gichohi (2021) describes theories as well articulated and defined concepts that explain the occurrence of things. The identification, adoption and application of a particular theory in a study greatly influences the outcome to be expected. In a study carried out in Nigeria to investigate e-resource use, Ate (2019) applied the technological determinism (TD) theory to guide their study. This theory denotes that technology has an influence on the life of society, which is quite different from the diffusion of information theory applied by Ankrah and Atuase (2018), that focuses more on different levels of adopters and innovation itself. Consequently, more feasible theories need to be explored in studies to investigate e-resource use.

In the global context, studies carried out among postgraduate students in India, reveal that utilization of electronic resources continues to be an integral issue amidst high awareness and frequent orientations. In their respective studies, Jogan (2015) and Chanda (2020) used the survey research method and questionnaires as the data collection tools. Garg and Tamrakar (2014) along with using the questionnaire, employed interviews as a tool of data capture, citing need for in-depth information from the librarians and information professionals. The findings from these studies indicate that there is high awareness, frequency, and inclination for electronic resources use, compared to print resources across postgraduate students in India. Moreover, these findings infer that ease of access, availability of search tools, and faster retrieval of e-resources have led to usage among postgraduate students. Albeit there was fair use, the percentage was lower compared to that of research scholars and members of the faculty. However, these studies do not explore

the role of information literacy in electronic resources use. Nonetheless, Jogan (2015) suggests that despite the challenges faced in electronic resources use among postgraduate students in India, enhancing the IT infrastructure, carrying out orientation and training programs would be a viable mitigation strategy.

In West Africa, researchers and scholars as well, continue to delve in the research of e-resource use across various scopes in the user community. Ankrah and Atuase (2018) in a study carried out in Cape Coast, Ghana, adopted the diffusion of information theory to guide their study. The theory adopted identified e-resources as the innovation and the postgraduate students as the adopters of innovation. The theory, research design and methodology employed, led to the conclusion that electronic resources were integral to the academic lives of postgraduate students and the challenges identified needed to be addressed to improve usage. Nonetheless, Ankrah and Atuase (2018) findings infer that high awareness among postgraduate students, which has been facilitated through orientation, seminars, workshops, library guides and interaction with library staff, has been integral in high level e-resource use. Furthermore, a study carried out by Nkoyo and Nsanta (2016), confirms an interconnection exists between use and availability of electronic resources, thus rejecting the single hypothesis raised in the study. Both of these studies embraced the survey research design and used the questionnaires as their tools of data collection. Despite these studies being done within different countries, of the same region, they both highlight similar challenges not short of: power outage, poor internet connectivity and inadequate computers (Ankrah & Atuase, 2018; Nkoyo & Egbe, 2016), depicting the reality faced in under-developed and developing nations in Africa.

In East Africa, particularly Kenya, studies carried out reveal that the challenges faced in the usage of electronic resource are not so much different from those faced in West Africa.

However, lack of access to relevant information materials and inadequate training has been a recurrent impediment reported from studies carried out in the region (MogakeMasese et al., 2016; Murithi et al., 2020). MogakeMasese et al. (2016) proposed that regular training sessions be conducted for patrons to facilitate the availability, retrievability, and consumption of e-resources. In addition, revamping of ICT technologies and infrastructure to maintain strong and consistent network coverage for users is recommended. However, Murithi et al. (2020) findings infer that use is dependent on the perception and satisfaction of the users. Nonetheless, the measures put in place to mitigate and control the pandemic have resulted in a reduction in the number of people accessing university libraries, and in other regions, the total closure of facilities and higher institutions in general. University libraries have embraced the digital platform in providing resources and services virtually. Asif and Singh (2020) opine that COVID-19 has presented trends and opportunities for a virtual library services environment that will facilitate revamped virtual library operations approaches for the future beyond the COVID-19 pandemic.

On the global context, studies carried out in Pakistan and Kuwait, infer that there has been a resurgence and continued rise in interaction of information materials in electronic format during the pandemic (Hendal, 2020; Rafiq et al., 2021). A study conducted by Hendal (2020) revealed that the interviewees interacted more with databases and e-journals, which accounted for 80% and 67.5% of their interactions, respectively. Additionally, the study indicated that 50% of those who interacted with e-resources reported having their research needs met, compared to 15% who held a contrary opinion. However, users reported facing challenges while interacting with electronic resources, including technical authentication issues, slow internet speed, limited access to resources, and server errors.

In an online survey carried out in Kenya to evaluate opportunities and challenges faced during the pandemic, Abdillahi (2020) noted that a tally of 66.7% interacted with e-resources despite the closure of university libraries caused by the COVID-19 pandemic. Moreover, the study concurred with the findings made by Hendal (2020), which stated that electronic journals are the most favored and used e-resources during the COVID-19 pandemic. The respondents faced major impediments when accessing e-resources during the pandemic, including a lack of funds to purchase e-resources, expensive internet packages, low bandwidth, low-performance technology, and reduced face-to-face interaction with library staff support.

Furthermore, the state of e-resource utilization across university libraries has become an intriguing topic for researchers and scholars amid the proliferation of e-resources and associated technological innovations. In a study investigating the usage of e-resources across university libraries, Rafiq et al. (2021) opined that digital resources and services were beneficial to the users during the pandemic. The study inferred that the pandemic and the closure of physical library operations facilitated increased user interactions with the virtual library environment. This, in turn, enhanced the provision of digital services such as the 'ask a librarian' service, plagiarism checks, and one-point services. Friday et al. (2020) insisted that the use of social media tools adopted during the pandemic improved library services by promoting the sharing and dissemination of information and knowledge. The overall findings indicate that the COVID-19 pandemic ushered in a new era of virtual library services that incorporate the latest trends and technologies to facilitate easier access to, retrieval, and utilization of electronic resources.

The literature reviewed affirms that postgraduate students use of e-resources is vital in their academic quest and in quenching their knowledge and information needs. Budget

allocation for acquisition of an array of e-resources, and subscriptions to e-databases is recommended. Moreover, findings affirm that ICT infrastructure, computers, internet connectivity, servers, is necessary in facilitation of access, as much as equipping of IT skills. Furthermore, training of users to equip postgraduate students with skills and competencies that will promote e-resource utilization is essential, hence the need for information literacy competence initiatives.

2.3 Information Literacy

Information literacy denotes its term from two words namely "information" and "literacy". IFLA defines information as "encapsulated knowledge" and literacy as a "basic resource for learning and human thought" (Lau & Elliott, 2006). Tunney and Wilson (2018) define information literacy as having skills, to identify need, find, retrieve, evaluate, organize and effectively pass the information to your audiences in a range of formats. However, information literacy may vary according to the theoretical perspective employed. Despite its widespread use in the context of librarianship, information literacy was originally introduced in a report on future demands for diverse competences in business and industry in the United States (Mackey & Jacobson, 2011; Mudave, 2016). Over the years, information literacy has extended to include other literacy frameworks namely: computer, media, library, visual, digital and metaliteracy.

Computer literacy describes the basic know-how of how a computer operates and how it can be applied in executing immediate tasks (Tunney & Wilson, 2018). This includes understanding all the peripheral components involved in computer operation, such as hardware, software, network components, output devices, management, and security. Additionally, computer literacy involves comprehending the various operations computers can perform, the specifications needed, performance metrics, and the required storage

capacity for specific computer functions. This offers substantive input in the acquisition of computers.

Media literacy entails synthesis and communicating media in an array of formats (Mackey & Jacobson, 2011). Advancements in information and communication technologies have facilitated the move from basic literacy that focused on proficiency in reading, writing and being able to perform numeric calculations to media literacy (Lau & Elliott, 2006; Sundin et al., 2012). Media literacy encompasses critical thinking and accessing information found across mass media channels like television, radio, newspapers and the internet. Studies have incorporated the inoculation, demystification and creative participation model approach in the study of media literacy (Leaning, 2019). Moreover, it includes the proficiency to operate both traditional and new media while playing an essential role in creating actual media content in an era where media has a significant impact on society.

Library literacy details the ability to differentiate from an array of information resources that make up the collection of libraries, how to access, locate, evaluate and use these resources efficiently (Tunney & Wilson, 2018). In addition, this includes awareness of the reference materials, print resources, e-resources, catalogs, indices and library services available, that are at the dispensation of the user. Library literacy also involves ability to navigate and efficiently use library integrated information systems.

Mackey and Jacobson (2011) state that we live in a visual culture, whereby the need to recognize, view, interpret and produce visual media is paramount, hence visual literacy. Visual literacy also involves interpreting visible actions, symbols and images like maps, animations, charts, graphical arts and photographs (Mackey & Jacobson, 2011; Mudave, 2016).

Digital literacy is more comprehensive and distinct from computer literacy because it encompasses not only computers but also a range of different information and communication technologies. Technology is constantly evolving, which necessitates individuals to continuously update their technological skills and stay informed about technological trends and opportunities, as exemplified by metaliteracy. Metaliteracy is a framework that integrates emerging technologies, recognizing social media environments as active collaborative spaces, while unifying multiple literacy frameworks (Mackey & Jacobson, 2011). Metaliteracy presents a revamped approach, while advancing user learning beyond discrete skills in support of critical thinking.

Information literacy traces its origin to the early 1970s. Leaning (2019) and Weiner (2011) opine that it was first coined by Paul Zurkowski, in a report submitted in the USA Subsequently, other scholars, researchers, and institutions played pivotal roles in revising, revitalizing, and contributing to the evolution of information literacy, as well as in the development and implementation of standards at both the national and international levels. Standards refer to consensus-based, documented, and approved guidelines and procedures recognized by a governing body to guide actions or purposes. On the global context ALA, ACRL, UNESCO, ANZIIL & CAUL are examples of international adopted standards on information literacy (Bundy, 2004; Association of College and Research Libraries, 2016; Sanches et al., 2022). Furthermore, on a national scale, significant progress has been observed in the field of information literacy. For instance, in the United States, President Barack Obama officially designated October as the month dedicated to raising awareness about National Information Literacy. Locally, in Kenya, information literacy competency standards have been enacted in the CUE university standards and guidelines (2014), with the aim of fostering an information literate society.

Various scholars, researchers and studies have described the competencies and skills of an information literate person. Odede and Zawedde (2018) opined that information literacy competences encompasses seven sub-sets namely: tool, resource, publishing, critical, technological, research and socio-structural literacies, all of which are integral in scholastic achievement. However, Weiner (2011) infers that as much as information literate people are significant in the workplace as it is in the academic setting, there are slight differences among them. The differences highlighted by Weiner (2011) include: the social aspect of IL in work place, IL needs differing and work place duties being domain-specific and not universal. IFLA defines an individual that can prospect, interpret and create new knowledge as information literate. Additionally, the ALA asserts that an individual with information literacy (IL) competence can identify the information they need, search for and retrieve it, critically evaluate its suitability, organize and repackage it, properly disseminate and apply the re-packaged information while adhering to ethics and copyright law (Association of College and Research Libraries, 2016; Tunney & Wilson, 2018). This study explored select components of information literacy namely: information need identification, searching for information, evaluation of information, and ability to cite and reference information sources.

2.4 Ability to Recognize Information Needs and Utilization of Electronic Resources

The ultimate goal of acquiring information, knowledge, expertise, skillset, technologies and innovation, is to make life easier. Life can only be made easier, through finding effective solutions to existing problems and challenges. Effective solutions can only be attained through application of critical, creative, high-order thinking and problem-solving skills (Tunney & Wilson, 2018). All these skills described above are however dependent on one thing, which is, clear depiction and identification of information need. Being able to clearly define a need, formulating an effective question, initiates the information seeking

process, provides solutions, raises questions to be answered, and enables the execution of tasks.

The ability to recognize information need is a process that begins with an undefined idea and ends with a well-articulated and understood need. The American Library Association (ALA, 2000) IL competency standards infer that the first step is initiated by clear definition and articulation of need which involves activities such as: discussions and brainstorming to find a topic, conceptualization of questions, scrutinizing potential information sources and identification of key constructs. This is followed by in-depth analysis of the identified sources that entails activities such as: reviewing of all formats available, type of information and target audience. The third step involves assessing the price or charges of purchasing the information against other benefits, while the final step involves re-evaluation of the information need to clarify whether it is valid, or there is need to return to the first step and redefine the questions anew.

Diverse methodologies have been applied by researchers and scholars in the study of information needs. Afzal (2017), Jan et al. (2020) and Sayolainen (2012) studies embarked on content analysis whilst McDowell et al. (2013) adopted an experimental internet-based research design. Nonetheless, most of the literature reviewed adopted the survey design. In the selection of participants, purposive sampling (Cherono, 2017; Kehinde & Obi, 2016; Korkor Agyemang et al., 2018; McDowell et al., 2013) and systematic sampling (Gichohi et al., 2017) techniques have been adopted. In addition, literature reviewed identified questionnaires as the most recurring tool of data collection. Qualitative data gathered was analyzed thematically (Gichohi et al., 2017), whereas quantitative data gathered across different studies was analyzed by SPSS, version 21 and 22. Incorporating both a qualitative

and quantitative approach has been recommended from these studies and thus adopted in this research.

Azfal (2017) denotes that as much as information need has been subject to discussion over the years, no comprehensible definition has been agreed upon. Nevertheless, Anmol et al. (2021) after conceptual analysis of literature, have described information needs as psychological needs that explore the gap between what people know and what they ought to know. This greatly contradicts with Afzal's (2017) findings that information needs are not static and will change from one person to the other. This notion is supported by Borlund's (2016) conclusion that dynamic information needs exist across various demographics, including both teachers and students, in his study. Sayolainen (2012) suggests that information needs arise as reactions to stimuli, triggered by life changes or events. These definitions are all based on Taylor's model, which not only forms the basis for understanding the information-seeking process but also encompasses the various types of information needs (Afzal, 2017; Borlund, 2016).

Taylor's model of information need elucidates four levels of information need, namely: the visceral, conscious, formalized and compromised needs. The visceral need is characterized by vague, incomprehensible questions that are often unexpressed. The conscious need denotes ill-defined descriptions with ambiguities. The third-level, formalized need, is characterized by sound qualified statements of inquiry that are rather formal. The fourth-level, compromised need, are queries understood by both the inquirer and the information system. Information needs being a diverse entity have developed over the years through interactions and have led to the adoption of other types of information needs namely: verificative, muddled topical and conscious topical information needs, that are still being explored (Afzal, 2017; Borlund, 2016).

On the global context, McDowell et al. (2013) undertook a study to investigate the information needs and use of US-based nonprofit organizations by US-based private donors making philanthropic contributions. They employed an experimental internet-based methodology. The study's conclusions indicated that there was no apparent correlation between the participants' demographics and their information needs and usage for nonprofit organizations. Furthermore, the participants demonstrated a preference for and reliance on non-financial information as a preliminary factor in their decision-making. However, some weaknesses were identified in this study, including the absence of a guiding theory or model and the use of a relatively small sample size, which limited the statistical power of the study. Nevertheless, the study highlighted how information needs can influence financial decisions, such as charitable donations.

In Australia, Missingham (2016) employed two theories: triple helix and actor-network theory in evaluating the needs of Australian business organizations. The triple helix theory explains the constructs and constrains experienced in creation and exchange of knowledge and its relation to public policy, whereas the actor-network theory is based on networks, semiotic and material constructs. One weakness identified in the study is its emphasis on issues related to knowledge management practices while not prioritizing constructs related to information needs. Furthermore, the models applied in the study primarily explore models of knowledge and competence management rather than focusing on information needs. Nevertheless, the study's findings regarding the improvement of accessibility and discoverability of research materials promoting their usability align with the views of several other scholars and researchers.

In Pakistan, Ali et al. (2018) employed the Wilson model approach and the survey design to investigate practicing lawyers needs in Pakistan. Questionnaires were used in data

collection. The information needs of practicing lawyers are influenced by the kind of work they do on a regular basis, with books and journals being the most frequently used sources of information. Empirical data indicated that participants required information for court proceedings preparation and staying updated on developments in law practice. In another study carried out within the same region of Pakistan, while focusing on a different scope, undergraduate master level LIS students, Jan et al. (2020) found that these students needed information for academic purposes, career advancement, and job opportunities. The study also inquired about their preferred language for seeking information and the most required sources of information, with English and lectures being the most common responses, respectively. The study employed a survey design and questionnaires as its tools for data collection. Both of these studies indicate the dynamic nature of information needs, across the scope of study.

In Denmark, Borlund (2016) explored the needs of students and teachers, of different demographics. Although the study did not report using a guiding theory or model, the approach taken provided a comprehensive understanding of different types of information needs, including verificative, conscious topical, and muddled topical needs, as well as how these needs are perceived within the scope of the study. The only limitation was that a small sample was used, and this calls for a larger sample in subsequent studies and also inclusion of a plethora of individual needs across the scope of study.

In a study conducted in Kwara State, Nigeria, Kehinde et al. (2016) inferred from their findings that, when asked about their information needs, most of the respondents (master's students from the University of Ilorin) indicated that their needs were for academic information (100%), followed by entertainment (86.3%), political information (81.2%), self-improvement information (72.6%), employment information (67.5%), global and

societal information (65%; 60.7%) respectively. The study incorporated the Elis model and the research survey design in its approach. Questionnaires were administered to the scope. The study also highlighted challenges faced in meeting information needs and when seeking information, which included issues such as incompetent materials, insufficient time, old-irrelevant information and inadequate internet access.

In Ghana, a study was carried out on beads producers, within three districts in the region of Ghana, to investigate their information needs and their information seeking behavior (Korkor Agyemang et al., 2018). The findings revealed that their immediate information needs were related to their day-day work, while highlighting their main knowledge gaps, and their sources of information being people, radio, TV, seminars, NGOs whereas little use of print resources was recorded. The study incorporated the qualitative approach and phenomenology research design. Non-probability sampling method was used, albeit purposive sampling led to the identification of the three districts, the scope of the study. According to Anmol et al. (2021), information needs are multifaceted and transversal, and there will be challenges to be faced in the information seeking process, despite the dynamic nature of information needs.

In Kenya, as much as information needs and information seeking behavior were first coined in the field of library science in the early years, it has since transversed diverse spectrums of the Kenyan economy, with various studies indicating its impact in agriculture (fish and dairy farming), natural resources like soil fertility and in small business enterprises as well (Asule et al., 2022; Gichohi et al., 2017; Onyango et al., 2012; Thuo & Njoroge, 2018). These studies highlight the need to refine public libraries to facilitate information and knowledge management practices in order to mitigate issues related to reliance on informal places and sources of information. For example, Gichohi et al. (2021)

explored the needs of SMEs and found that such refinement could be particularly beneficial in this context.

Cherono (2017) adopted a mixed method approach and found out that information needs of postgraduate needs vary among users, based not only on their demographic traits but also their IL skills and competencies. In addition, the study recommended reviewing of information literacy programs, to include orientation and trainings for postgraduate students, as well as career development programs for staff, that will foster a pedagogical approach to information literacy. Therefore, a gap was presented to explore how the ability to recognize information needs affected usage of electronic resources.

2.5 Ability to Search for Information and Utilization of Electronic Resources

The dawn of the internet and information society has led to the mass creation and dissemination of endless amount of information on the internet today, which Burkhardt et al. (2010) term as the age of information explosion. Searching entails locating or finding information, through identification of keywords, building search queries and application of search engines and information retrieval systems in getting the information needed. Mobile phone technology, being the most widespread technological device, has fostered access to a wide range of electronic resources. Therefore, the ability to navigate the World Wide Web, search for, locate and retrieve the right information, remains an integral skill to have among the digital natives in the modern age. Random sampling has been the most recurrent technique adopted by scholars and researchers of literature reviewed (Ajiboye et al., 2013; Kanori et al., 2018; Muhia, 2015), with notable mentions of convenient and purposive sampling techniques being used in the studies (Ekenna & Iyabo, 2013; Tariq et al., 2018). Questionnaires have been the most intensively used tool to collect data in these studies, with descriptive frequencies being used to analyze quantitative data.

Kanori et al. (2018) suggest that there are a variety of search tools that the modern users need to be aware of namely: databases, OPACs and search engines. In addition, Tunney and Wilson (2018) have extensively discussed the searching techniques necessary for finding electronic information materials, such as truncation, wildcard usage, and the application of Boolean operators when conducting online searches. Furthermore, Tunney and Wilson (2018) argue that being familiar with metadata - including information such as author, title, subject, and keywords - is important for effectively searching for information. Searching skills go beyond typing an input on Google and clicking the search button, but also includes cognitive abilities like critical thinking and higher-order thinking.

The ability to search for, locate, and retrieve information among university library users in the digital age, where there is a diverse and vast array of electronic information resources available on the internet, is critical. Tunney and Wilson (2018) emphasize the importance of understanding how to build search strategies and use search tools effectively. The search process entails a series of activities with the first step being, exploration of the appropriate investigative methods, that include: lab experiments, simulation and fieldwork, and the retrieval systems (American Library Association, 2000). This is followed by identification of keywords, concept phrases and terms that are related. The third activity in the search process is constructing a search strategy using appropriate commands, like the wildcard and Boolean operators. Combination of keywords and commands generates more sophisticated search strings hence a more efficient search strategy. Implementation of the search strategy using the most appropriate information retrieval system and search engines, like Google Scholar, ERMS and the OPACs, is the final activity in the search process.

Tariq et al. (2018) carried out a study in Pakistan to investigate the level and source of acquiring online information searching skills. The study adopted a survey design, and the sample was selected via convenient sampling technique. In addition, a structured questionnaire was issued. The research found out that there was a satisfactory level of searching skills across the scope of university students that exhibited different demographic frequencies. The findings indicated that there was no significance between the hypothesis that guided the study that included: age, gender, level of education, type of university, and the dependent variable that was the searching skills. However, the study primarily engaged business students, and not students of other disciplines. In addition, it did not explore operational searching criterions like keywords identification, construction of search strategy, and search engines. Nonetheless, the study reported a growth in searching skills with advancement in level of education, despite having no data to prove it. Specifically, 40% of the respondents indicated that they had acquired searching skills via guesswork, while 22% had acquired such skills through classwork. Additionally, 14% and 9% of respondents reported acquiring searching skills through library instruction and workshops, respectively. These findings reiterate with Sateesh et al. (2015) that there is need for more training on information literacy skills.

Ajiboye et al. (2013) while examining information retrieval tools in Nigeria, found out that postgraduate students had a preference for internet search engines, which racked up 57.0% of tally, compared to online databases and OPAC that had 12.1% and 14.2% respectively. The study adopted a descriptive design and the sample was randomly selected. Questionnaires were the only tool of data collection used, as was also the case in Ekenna and Iyabo's (2013) study. The challenges faced by respondents while using the search tools included: financial constraints, information overload, internet fluctuations and inadequate knowledge and skillset. This goes on to highlight that inadequate searching

ability goes beyond training and environmental factors play a role as well. Ekenna and Iyabo (2013) conducted a study to evaluate the retrieval of information resources related to their use. The researchers purposively selected a sample and grouped retrieval skills into three categories: operational, strategic, and informational skills. The strategic skills included: use of Boolean operators, use of OPACs and search engines. The findings deduce that efficiency and appropriateness in searching for and locating quality scholarly journals is dependent on strong strategic skills (Ekenna & Iyabo, 2013).

Tarus et al. (2022) adopted a descriptive research design approach in a study carried out in Kenya to explore challenges faced by graduate students in utilizing open access resources. Purposive sampling was employed in selecting the participants whilst questionnaires and interview schedules were the instruments adopted for data collection. The challenges listed included not only low internet connectivity and inadequate open access resources, but also inadequate search skills. This finding resonates with Merande et al. (2021) discovery that poor searching skills as a result of improper training can lead to under-utilization of e-resources. Merande et al. (2021) employed a mixed method approach across a scope that constituted four public academic libraries in Kenya, supported by the exchequer, and they used a stratified sampling technique to select participants. These studies suggest that searching skills are not only integral to postgraduate students, but also a correlation exists with e-resource use, necessitating a need to explore the metrics of information searching and the role they play in the utilization of e-resources.

Studies done in Kenya have also explored searching skills and techniques within university library users. While assessing the effectiveness of information literacy programs, Muhia (2015) noted that 74% of the respondents had not acquired the skills needed in searching

and retrieval, while only 26% had acquired them. The sample was randomly selected, and data was collected through both questionnaires and interviews. In a different study, Kanori et al. (2018) found that respondents were not conversant with searching techniques like truncation, Boolean operators and wildcard. Their study utilized both stratified random sampling and purposeful sampling to select participants. Nevertheless, both of these studies argued that searching skills are low among university students and therefore recommended the need for a pedagogical approach beyond orientation and training in equipping information literacy skills. However, these studies did not examine the impact of the ability to search for information sources on the utilization of electronic resources beyond the pandemic. Therefore, this study aims to address this research gap.

2.6 Ability to Evaluate Information Sources and Utilization of Electronic Resources

Globalization, advancements in technologies, and abundance of media in the information age have resulted to the unprecedented explosion of information. The evolution of social media and related technologies, among other information and communication technologies, has not only facilitated the dissemination and sharing of information, but also the creation of new information. With social media channels such as Twitter playing an integral role in how information traverses the user community, it has become increasingly difficult to distinguish between facts, opinions, and propaganda once it is made public. This has further contributed to information anxiety among consumers of information, while creating opportunities for individuals who can critically manage, analyze, assess, and interpret information.

In 2009, the POTUS, Barack Obama stated:

> "Over the past decade, we have seen a crisis of authenticity emerge. Rather than merely processing data, we must also learn the skills necessary to acquire, collate

and evaluate information for any situation" (U.S. Government Publishing Office, 2016).

POTUS in his speech also emphasized on the role of educators and institutions in separating facts from fictions and signal from noise. In addition, Soleymani (2014) insists that there is need to engage cognitive and affective attributes, while embracing situations of uncertainty in the evaluation of information, in the modern age. There are metrics/ criteria that can be applied in the evaluation of information namely: authority, currency, kind of information, intended audience, objectivity/ bias, source, and the accuracy.

The authority criterion assesses the creator or producer of the information resource. The attribution of information sources can refer to the author, publisher, sponsor, owner of the website, or a combination of these entities. For instance, when determining the authenticity of an author, certain characteristics can differentiate a genuine expert from a fraud, such as their academic background, related works, experience, certifications, institutional affiliations, acknowledged achievements, and online profiles such as LinkedIn. It is also important to consider their contact information. In the case of publishers, it is important to have knowledge on scholarly and genuine publishing from predatory publishing. Kearney et al. (2015) associates predatory publishing with unethical and unscholarly practices with the intent of accruing author fees while offering nowt in return. Moreover, critical review of the homepage and about us function on websites, will help in making sound decisions in filtering unscrupulous from genuine authorship/ ownership.

Tunney and Wilson (2018) infer that applying the currency criterion means assessing the timeline in which the information was produced. In the case of print materials, like books, the year of publication will be found on the verso page. In the case of electronic resources, journals have the year of publishing and the references section can also guide in analyzing

the timeline of materials used. Kanori et al. (2018) findings indicate that bachelor of education teacher trainers had no problem evaluating electronic resources via currency criterion. Additionally, university libraries offer electronic databases such as SAGE and JSTOR that have filtering features to enable the application of functions such as filtering out journals based on the date of publication. The importance of up-to-date information may vary depending on the purpose of the study. Historical studies may not rely on the most current resources, whereas recent developments in specific fields such as technology, may require the most up-to-date information available.

Another criterion is analyzing the kind or type of information resource one intends to consume. In the information age, there is a wide range of electronic information resources available, but not all of them are suitable for conducting credible research. Published scholarly journals take the lead in the usage of information for academic purposes. They are peer-reviewed, follow guidelines for authorship, are written by authorities in specific topic areas, and offer authentic information. Grey literature, available in institutional repositories, is subject to rigorous peer review, and although not formally published, is quite resourceful for academic purposes. Trade publications, produced by practitioners in a given discipline, are also exemplary sources of information but should be critically assessed. Moreover, Armstrong and Brunskill (2018) infer that much of the kind of information not advised to use are resource materials from freelance writers, like magazines and personal blogs.

Content is an integral subset that defines the evaluation of information. According to Armstrong and Brunskill (2018), it is important to understand the intended audience for the content, as different demographics exist, and their information needs are dynamic. Information resources for specialists may involve jargon and constructs that may not be

comprehensible to the general public, while general public information may be shallow and lacking in detail compared to what specialists would prefer. Additionally, content for young children will not be as detailed as that intended for higher education students. Along with understanding the scope and purpose in this criterion, the accuracy of the content, achieved through the use of accurate data, feasible theories, viable methodology, and appropriate analytical tools, will facilitate the authenticity of the information, thereby enhancing its reliability and usability. The accuracy criterion goes hand in hand with objectivity, helping to eliminate bias in the information (Tunney & Wilson, 2018).

The overall quality of the information, needs to be evaluated. There are minimum writing guidelines to meet for the information resource to meet merit standards. Quality information resources follow a logical organization structure that includes the introduction, literature review, description of methodology, results, recommendations and finally conclusion (Armstrong & Brunskill, 2018). This organizational framework simplifies the work for peers in reviewing the information resource, building critiques, and applying the recommendations and findings in providing solutions to relatable problems.

On the global context, studies have been done for example in India to examine the information literacy skills of students in higher institutions of learning. Alagu and Thanuskodi (2018) is case example. They used the simple random technique to select participants for their study, while adopting the questionnaire as the only tool for data collection. Data was tabulated using Excel. However, this study did not critically assess evaluation of information as an integral information literacy skill. In contrast, a different study by Shukla and Verma (2020) assessed students' information literacy skills and found that 56.63% of the participants expressed having good evaluation skills. The study purposively selected masters' students from two universities and employed a semi-

structured questionnaire in data collection. Both of these studies analyzed various variables of information literacy competencies among their respective study populations, which included both undergraduate and postgraduate students. One key outcome of these studies is none of them operationalized the variable evaluation of information as a competence of information literacy in their research.

Conversely, studies carried out in West Africa, Nigeria, to investigate information skills of students in higher institutions of learning, analyzed the evaluation of information as an integral information literacy skill in their study. Adeleke and Emeahara (2016) randomly selected the study population, then applied convenience and purposive techniques in selecting a sample from the two homogenous groups. The sample was big thus minimizing the sample error, a significant aspect that was adopted in this study. This study related to Toyo's (2017) survey which adopted the questionnaire as its only tool for data collection. Toyo's (2017) verdict revealed that 81.8% of the participants possessed the skills to evaluate information appropriately, and this was impactful in their utilization of information resources. Nonetheless, these studies failed to analyze each metric of information evaluation independently, leaving a gap for further research to be carried out.

In Kenya, studies have also been carried out to investigate the IL skills of students in higher learning, with evaluation of information, being among the independent variables to be studied. Kanori et al. (2018) adopted stratified random technique in the selection of the participants that consisted of trainees. Descriptive inferential statistics were analyzed and a significant correlation was noted between evaluation and use of e-resources, however the role evaluation plays was not explored, hence a gap, that necessitated this study. Nonetheless, in a different study Cherono (2017) mixed method study approach, indicated that the information evaluation know-how of postgraduate students at Strathmore

university, Kenya, was low, and therefore recommended training, orientation and user support be carried out by librarians to improve their information literacy skills. In a different study, Sang and Cheruiyot (2020) discovered that the main sources of horticultural information were from public extension, NGO/FBO thus confirming the authority criterion in evaluation of information. Moreover, Sang and Cheruiyot (2020) opined that information literacy could facilitate horticultural productivity, through utilization of horticultural information resources.

An array of research instruments have been used in these studies, thus conveying the significance of employing questionnaires in tandem with interviews, document analysis and observation as tools of data collection. However, limited studies have been conducted to analyze each of the evaluation criteria discussed above individually to comprehend the specific role each criterion plays in the utilization of electronic resources. This need prompted the undertaking of this study.

2.7 Ability to Cite and Reference Information Sources and Utilization of Electronic Resources

The ability to effectively cite and reference information materials continues to be integral in the age of information explosion and accessibility. Bautista and Pentang (2022) describe citation and referencing as the process of acknowledging sources, giving credit to authors, whilst taking consideration of their intellectual property rights. In addition, Muzata and Banja (2019) moot that effective application of citation and referencing in writing, shows acknowledgement of the author's ideas. Citation and referencing styles, reference management tools, and advocacy for ethical information use have since advanced, in order to counter illegalities and punitive use of information materials, also referred to as plagiarism.

Plagiarism is the unethical use of a creator's work without acknowledging nor giving credit to it (Tunney & Wilson, 2018). According to Vardi (2012), plagiarism not only affects the individuals who undertake the scholarly malpractice but also institutional reputation, whilst putting their integrity into question. As much as the community perceives plagiarism as heinous acts that include: presenting work done by someone else and copying someone else's work, Vardi (2012) notes that it also includes inadequate use of citation and referencing when writing. This finding implies that inadequate ability to cite and reference electronic information resources could lead to plagiarism. This necessitates the need to improve the skillset for adequately citing and referencing through exposure to and application of a wide spectrum of referencing styles and tools among postgraduate students.

The process of referencing and citation entails application of a specific accepted kind of style in writing to acknowledge another author's contribution. This helps readers and scholars to go identify the authors and verify the facts from sources used. Effective application and ability to use another creators work helps in building arguments, application of criticism whilst affirming their authority in the subject. Tunney and Wilson (2018) infer that sources used should be referenced both in the text and also on the reference list. In-text citations will differ in punctuation and application according to the style adopted. Muzata and Banja (2019) opine that efficacy in this process is evidenced by effectiveness in application of quotes and paraphrasing in academic writing. In addition, this process entails clear organization of information, arguments, criticism whilst giving credit to authoritative sources. Application of reference management tools and software like Mendeley, Zotero, EndNote, RefWorks and Bibtex is integral in management of materials used, effective application of in-text style and creation of bibliographic and reference list (Blicblau et al., 2016). Moreover, Vardi (2012) opines that proficient ability

in the application of citations and referencing evinces mastery of intellectual property, copyright and fair use of copyrighted work.

According to Tunney and Wilson (2018), there are a variety of referencing styles being used by scholars and researchers as well namely: Modern Language Association of America (MLA), Harvard, Chicago Manual of Style, American Psychological Association (APA) and Oxford. All the mentioned styles highlighted above take different formats in how they undertake citation and referencing when writing. The choice of the reference style to use varies from one institution to another, with different universities preferring one reference style to another, while maintaining uniformity in the kind of citation and referencing to be used within all schools, and departments within the university. Lectures have taken a pedagogical approach in ensuring there is efficacy in the use of a referencing style. According to Blicblau et al. (2016) use of referencing software among students improves their understanding on citation and referencing. This explains the proliferation of reference management software like Mendeley, Zotero and EndNote, that have since revolutionized referencing from manual to a system-oriented approach, that is much more efficient and accurate.

In a study carried out in Philippines, Bautista and Pentang (2022) tested the relationship between knowledge-ability of pre-service teachers on referencing and citation and found it to be satisfactory. Stratified sampling was employed to select participants from the entire population, after which they were randomly sampled within each stratum. A quantitative approach was employed with data being gathered by way of web-survey. In addition, plagiarism awareness was weighed against referencing and citation and the findings revealed a positive but weak correlation to be evident. Moreover, knowledge of referencing and citation was tested against academic performance, and a significant strong

positive relationship was noted. This study supports Vardi (2012) stance on the importance of citation and referencing competencies, and the need to advocate for training and pedagogical approaches within universities. Moreover, the study recommends on a collaborative approach between librarians and lecturers in ensuring citation and reference competencies is top notch. Nonetheless, it does note explore the correlation with information literacy.

Muzata and Banja (2019) identified that APA with a tally of 39% was the most used referencing style among students from the school of education in Zambia. Harvard referencing style followed closely with 36%, while Chicago and MLA had 4% and 5% respectively. The study employed a mixed method approach. Additionally, the sample was randomly selected. Descriptive frequency results showed that there is an array of referencing styles in use in Western Africa. The English language is the most commonly used across most institutions in Africa, both in reading and writing. This diversity in referencing styles may be attributed to this trend, drawing support from Newton et al. (2014) findings, which suggest a positive correlation between self-ascertained confidence in writing English and reference skills. Before including participants in a pen-and-paper survey to gauge their understanding of in-text referencing, Newton et al. (2014) used a random control trial method to evaluate a training session on plagiarism. The findings suggested that lecturers are effective in teaching citation and reference skills, which is consistent with the pedagogical approach recommended by previous research (Bautista & Pentang, 2022; Newton et al., 2014). However, it was noted that students face significant challenges in this area, primarily due to limited learning time and the use of various referencing styles, which often leads to confusion.

In a study carried out in Kenya, the challenges faced when citing and referencing were highlighted according to the reference style and across the level of year of study of the respondents (Kanori et al., 2018). As much as the study failed to reveal the overall, one-dimensional challenges to citation and referencing, one thing that is clear, is that each particular citation style posed a different challenge from the other. According to Turnitin (Turnitin, 2019), among the reasons why students grapple with citation include: substandard ways of undertaking research, inadequate precedent know-how and competing citation standards. This finding is consistent with the study conducted by Kanori et al. (2018). However, the literature reviewed did not include an evaluation of the role that citing and referencing plays in e-resource use, highlighting the need for the current study to address this gap.

2.8 Summary of Research Gaps

Assessment of information needs revealed that they are dynamic and will change from one population to another, thus necessitating studies be done across different populations. Literature around searching skills across university students was only limited to business students and not to students in other subject disciplines. In the aspect of evaluation, studies failed to analyze each sub-set metric of evaluation namely: accuracy, authority, currency, kind of information and content independently thus creating a gap. The review of citation and referencing affirmed that university students are knowledgeable and aware of plagiarism; however, they did not address the use of reference management tools and software. The pandemic presented opportunities, in trends and technologies for the virtual library environment, hence an upsurge in the proliferation of electronic resources. The literature reviewed stipulates that a gap exists in information literacy subsets of information need recognition, information searching, evaluation of information, citation and referencing.

2.9 Theoretical Framework

According to Gorvine et al. (2018) theories offer a comprehensive viewpoint and set of presumptions regarding a field of inquiry. Furthermore, Mugenda and Mugenda (2019) describe theory as correlated constructs that vividly illustrate and elucidate a phenomenon, or subject area. This study was guided by the SCONUL theoretical model. The SCONUL core model, encompasses seven pillars that represents abilities and understanding in higher education. The model represents the guiding independent variables of this study namely: information need recognition, searching for information, evaluation of information, citing and referencing including the embedding information literacy variable, hence making it ideal for this study.

2.9.1 SCONUL model

The SCONUL model was developed in 1999 by the SCONUL working group on IL. It was then launched the following year, and has been widely adopted globally to impart information skills to trainees. The Standing Conference of National and University Libraries was instituted in 1950 but it was not until 2011 when it transitioned to the Society of College, National & University Libraries (SCONUL). SCONUL embodies national and university libraries across Great Britain and Ireland, facilitating collaboration and efficacy in service delivery, as well as shared functions and utilities. In addition, it aims at providing support in research and attainment of success among students. This facilitated the SCONUL taskforce in 1999, to inaugurate the seven pillars model of information literacy, which has since been reviewed and updated to remain effective in current times (Bent & Stubbings, 2011).

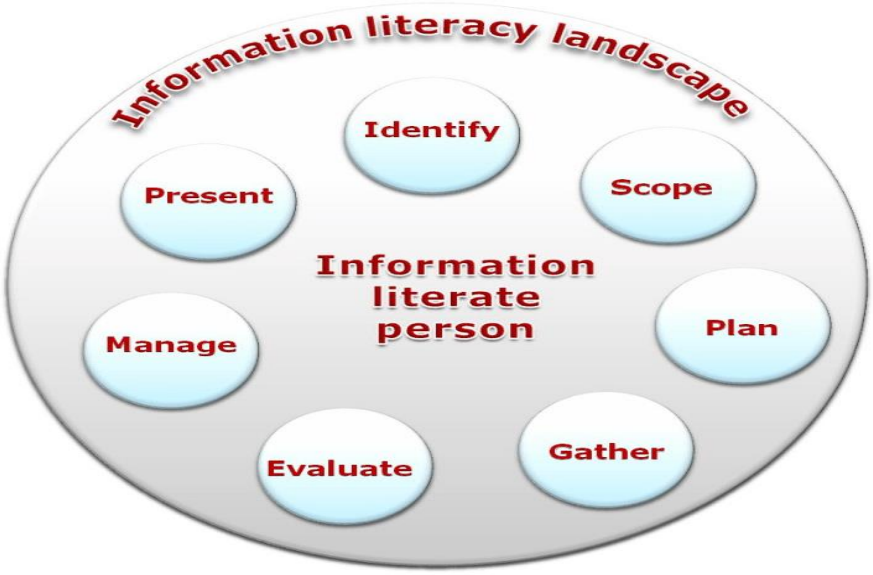
The antecedent inceptive model formulated by an advisory taskforce of SCONUL, emphasized on information skills and the needed technology being integral facets of

information literacy, and their place in promoting key skills, academic excellence and lifelong learning (Society of College National and University Libraries, 1999). The model addressed the distinct levels of tertiary education, whilst advocating for cooperation between relevant stakeholders in administration, teaching and library operations in the development of information literacy into the curriculum. The key skills or pillars outlined and formulated in this model include: competence for recognition of need, addressing gaps in information, approaches to locate information, finding and accessing information, analysis and evaluation, organization and application, and finally synthesis and creation of new knowledge. In 2009, a second study was designed by SCONUL to evaluate and ascertain the use of this model (Gallacher, 2009).

The SCONUL model was later re-examined, expanded and updated in 2011, to the SCONUL core model, to highlight more on the abilities, as well as attitudes and behaviors of users within higher education. Bent and Stubbings (2011) emphasized that as much as the basic principles remained relevant in the new information age, there was need to review and examine certain aspects and constructs of information literacy. The SCONUL core model has been described as non-linear, but circular, since one can develop concurrently and dependently across the seven pillars, despite their correlation. The seven pillars of the SCONUL core model are: identify, scope, plan, gather, evaluate, manage and present, as shown in Figure 2.1

Figure 2.1

SCONUL model for higher education



Source: Bent and Stubbings (2011)

The SCONUL model was found ideal since it clearly represented the main independent variables of this study namely: information need recognition, evaluation of information, searching for information, citing and referencing information. These variables embody core components of information literacy competencies. Each of the seven pillars of the SCONUL model represents abilities and understandings that define an information literate individual in higher or tertiary education setting, making if feasible within faith-based universities, and necessary for the postgraduate students enrolled.

Identify represents the first pillar of the SCONUL core model. This outlines the ability to recognize and identify an individual need within a subject or topic area. It goes ahead to include the ability to breakdown the information need, whilst applying cognitive attributes in the recognition of need. This pillar vividly delineates what constitutes information need recognition, enabling a practical approach in the exploration of this study. The second pillar, scope involves the competence to acquire knowledge, whilst figuring out gaps in information and knowledge. This includes know-how of the categories of information and formats available, their lifespan, how to access them, find and use them effectively. The

third pillar, plan, entails the activities involved before gathering information resource materials. These activities include: identification of keywords, related terms, effective search queries to apply, related tools and algorithms to incorporate in finding information. The subsequent forth pillar, gather, entails engaging with a variety of information resource materials, both print and non-print. In addition, application of searching techniques, reviewing of metadata and engaging of relevant tools and systems for effective search and retrieval. Moreover, engaging relevant stakeholders involved in availing of information needed. This pillar epitomizes the guiding independent variable that explores the searching ability of the population within the scope of study.

Evaluate is the fifth pillar of the core model. It involves applying application of appropriate criteria in identification of the most suitable, relevant, credible, qualitative, accurate information that is free from bias. This involves application of critical, creative and high order thinking. Manage, the sixth pillar of the core model, involves good organization practice in the form of storage and preservation of information resource materials as well as ethical and legal aspects of information. This involves preservation, security, organization and keeping adherence to intellectual property laws. Present is the last of the seven pillars of the SCONUL core model. This entails packaging, and repackaging of information, and effective application and communication of old information whilst contributing new knowledge. It also includes application of a variety of software and tools that facilitate knowledge dissemination and sharing. The fifth and seventh pillar effectively represent the third and fourth objective that explore evaluation of information, citing and referencing information respectively.

According to Cherono (2017) SCONUL model is one of the prominent models widely used in the field of information science. The three-dimensional approach of the seven

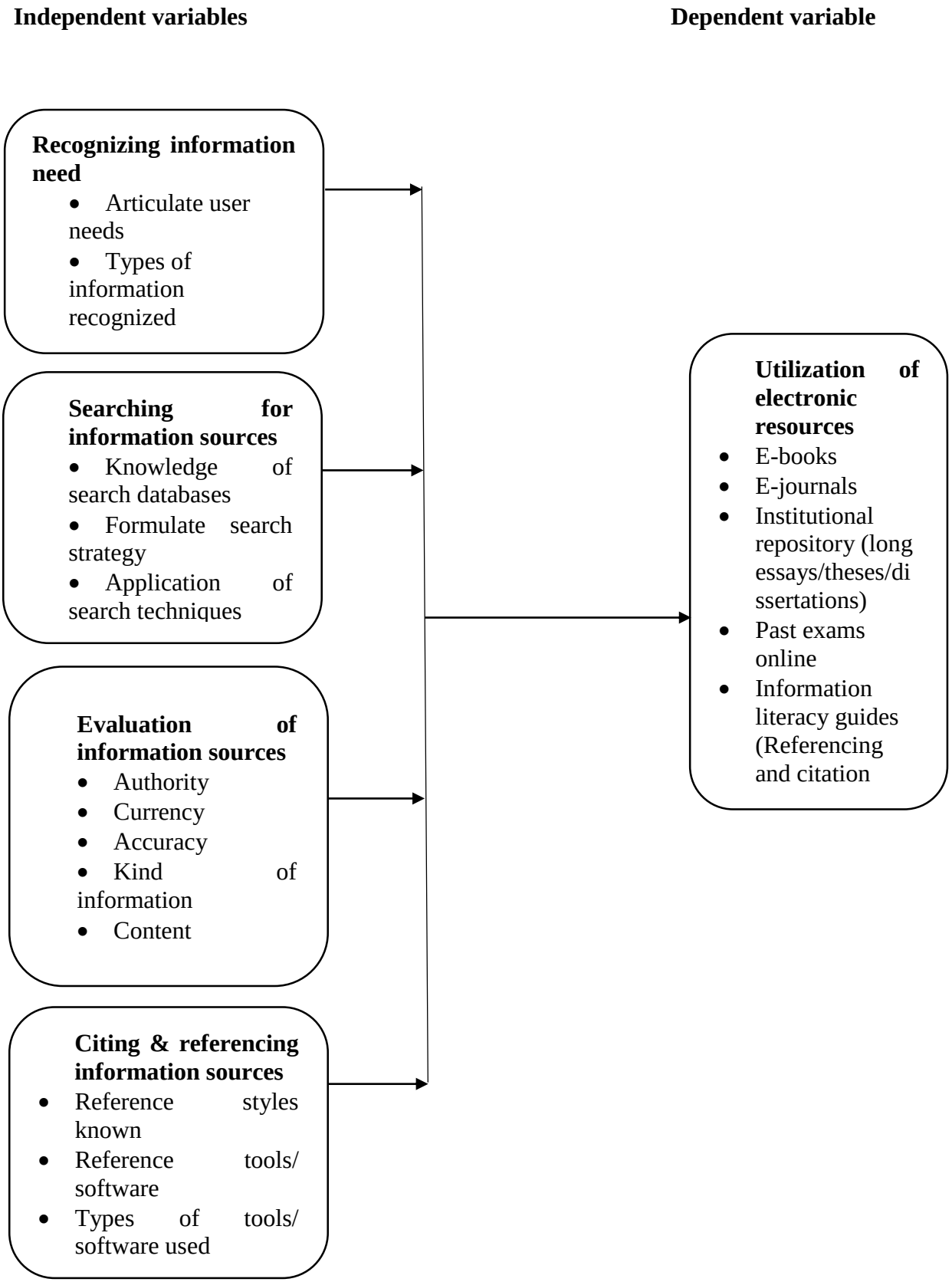
pillars core model has facilitated its adoption by educators, trainers and information professionals in imparting information skills to students and trainees as well. The SCONUL core model comprehensively underpins information need recognition, searching for information, evaluation of information, citation and referencing, and information literacy that are the independent variables of this study. Four pillars of the model namely: identify, gather, evaluate and manage define the competencies and skills that are representative of the main variables of the study. Moreover, this model was chosen since it vividly elucidates the behaviors and attitudes integral in the development of IL in tertiary education. In as much as the SCONUL model is feasible in the delineation of each variable namely: information need recognition, searching for information, evaluation of information, citing and referencing information and information literacy, it does fail to clearly delineate the main dependent variable, utilization of electronic resources.

2.10 Conceptual Framework

The conceptual framework is a model that illustrates the relationship between the main variables that underpin the study, in this case, the independent and dependent variables. The independent variables included: recognizing information needs, searching for information, evaluation of information, as well as citing and referencing information. The dependent variable was utilization of electronic resources as shown in Figure 2.2.

Figure 2.2

Conceptual Framework



2.10.1 Description of variables

The ability to recognize an information need involves several activities including defining concepts, finding related materials, reviewing of existing literature and identification of information materials that assist in developing a question that can be answered. The operational variables that covered the recognition of information needs are: articulate user needs, types of information recognized and sources of information.

The ability to search for information involves locating, finding and retrieving of the intended resource material. The operational variables that covered the searching competencies included: knowledge of searching databases, formulating search strategies and application of searching techniques.

The ability to evaluate information sources involves critical review of the appropriateness of the information material before use. The criteria and operational variables of this independent variable were: accuracy, authority, content, kind of information (type) and currency.

The ability to effectively cite and reference electric information materials used, complies with the intellectual property laws and is fundamental in ethical writing. The operational variables adopted were: referencing styles, knowledge of reference management software and tools, types of referencing tools and software used.

The utilization of electronic resources involves the activity by postgraduate students to practically use the abundance of electronic resources made available by the university libraries. The operational variables that covered e-resources utilization were: e-books, e-journals, institutional repository (long essays/ theses/ dissertations), past examinations online and informational literacy guides (referencing and citation manuscripts).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter examines the research methodology that was applied in this study. This section looks into the research design, location of study, target population, sampling size, sampling technique and the data collection instruments used. In addition, it explores the procedure for data instruments administration, reliability, validity, data analysis, presentation and the ethical considerations.

3.2 Research Design

According to Kothari and Garg (2019) the research design is the structure that outlines the arrangement and procedures in the collection, assessment and examination of data. In addition, Creswell and Creswell (2018) opined that a research design is a strategy of inquiry that acts as a guideline in a study. It is the blueprint that underpins the framework under which research is carried out.

The research design used in this study was the descriptive survey. The survey research design entails collection of data from subjects in a sample, in order to determine a generalizable status of the population, in relation to the variables guiding the study. According to Creswell and Creswell (2018), a survey design tests relationships or correlations among variables in a population, through studying the sample of subjects in that population. The survey research design was the most ideal for this study for its effectiveness in showing the relationship between the independent variables namely: recognition of information need, searching for information, evaluation of information, citing and referencing information against the main dependent variable, utilization of electronic resources, whilst predicting correlations between these variables over time and in answering descriptive questions.

Mugenda and Mugenda (2019) opine that a survey design can either be descriptive, exploratory or explanatory. Kothari and Garg (2019) have suggested that a descriptive mode of analysis is ideal in specifying objectives with sufficient precision, in ensuring data collected was relevant. This therefore led to the adoption of the descriptive survey design since it explained and explored the status of the main variables of study. Moreover, it is ideal for large populations hence its adoption. Related studies have employed the descriptive survey design, thus compounding on the efficacy of this design across different scopes and contexts (Ajiboye et al., 2013; Ekenna & Iyabo, 2013; Muhia, 2015; Tarus et al., 2022). Therefore, this design was best suited in determining the role information literacy played in the utilization of electronic resources.

3.3 Location of Study

The research was carried out in four universities namely: the Catholic University of Eastern Africa (CUEA), African International University (AIU), Daystar University and the Kenya Methodist University (KeMU) Nairobi town campus. The aforementioned universities are accredited faith-based private universities in Nairobi County, Kenya. In addition, these faith-based institutions offer both undergraduate and postgraduate academic programs, with the latter information making them most ideal for this study.

According to the CUE (2022), there are guidelines and protocols in the accreditation process for institutions, and among the necessities was having physical, human, library, fiscal resources, effective pertinent academic programs and sound governance. These select universities have automated modern library facilities, with efficient ICT infrastructure that facilitate virtual library services via their institutional library that enhance the application of e-resources by postgraduate students enrolled. In addition, they complement their e-resources catalog through subscription and membership with KLISC.

3.4 Target Population

Mugenda and Mugenda (2019) have described a population as a set of people, or objects with shared observable characteristics. Populations differ from others on the basis of the characteristics and features that define them. Fetzer (2020) suggested that an accessible population is one that samples are drawn from, whereas the target population is the one that researchers generalize their studies on. Therefore, the identified target population for this study was all postgraduate students from faith-based universities in Nairobi County, However, since the study was not to be done across the universe, inclusion and exclusion criteria were applied in picking the accessible population for this study.

The inclusion criteria items included: the universities had to be supported by their respective churches and accredited as per the Republic of Kenya's university act. In addition, they had to be based within the geographic setting of Nairobi County, and focused on postgraduate students enrolled. The accessible population constituted 843 postgraduate students enrolled, the university librarian and systems librarian from each university, which cumulated to 8 library staff in general. Postgraduate students from these universities are expected to write several scholarly and seminar papers, hence the significant need for information literacy skills as they interact with e-resources, which constituted the main variables of this study. Moreover, the systems librarians are responsible for the management of e-resource materials, whereas the university librarian manages and oversees all library operations. Table 3.1 shows the population of the study.

Table 3:1

Target Population

	University	Postgraduate Students	University Librarian and Systems Librarian
1	The Catholic University of Eastern Africa	377	2
2	Kenya Methodist University	241	2
3	Daystar University	130	2
4	The Africa International University	95	2
	Total	843	8

3.5 Sample Size and Sampling Technique

Sampling entails the deliberate action or process of selecting a representative portion of a population from a study, depending on the nature of data needed and subject under investigation (Kothari & Garg, 2019).

3.5.1 Sample Size

The sample refers to a small group or number of individuals or subjects that represent an entire population. The accessible population of four faith-based universities in Nairobi County was adopted hence Daystar, KeMU, CUEA and AIU. Singh (2017) moots that a 10% to 30% sample could be representative of a whole population; therefore, a 20% proportion was applied in getting the sample from the total accessible population of the study. The tally of all postgraduate students from the four faith-based universities was 843, therefore after application of the equation, it resulted to a sample size of 168 postgraduate students and 8 librarians, as shown in Table 3.2;

Table 3:1

Sample Size

		Postgraduate Students		University Librarian and Systems Librarian	
	University	Target Population	Sample	Target Population	Sample
1	The Catholic University of Eastern Africa	377	75	2	2
2	Kenya Methodist University	241	48	2	2
3	Daystar University	130	26	2	2
4	The Africa International University	95	19	2	2
	Total	843	168	8	8

3.5.2 Sampling Technique

The study intended to employ both probability and non-probability methods of sampling. Non-probability sampling entails a deliberate action adopted in the selection of the samples whereby the choice of researcher concerning the subjects of the sample is supreme. Kothari and Garg (2019) have described this kind of sampling as purposive or judgmental sampling, while emphasizing on its reliability with small inquiries and items that were not limited by time or finances. In probability sampling, every item has an equal opportunity of being selected as part of the sample. Individual units are selected from an entire group not purposively but through a calculated, machine-like procedure.

Firstly, inclusion and exclusion technique were used to systematically evaluate all the faith-based universities and select four universities that best represented the entire population, from which a sample of postgraduate students was drawn. The inclusive criteria that made the universities eligible included accreditation, availability of

postgraduate academic programs, and access to a variety of electronic resources. The faith-based universities with the most postgraduate students enrollment were selected, thus resulting in the selection of CUEA, KeMU, AIU, and Daystar universities. This approach helped to ensure that the sample was representative, valid, and reliable.

Secondly, postgraduate students were stratified into those pursuing masters and PhD. A sampling frame that constituted the list of students, academic program enrolled, their telephone numbers, and email contacts was provided by each university through the office of the DVC. From the sampling frame, systematic sampling technique was used to select subjects for the sample. Systematic sampling is convenient and less expensive compared to other sampling methods (Kothari & Garg, 2019).

Systematic sampling is a complex random sampling design. According to Singh (2017) this involves the selection of the $\mathbf{i}^{th}$ item on a list after the first unit has been randomly picked. The list ought to be random, thus should not follow any numerical or alphabetical order. This technique was ideal for this study since it was spread more evenly on the entire population as compared to the simple random method. The sampling interval was attained by dividing the number of all postgraduate students in the selected accessible population to the sample size, thus 843/168. This resulted in a sampling interval of 5.017. Therefore, the starting point was randomly selected from the list, then the 5^{th} number was picked from the list.

Purposive sampling technique was employed in the selection of two librarians for the study. According to Kumar (2019), in purposive sampling, subjects are handpicked because they are informative or possess the needed attributes, and the criteria for choosing the subjects ought to be stated. In this case, the librarians selected constituted the systems librarian and the university librarian for the individual roles they played. The systems

librarian is involved in the day-to-day management of e-resources that constitute the dependent variable of this study, whereas the university librarian is responsible for the overall management of the university library facility, including information literacy framework structure, policy implementation, and pedagogical approaches to information literacy.

3.6 Data Collection Instruments

This study intended to use both questionnaires and interviews to collect data from postgraduate students and the library staff respectively. The two tools are described below.

3.6.1 Questionnaires

The main instrument identified to collect data from the postgraduate students was the questionnaire. According to Singh (2017), the questionnaire is the most popular tool used among individuals, researchers, organizations and governments in data collection. The questionnaire was relevant in this study because it was cost-efficient for the large sample that had been selected. Additionally, the questionnaire is free from interviewer bias, which allowed the postgraduate students to express their own thoughts. Furthermore, it provided ample time for the postgraduate students to give well-thought-out answers. A closed-ended questionnaire was considered ideal and was used in the study.

The researcher examined the literature reviewed and indicators in the conceptual framework to come up with substantive statements to be used in the questionnaire. A primal focus was taken from the performance standards and indicators developed by ACRL (2004) whilst integrating them with other indicators derived from the literature. In developing the questionnaire, the Likert scale and response format, designed by Renis Likert in 1932 (Gorvine et al., 2018), was adopted to rate the statements. The 5 option Likert response option was employed for the study. The questionnaire was divided into six sections, with the first section depicting the demographic data of respondents, while the

subsequent parts primarily covered each variable, namely: information need recognition, searching for information, evaluation of information, utilization of e-resources, citing and referencing information (see appendix II).

3.6.2 Interview

The interview method was employed to collect data from the library staff in the study. Kumar (2019) moots that interviews engage dispensation of oral/verbal stimuli and feedback in the same manner. Additionally, Gorvine et al. (2018) add that interviews provide a rich source of data, while confirming the respondents understanding and allowing detection of inappropriate interview responses, thus giving the interviewer control and flexibility to get in-depth and accurate information. There exists a wide range of interview methods namely: structured, unstructured, focused, and clinical interviews (Gorvine et al., 2018).

A structured interview was identified as suitable for this study. A structured interview involves a rigid procedure, the use of standardized recording techniques, and the asking of predetermined questions in a stipulated order. Structured interviews are often used in descriptive studies since they are economical while providing a sound basis for generalization; hence their adoption in the study. Kumar (2019) denotes that the interview schedule is the instrument of data collection, while the act of interviewing is the method of data collection. Therefore, the structured interview schedule was constructed based on indicators adopted in the literature review. The interview schedule used to collect data from the select library staff was divided into six sections. The first part provided the demographic information of the library staff, and the consecutive parts focused on the variables of the study (see appendix III).

3.7 Pretesting of Research Instruments

Pretesting is not only essential in improving the statements on the research instruments but also in reducing measurement error while improving validity and reliability. Therefore, the pretesting of the research instruments was done at Tangaza University College, whereby 38 postgraduate students participated. This was supported by Perneger et al. (2015) assertion that a sample size of 30 participants or more ought to be preferred for pretests whenever possible.

Tangaza University College was a great pretest location since it is a faith-based institution within Nairobi county, with postgraduate students enrolled. In addition, it offers a variety of e-resources to its users, which highlighted the main variable under study. Feedback acquired after pretesting the research instruments addressed issues arising in an attempt to improve the overall quality of the research instruments.

3.8 Procedure for Collecting Data

This commenced with the issuance of an introductory letter from Kenya Methodist University, the institution to which the researcher is enrolled. The introductory letter was prerequisite among other requirements needed in the pursuit of the research permit from NACOSTI. After the acquisition of the permit, an authorization letter was sent to the DVC academics and research at CUEA, AIU, Daystar, and KeMU seeking authorization to collect data from the students and staff, including the postgraduate students email to whom the questionnaires were sent. The interviews were undertaken by the researcher.

3.8.1 Procedure for Administering Questionnaire

The closed-ended questionnaires developed by the researcher were administered to the postgraduate students that constituted the sample of the study. The questionnaires created via google forms were sent to the postgraduate students via email, having received authorization from the DVC academics and the email addresses of the sampled postgraduate students. To increase the response rate, the researcher sent reminder emails

time and again during the data collection period. The questionnaires included an introductory information depicting the background information and purpose for conducting the study, including contact details of the researcher and of the two supervisors as well.

3.8.2 Procedure for Conducting Interview

A structured interview was employed in this study. he structured interview was conducted with select library staff, namely, the systems librarian and the university librarian. Firstly, the researcher introduced himself to the librarians and booked an appointment for a convenient time and location for both parties to carry out the interviews. The researcher sought permission from the interviewees to audio-record the interview conversations. After obtaining permission from the interviewees, the researcher used the structured queries to ask questions, while using both note-taking and the researcher's mobile phone as the interview recording instrument to record the responses.

3.9 Validity of Research Instruments

Validity tests the quality of data generated by the instruments used in a study. It refers to the accuracy, truthfulness and meaningfulness of conjectures that are based on data generated (Mugenda & Mugenda, 2019). Validity constitutes two essential parts namely: the internal validity and external validity. According to Mohajan (2017), internal validity indicates the credibility of the results of study whereas external validity signifies that the results of the study can be transferred to other groups of interest. Internal validity was achieved through appropriate sampling, data capture and data analysis. In addition, the researcher used heterogenous groups and precision description to achieve external validity.

Content validity looks at whether the questions on the instrument cover all the possible questions that could be asked with respect to the variables (Heale & Twycross, 2015). A pretest was done to enhance the instruments content validity. In addition, review of the

instruments by the supervisors who are experts in the field prior to the pretest enhanced content validity. To strengthen the face validity of the study, the data collection tools were also distributed to a subgroup consisting of four non-experts in the field. They were tasked with examining each tool and assessing whether the questions appeared to measure the intended constructs effectively. Construct validity was achieved through meticulous scrutiny and rigorous examination of the literature reviewed in the formulation of the research instruments.

3.10 Reliability of Research Instruments

Reliability entails estimation of consistency in the measurement of a variable in a study. Mohajan (2017) posits that reliability is a measure to evaluate whether data generated from a specific research instrument is consistently identical on repeated trials using the same instruments while holding other factors constant. In testing reliability, a pretest was done prior and the scores of the pretest compared to the scores of the actual test. In addition, the internal consistency technique which is deemed appropriate in establishing the reliability of data collection instruments, was adopted for this study. The Cronbach's alpha co-efficient was computed to determine the correlation among items. According to Mohajan (2017), in the field of social science a minimum of 0.7 score for a give variable represents a decent and acceptable reliability score.

3.11 Data Analysis and Presentation

The study resulted in the generation of both qualitative and quantitative data from the research instruments as indicated in section 3.6, that constituted questionnaires and interviews. Data collected was analyzed objectively. The subsequent sections provide a comprehensive discussion on the specific techniques employed for analyzing each type of data.

3.11.1 Analysis of Quantitative Data

The researcher intended to use quantitative data analysis techniques to analyze the questionnaires filled by postgraduate students. Firstly, the questionnaire responses were downloaded as CSV files and loaded into Microsoft Excel. The responses were coded then imported to SPSS software. In this case, IBM SPSS version 21 was employed in the data analysis. Data was tested to determine the suitability of the data, checked for outliers and ascertained violation of underlying statistical assumptions. This was followed by analyzing data using descriptive statistics whereby the mean, standard deviation and percentages were computed. Tables and figures were used to present the findings, whereas text assisted in the interpretation of data.

In addition, multiple inferential statistics techniques were carried out to test the hypotheses in order to guarantee generalization of the sample to the population. According to Mugenda and Mugenda (2019), inferential statistics can either be univariate, bivariate or multivariate analysis depending on the variables being examined at a time. Correlation and multiple regression analysis were analyzed. Correlation analysis was done to test the hypotheses guiding the study. Pearson correlation was employed as the measure of correlation due to its suitability with parametric tests.

Moreover, multiple regression analysis was done on the four independent variables in a combined model to assess the overall purpose of the study. The multiple linear regression takes the following format:

$$Y= \beta_0 + \beta_1X_1+ \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$$

Where;

Y= Utilization of electronic resources (DV)

β_0 = Constant

X_1 = Information need recognition

X_2 = Searching for information

X_3 = Evaluation of information

X_4 = Citing and referencing information

ε = Error term

Furthermore, the dataset underwent several diagnostic assessments to evaluate the conformity of the data to the assumptions of linearity, normality, autocorrelation, heteroskedasticity, and multicollinearity.

3.11.2 Analysis of Qualitative Data

Qualitative data obtained from the 8 librarians, consisting of both University librarians and systems librarians, underwent analysis, wherein it was categorized into themes. The analysis led to the formulation of generalizations based on the findings. The findings were triangulated with quantitative data to increase reliability and validity, resulting in a more well-defined conclusion.

3.12 Measurement of Variables

Table 3.3 gives an outline of how the variables will be operationalized and measured

Table 3.3

Operationalization and measurement of variables

Research objectives	Operational Variables	Measurement
i. Assess how the ability to recognize information needs affects the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County	• E-books • E-journals • Institutional repository (long essays/theses/dissertations) • OPAC • Online past exams • Information literacy guides (Referencing and citation manuscripts)	Descriptive statistics & Inferential statistics
ii. Evaluate how the ability to search for information affects the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County	• Articulate user needs • Types of information recognized • Sources of information	Descriptive statistics & Inferential statistics
iii. Determine how the ability to evaluate information sources affects the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County	• Knowledge of search databases • Formulate search strategy • Application of search techniques	Descriptive statistics & Inferential statistics
iv. Assess how the ability to cite and reference information sources affects the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County	• Reference styles known • Reference tools/ software • Types of tools/ software used	Descriptive statistics & Inferential statistics

3.13 Ethical Consideration

Prior to data collection, the researcher applied for a research permit from NACOSTI after receiving an introductory letter from KeMU. Upon getting the research permit, official communication was done to the DVC Academics of Daystar, AIU, KeMU and CUEA, via

both email and post office. Further, emails and text messages were sent to the library staff to schedule for the interview.

The online questionnaires, sent via email, comprised a concise description of the study's purpose, along with the contact information of the author and supervisors. It was explicitly stated that participation was voluntary, without any associated costs, and that anonymity would be safeguarded by use of codes. The respondents were not obligated to disclose their names on the questionnaire, ensuring the maintenance of confidentiality.

The interviews were conducted voluntarily at the convenience of the interviewees' preferred timing. The interviewer introduced himself, explained the purpose of the study to the interviewee, allowed them to ask questions and gave them a copy of the interview schedule to browse through. Further, the interviewer asked for permission to record the interview using the mobile phone. The interviewees were coded to conceal their identity.

Analysis of data was done and reported correctly without fabrication. All sources of information used were acknowledged and referenced using APA version 7 as stipulated in the KeMU policy.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

The fourth chapter of this study provides the results, interpretations and discussions regarding the research objectives and delves into the investigation of the influence of information literacy on the utilization of electronic resources among postgraduate students in faith-based universities located in Nairobi County, Kenya. The chapter begins with a discussion of data reliability and response rate, followed by findings on the respondents' background profiles. The descriptive statistics for each variable are then presented and complemented with qualitative data. Additionally, the chapter provides inferential statistics and diagnostic tests to the relationship of the variables. The interpretations and discussions are supported by the empirical literature reviewed.

4.2 Reliability Statistics

Before conducting inferential statistical analysis, the internal consistency of the data was assessed using Cronbach's Alpha, which is a measure of reliability. The computation of Cronbach's Alpha was performed using SPSS statistical software, and the resulting values are presented in Table 4.1.

Table 4.1

Reliability statistics

Main variables of the study	Cronbach's Alpha
Recognize information need (X1)	.880
Search for information (X2)	.870
Evaluate information (X3)	.867
Cite and reference information (X4)	.902
Utilization of e-resources (Y)	.898

The results revealed a Cronbach's alpha value of more than 0.8 for each guiding variable of the study. Mohajan (2017) suggests that a correlation coefficient above 0.7 indicates dependable data and is considered worthwhile, thus supporting the reliability of the questionnaire items. As a result, the items were included in the subsequent analyses.

4.3 Response Rate

The study aimed at collecting data from 168 postgraduate students and 8 library staff from the four faith-based universities. A total of 168 questionnaires were sent via email to the postgraduate students, whereby only 126 questionnaires were properly filled out and returned representing a 75% response rate. Reminder notifications sent via email facilitated the high response rate. In addition, the researcher conducted 8 interviews among the library staff representing a 100% response rate. According to Mugenda and Mugenda (2019), a response rate of 60% can be deemed sufficient for conducting analysis and presenting findings. Consequently, the selected sample is considered to be both representative and acceptable when compared to the target population

4.4 Background Profiles of Respondents

The respondents background information was found necessary and this prompted the inquiry into their demographic characteristics. This initiated with a comprehensive analysis of the postgraduate students background information, and the select library staff namely: the systems librarian and the head of the library.

4.4.1 Background Profile of the Postgraduate Students

The study aimed at exploring three key information details of the postgraduate students namely: gender, the academic program they were pursuing, and the mode of the study in which they were enrolled. Table 4.2 indicates the results obtained.

Table 4.2

Demographic information of postgraduate students

Demographic Information	Subset	Frequency	Percentage
Gender	Male	45	35.7
	Female	81	64.3
	Total	126	100
Academic Program Pursuing	PhD	46	36.5
	Masters	80	63.5
	Total	126	100
Mode of Study	Full-time	1	0.8
	Part-time/ Evening	58	46.0
	Distance Learning	67	53.2
	Total	100	100

The results indicate that majority of the postgraduate students enrolled in the faith-based universities were mainly female (81, 64.3%), with the rest (45, 35.7%) being male. This indicated a modest balance in the gender composition among postgraduate students in faith-based universities in Nairobi County. Majority of the postgraduate students were pursuing a master's degree program (80, 63.5%), whereas (46, 36.5%) were enrolled for a PhD program. This corresponds with the CUE guidelines and standards, which affirm that master's degree and doctoral degree programmes are part of the postgraduate programs offered by accredited universities, including faith-based universities as well, as per Bloom's Taxonomy (Commission for University Education, 2022). In addition, investigations into the mode of learning revealed that most of the postgraduate students were undertaking distance learning (67, 53.2%), against (58, 46%) who were enrolled for the part time/ evening mode of study. This greatly coincides with Ifijeh and Yusuf (2020) when they investigated the quest for libraries' relevance, which suggested that universities are transitioning from traditional teaching methods to operating on e-learning platforms.

4.4.2 Background Information of the Library Staff

The library staff from the faith-based universities, which primarily constituted the university librarian and the systems librarian from each sampled university were all interviewed, and Table 4.3 outlines the key constructs of their demographic information that guided the interviews.

Table 4.3

Demographic information of the select librarians

Library Staff			Frequency	Percentage
University Librarian	Gender	Male	2	50
		Female	2	50
		Total	4	100
	Highest Academic Qualification	PhD	1	25
		Masters	3	75
		Total	4	100
	Years of Experience	1-5 years	2	50
		6-10 years	0	0
		11 years and above	2	50
		Total	4	100
Systems Librarian	Gender	Male	3	75
		Female	1	25
		Total	4	100
	Highest Academic Qualification	PhD	0	0
		Masters	3	75
		Bachelors	1	25
		Total	100	100
	Years of Experience	1-5 years	3	75
		6-10 years	0	0
		11 years and above	1	25
		Total	100	100

A total of four university librarians, representing each sampled faith-based university were interviewed. The university librarians are responsible for the management of the library department within universities, including structuring of an information literacy framework, implementing the IL policy, overseeing the acquisition and management of e-resources; which represent the main independent and dependent variable of this study, respectively. The findings reveal an equal distribution and representation of the gender

with the males constituting (2, 50%), and the female (2, 50%). In addition, the findings aimed to determine the highest academic qualification of the university librarians, revealing that (3, 75%) hold a master's degree, while (1, 25%) holds a PhD. This coincides with Mudave (2016) findings, which showed that the majority of librarians held a master's degree, indicating that they met the necessary qualifications. The study inquired about the years of experience of the university librarians in their current positions, and the findings revealed that (2, 50%) had an experience in the range of 1 to 5 years, whereas (2, 50%) have served in the position for over 11 years. This finding refutes Chelulei's (2020) claim of high staff turnover among heads of libraries. Therefore, this suggests that majority of university librarians have been in their positions long enough to develop and implement the CUE information literacy and competency initiatives, as outlined in the university standards and guidelines of.

Systems librarians from each of the four faith-based universities were also interviewed. The systems librarians primal responsibilities include management of all integrated library systems, including electronic resources database systems, which constitutes the main dependent variable of this study. The findings reveal a representation of (3, 75%) males compared to (1, 25%) females. Their highest academic qualification was probed revealing that (3, 75%) have a master's degree, (1, 25%) has a bachelor's degree. This implied that the systems librarians were qualified to serve in their position, a claim supported by Mudave (2016). Their experience working in their current position was probed revealing that only one had an experience of over 11 years, with the rest (3, 75%) settled in the range of 1 to 5 years. According to Chelulei (2020), experienced staff enhance students competencies with e-learning, thus facilitating their use of e-resources.

The academic qualifications and years of experience of the librarians confer with the CUE mandates and guidelines of University library staff recommendations, thus proving that

the University librarians and systems librarians interviewed are qualified to serve in their positions (Commission for University Education, 2014).

4.5 Results on Ability to Recognize Information Needs

The first objective sought to assess how the ability to recognize information needs affects the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County. The participants were requested to fill out a 5-level Likert scale rating their agreement or disagreement with the statements posed. The 5-level Likert was coded 1 to 5 whereby 1 was for "Strongly Disagree" (SD), 2 for "Disagree" (D), 3 for "Moderately Agree" (MA), 4 for "Agree" (A), and 5 for "Strongly Agree" (SA). To ascertain students ability to articulate their user needs, the following statements were posed: I am capable of coming up with statements that reflect my information needs; I can explore general information sources online; I can identify key terms and concepts that describe my information need; I can formulate research questions based on my information need; I can present my information needs clearly. The summation of the responses of the statements was done to measure the variable articulation of user needs as latent variable. Table 4.4 outlines the results of the descriptive statistics.

Table 4.4

Descriptive statistics on articulation of user needs

Articulate User Needs (N = 126)	1	2	3	4	5	Mean	STD Dev
I am capable of coming up with statements that reflect my information needs	9 (7.1%)	9 (7.1%)	36 (28.6%)	39 (31%)	33 (26.2%)	3.62	1.158
I can explore general information sources online	7 (5.6%)	12 (9.5%)	37 (28.4%)	53 (42.1%)	17 (13.5%)	3.48	1.026
I can identify key terms and concepts that describe my information need	7 (5.6%)	13 (10.3%)	28 (22.2%)	55 (43.7%)	23 (18.3%)	3.59	1.075
I can formulate research questions based on my information need	7 (5.6%)	11 (8.7%)	30 (23.8%)	36 (28.6%)	42 (33.3%)	3.75	1.171
I can present my information needs clearly	8 (6.3%)	7 (5.6%)	27 (21.4%)	32 (25.4%)	52 (41.3%)	3.90	1.192
I know where I can find information available	7 (5.6%)	6 (4.8%)	32 (25.4%)	41 (32.5%)	40 (31.7%)	3.80	1.110
I can plan for acquisition of information that I need	9 (7.1%)	11 (8.7%)	36 (28.6%)	46 (36.5%)	24 (19%)	3.52	1.115
	Aggregate mean					3.67	1.121

According to the data presented in the table, it can be observed that a significant proportion of the respondents, with an aggregate mean score of 3.67 and a standard deviation of 1.121, demonstrated agreement with various statements that were formulated to assess the ability of students to express their information requirements effectively. The standard deviation score indicated that the participants responses were spread out. The findings suggest that

the majority of the participants exhibited a satisfactory level of proficiency in articulating their information needs.

The top three statements that were concurred with by the participants are as follows: I can present my information needs clearly (84, 66.7%, m=3.90, SD=1.192); I know where I can find information available (81, 64.2%), m=3.80, SD=1.110); I can formulate research questions based on my information need (78, 61.9%), m=3.75, SD=1.171). This implies that postgraduate students competencies to articulate information needs are good given that they can clearly present their needs, know where to find information and formulate questions based on their needs. This is supported by Kehinde et al. (2016) assertion that students primary need for information is related to academics.

The statements that had least concurrence among the participants were: I can explore general information sources online (70, 55.6%, m=3.48, SD=1.026); and I can plan for acquisition of information that I need (70, 55.5%, m=3.52, SD=1.115). This finding justifies Jan et al. (2020) research, where lectures were identified as the most preferred source of information. Additionally, the ALA (2000) IL competency standards moot that assessing the cost associated with acquiring information is an integral aspect of recognizing information need. Therefore, this highlights the need to explore strategies for acquiring information. Nonetheless, these responses confirm that the mastery to articulate user needs is essential in the utilization of e-resources.

In addition, postgraduate students were asked to pick out all the information resources they have utilized. The e-resources covered in this study included: e-book, e-journals, online paste examination papers, long essays/ thesis/ dissertations and information literacy guides (referencing guides/ citation manuscripts). Figure 4.1 outlines the results of the query.

Figure 4.1

Types of electronic information resources utilized

According to Figure 4.1, e-books were the most utilized (103, 81.7%), followed by e-journals (96, 76.2%), then information literacy guides (referencing guides/ citation manuscripts) (84, 66.7%), followed by online past examination papers (81, 64.3%). The least utilized e-resources were long essays/ thesis/ dissertations (79, 62.7%). This reiterates and supports Hendal's (2020) assertion that e-resource users interact more with databases to get e-journals and e-books.

Moreover, the study participants were requested to complete a 5-point Likert scale questionnaire, wherein they were required to indicate their level of agreement or disagreement with a set of statements posed. The 5-level Likert was coded 1 to 5 whereby 1 was for "Strongly Disagree" (SD), 2 for "Disagree" (D), 3 for "Moderately Agree" (MA), 4 for "Agree" (A), and 5 for "Strongly Agree" (SA). The following statements asked in regard to sources of information were: I have utilized the OPAC to find needed information; I have utilized the e-books provided through the library to meet my user needs; I have utilized the e-journals provided through the library to meet my user needs; I find the institutional repository resourceful for finding thesis/ dissertations/ long essays; I am capable of finding past examination papers online; and I find the information literacy guides online resourceful. Table 4.5 outlines the results of the descriptive statistics.

Table 4.5

Descriptive statistics on the sources of information

Sources of information (N = 126)	1	2	3	4	5	Mean	STD Dev
I have utilized the OPAC to find needed information	8 (6.3%)	7 (5.6%)	51 (40.5%)	21 (16.7%)	39 (31%)	3.60	1.167
I have utilized the e-books provided through the library to meet my user needs	10 (7.9%)	7 (5.6%)	28 (22.2%)	47 (37.3%)	34 (27.0%)	3.70	1.161
I have utilized the e-journals provided through the library to meet my user needs	11 (8.7%)	6 (4.8%)	38 (30.2%)	45 (35.7%)	26 (20.6%)	3.55	1.136
I find the institutional repository resourceful for finding thesis/ dissertations/ long essays	12 (9.5%)	1 (0.8%)	40 (31.7%)	34 (27%)	39 (31%)	3.69	1.196
I am capable of finding past examination papers online	11 (8.7%)	5 (4%)	32 (25.4%)	39 (31%)	39 (31%)	3.71	1.199
I find the information literacy guides online resourceful	12 (9.5%)	6 (4.8%)	31 (24.6%)	43 (34.1%)	34 (27%)	3.64	1.203
	Aggregate mean					3.65	1.177

Based on the tabulated data, it is evident that a considerable portion of the participants, possessing an aggregate mean score of 3.65 and a standard deviation of 1.177, exhibited concurrence towards a range of statements regarding information resources origins.

The three statements with the highest level of concurrence by the participants are outlined as follows: I am capable of finding past examination papers online (78, 62%), m=3.71, SD=1.199); I have utilized the e-books provided through the library to meet my user needs

(81, 64.3%), m=3.70, SD=1.161); and I find the institutional repository resourceful for finding thesis/ dissertations/ long essays (73, 58%), m=3.69, SD=1.196). This implied that information resources provided by university libraries are accessible to postgraduate students, with past papers, e-books, the institutional repository, e-journals, OPACs and IL guides as integral sources of information to postgraduate students. This supports Nkoyo and Nsanta's (2016) proclamation that an interconnection exists between availability and use of electronic information resources.

The statements that had the least level of concurrence were: I have utilized the e-journals provided through the library to meet my user needs (71, 56.3%, m=3.55, SD=1.136); and I have utilized the OPAC to find needed information (60, 47.7%, m=3.60, SD=1.167). Nonetheless, this did not imply that e-journals and OPAC are not accessible to students.

The systems librarians were also interviewed on postgraduate students' ability to recognize information need. They acknowledged that the postgraduate students' ability to recognize their information needs was good after receiving information literacy training. Further, they suggested more intensive and continuous and mandatory training for all postgraduate students.

The University librarians were also probed during interview on the measures that had been put in place to impact information need recognition. University Librarian-03 noted, "*I championed the adoption of an IL course for all including postgraduate students. I have put in place what is called library semesters, where we teach IL and it has gone very well.*" University Librarian-02 reiterated "*We collaborate with lecturers in exposing postgraduate to e-resources.*" Further, among the notable suggestions poised by University librarians to improve information need recognition competencies included:

deliberate introduction to sources of information, purposeful introduction to ways of accessing information and collaboration between trainer librarians and lecturers.

These findings imply that the library staff have a fundamental role to play in equipping postgraduate students with the information need competencies. Moreover, the library staff suggested creation of awareness and continuous orientation to new users, propositions that have been affirmed by previous studies (Ankrah & Atuase, 2018; Jogan, 2015; Sang & Cheruiyot, 2020). Concerted effort to collaborate with lecturers was also proposed, a finding that resonates with Bautista and Pentang (2022) discovery. In addition, it was advised that postgraduate students attend the training sessions. These results affirm that the abilities to recognize information need is indeed integral in the utilization of e-resources.

4.6 Results on Ability to Search for Information

The second objective sought to evaluate how the ability to search for information affects the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County. The participants were requested to fill out a 5-level Likert scale rating their conversance with the statements posed. Specifically, a score of 1 corresponded to "Very Poor" (VP), a score of 2 corresponded to "Poor" (P), a score of 3 corresponded to "Fair" (F), a score of 4 corresponded to "Good" (G), and a score of 5 corresponded to "Excellent" (EX). To elucidate postgraduate students knowledge of search databases, their familiarity with the following databases was examined: JSTOR, SAGE, Google Books, Google Scholar, ProQuest, Institutional Repositories, OPAC and DOAJ. Table 4.6 outlines the results of the descriptive statistics.

Table 4.6

Descriptive statistics on knowledge of search databases

Knowledge of search databases (N = 126)	1	2	3	4	5	Mean	STD Dev
JSTOR	6 (4.8%)	11 (8.7%)	45 (35.7%)	39 (31%)	25 (19.8%)	3.52	1.056
SAGE	14 (11.1%)	4 (3.2%)	40 (31.7%)	38 (30.2%)	30 (23.8%)	3.52	1.211
Google Books	6 (4.8%)	10 (7.9%)	38 (30.2%)	41 (32.5%)	31 (24.6%)	3.64	1.084
Google Scholar	10 (7.9%)	9 (7.1%)	40 (31.7%)	31 (24.6%)	36 (28.6%)	3.59	1.202
ProQuest	6 (4.8%)	11 (8.7%)	33 (26.2%)	32 (25.4%)	44 (34.9%)	3.77	1.160
Institutional Repositories	4 (3.2%)	8 (6.3%)	39 (31%)	47 (37.3%)	28 (22.2%)	3.69	0.992
OPAC	8 (6.3%)	11 (8.7)	27 (21.4%)	36 (28.6%)	44 (34.9%)	3.77	1.201
DOAJ	10 (7.9%)	5 (4%)	35 (27.8%)	34 (27%)	42 (33.3%)	3.74	1.195
	Aggregate mean					3.65	1.138

According to the data presented in Table 4.6, it can be observed that a significant proportion of the respondents, with an aggregate mean score of 3.65 and a standard deviation of 1.138, demonstrated great conversance with the various statements that were formulated to evaluate postgraduate students knowledge of search databases. The findings suggest that the majority of the participants had satisfactory knowledge of the search databases.

The respondents expressed having good knowledge with the following search databases: OPAC (80, 63,5%, m=3.77, SD=1.201); ProQuest (76, 60.3%, m=3.77, SD=1.160); DOAJ

(76, 60.3%, m=3.74, SD=1.195); institutional repositories (75, 59.5%, m=3.69, SD=0.992); Google Books (72,57.1%, m=3.64, SD=1.084); Google Scholar (67, 53.2%, m=3.59, SD=1.202); JSTOR (64, 50.8%, m=3.52, SD=1.056); and SAGE (68, 54%, m=3.52, SD=1.211). This implied that postgraduate students possessed comprehensive and extensive knowledge of OPAC, ProQuest, DOAJ, Institutional repositories, Google Books, Google Scholar, JSTOR and SAGE databases. Having Institutional repositories, DOAJ, Google Books and Google Scholar above JSTOR and SAGE databases confirms and supports Chanda's (2020) claim that there is high-level awareness of open access e-resources (e-books, e-journals, digital library) among students and research scholars. This refutes the assertion made by Adeleke and Emeahara (2016) that attributed low usage to lack of knowledge of and awareness of e-resources.

In order to assess postgraduate students ability to formulate a search strategy, the following statements were posed: I can formulate a question for research**;** I am capable of generating key concepts; I can draft a logical search sequence; I can derive related terms, synonyms, acronyms and alternative of ordering words; I am capable of mapping my concepts into a strategy; and I can effectively execute a search query repeatedly. The 5-level Likert was coded 1 to 5 with 1 indicating "Strongly Disagree" (SD), 2 indicating "Disagree" (D), 3 indicating "Moderately Agree" (MA), 4 indicating "Agree" (A), and 5 indicating "Strongly Agree" (SA). Table 4.7 outlines the results of the descriptive statistics.

Table 4.7

Descriptive statistics on formulation of search strategy

Formulate search strategy (N = 126)	1	2	3	4	5	Mean	STD Dev
I can formulate a question for research	5 (4%)	8 (6.3%)	33 (26.2%)	36 (28.6%)	44 (34.9%)	3.84	1.098
I am capable of generating key concepts	5 (4%)	13 (10.3%)	34 (27%)	49 (38.9%)	25 (19.8%)	3.60	1.044
I can draft a logical search sequence	8 (6.3%)	7 (5.6%)	43 (34.1%)	44 (34.9%)	24 (19%)	3.55	1.063
I can derive related terms, synonyms, acronyms and alternative ways of ordering words	10 (7.9%)	4 (3.2%)	37 (29.4%)	23 (18.3%)	52 (41.3%)	3.82	1.235
I am capable of mapping my concepts into a strategy	13 (10.3%)	3 (2.4%)	39 (31%)	44 (34.9%)	27 (21.4%)	3.55	1.163
I can effectively execute a search query repeatedly	12 (9.5%)	4 (3.2%)	31 (24.6%)	48 (38.1%)	31 (24.6%)	3.65	1.168
	Aggregate mean					3.67	1.129

From the table, it is apparent that a significant number of the study participants, with an average score of 3.67 and a standard deviation of 1.123, demonstrated agreement in formulating a search strategy. The participants agreed with the statements in this order from the most to the least: I can formulate a question for research (80, 63.5%, m=3.84, SD=1.098); I can derive related terms, synonyms, acronyms and alternative ways of ordering words (75, 59.6%, m=3.82, SD=1.235); I can effectively execute a search query repeatedly (79, 62.7%, m=3.65, SD=1.168); I am capable of generating key concepts (74, 58.7%, m=3.60, SD=1.044); I am capable of mapping my concepts into a strategy (71,

56.3%, m=3.55, SD=1.163); and I can draft a logical search sequence (68, 53.9%, m=3.55, SD=1.063). This implies that postgraduate students can effectively formulate search strategies given that they can formulate questions for research, derive related terms/ words and effectively execute search queries over and over again. This confirms Adeleke and Emeahara (2016) finding whereby 75.4% respondents indicated that their skills in developing successful search strategies were high.

The third part sought to assess the searching techniques of postgraduate students. The 5-level Likert was coded 1 to 5 whereby 1 was labeled as "Very Poor" (VP), 2 was labeled as "Poor" (P), 3 was labeled as "Fair" (F), 4 was labeled as "Good" (G), and 5 was labeled as "Excellent" (EX). The searching techniques examined were as follows: Boolean operators, wildcard, truncation, keywords and phrase searching. Table 4.8 outlines the results of the descriptive statistics.

Table 4.8

Descriptive statistics on searching techniques

Searching techniques (N = 126)	1	2	3	4	5	Mean	STD Dev
Boolean operators	8 (6.3%)	8 (6.3%)	34 (27%)	35 (27.8%)	41 (32.5%)	3.74	1.167
Wildcard	8 (6.3%)	10 (7.9%)	32 (25.4%)	48 (38.1%)	28 (22.2%)	3.62	1.109
Truncation	10 (7.9%)	10 (7.9%)	23 (18.3%)	47 (37.3%)	36 (28.6%)	3.71	1.194
Keywords	7 (5.6%)	9 (7.1%)	31 (24.6%)	35 (27.8%)	44 (34.9%)	3.79	1.161
Phrase searching	8 (6.3%)	7 (5.6%)	36 (28.5%)	29 (23%)	46 (36.5%)	3.78	1.186
	Aggregate mean					3.73	1.163

Based on the tabulated data, a considerable portion of the participants possess an aggregate mean score of 3.73 and a standard deviation of 1.163, exhibiting conversance with the searching techniques. With regard to the guiding objective that sought to evaluate the searching abilities of postgraduate students, postgraduate students portrayed great conversance with the use of keywords (79, 62.7%, m=3.79, SD=1.161); ensued by phrase searching (75, 59.5%, m=3.78, SD=1.186); followed by Boolean operators (76, 60.3%, m=3.74, SD=1.167); then truncation (83, 65,9%, m=3.71, SD=1.194); and wildcard (76, 60,3%, m=3.62, SD=1.109). This implied that postgraduate students were well-versed on application and use of searching techniques like keywords, phrase searching, Boolean operators, truncation and wildcard. This confirms an assertion made by Joshua (2014) that information retrieval training with an emphasis on searching techniques is vital in equipping users with searching competencies. Furthermore, it confirms a claim made by Shoeb (2021 that knowledge of search techniques and search strategies improves students' perception of research practices.

To triangulate the data the systems librarians were also probed on their view on the abilities of postgraduate students to search for information. Systems librarian-02 noted "*Initially their abilities to search for information is poor thus the necessity for training at earlier stages of their academic work is vital."* Systems librarian-01 added *"The reference librarian in collaboration with the university librarians train postgraduate on how to effectively search for e-resources."*

The University librarians were also interviewed on the abilities of postgraduate students to search for information. University librarian-03 stated *"We have specialized trainings, ensuring every new cohort of PhD students has a session. We take them through skills to search for information. They get surprised when I teach them how to use google for*

academics." University librarian-02 added *"In order to improve their searching abilities effectively there's need to structure an examinable IL course, taught by librarians."*

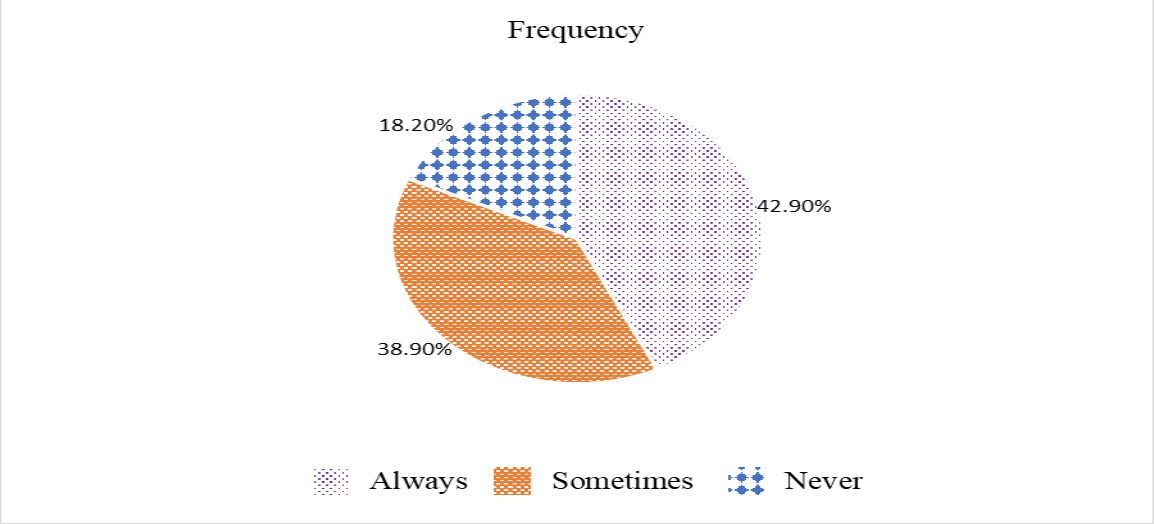
From these findings it is clear to note that the ability to search for information is vital for postgraduate students in their quest for effective utilization of electronic resources. Postgraduate students engage in research writing for seminars and conferences as well and having awareness of search databases to use, formulation of search competencies and use of search techniques is integral in their academic work and professional development. Consequently, the argument made by Shoeb (2021) emphasizing the significance of search competencies for postgraduates as a key factor in their professional development as researchers is validated.

4.7 Results on Ability to Evaluate Information

The third objective sought to determine how the ability to evaluate information sources affects the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County. The first part of the query assessed the frequency in which postgraduate students evaluated electronic resources before using them. The respondents were presented with the options of "Always", "Sometimes, and "Never" to choose from. Figure 4.2 outlines the frequency statistics of the responses.

Figure 4.2

Frequency of evaluating electronic resources before use



As per the data presented in Figure 4.2, it is apparent that a significant majority (82%) of postgraduate students undertake an assessment of electronic resources prior to their utilization, whereas a minority (18%) refrain from conducting such an evaluation. This implied that only a minority of postgraduate students are likely not to efficiently utilize e-resources. This confirms a claim made by Sullivan (2019) that basic evaluation skills could combat disinformation in the age of information society.

The second part had statements that aimed at assessing the conversance of postgraduate students in application of evaluation metrics. The 5-level Likert was coded 1 to 5 whereby a score of 1 corresponded to "Very Poor" (VP), a score of 2 corresponded to "Poor" (P), a score of 3 corresponded to "Fair" (F), a score of 4 corresponded to "Good" (G), and a score of 5 corresponded to "Excellent" (EX). The evaluation metrics assessed were: authority, currency, accuracy, content, kind of information (type) and content. Table 4.9 outlines the results of the descriptive statistics.

Table 4.9

Descriptive statistics on the evaluation metrics

Evaluation metrics (N = 126)	1	2	3	4	5	Mean	STD Dev
Authority	7 (5.6%)	11 (8.7%)	39 (31%)	47 (37.3%)	22 (17.5%)	3.52	1.056
Currency	8 (6.3%)	9 (7.1%)	36 (28.6%)	51 (40.5%)	22 (17.5%)	3.56	1.062
Accuracy	11 (8.7%)	6 (4.8%)	42 (33.3%)	42 (33.3%)	25 (19.8%)	3.51	1.130
Kind of Information (Type)	9 (7.1%)	6 (4.8%)	35 (27.8%)	42 (33.3%)	34 (27%)	3.68	1.136
Content	10 (7.9%)	5 (4%)	30 (23.8%)	32 (25.4%)	49 (38.9%)	3.83	1.218
	Aggregate mean					3.62	1.120

Based on the tabulated data, a considerable portion of the participants possess an aggregate mean score of 3.62 and a standard deviation of 1.120, signifying conversance with evaluation metrics. The participants demonstrated knowledge and familiarity with content (81, 64.3%, m=3.83, SD=1.218); kind of information/ type (76, 60.3%, m=3.68, SD=1.136); currency (73, 58%, m=3.58, SD=1.062); authority (69, 54.8%, m=3.52, SD=1.056); accuracy (67, 53.1%, m=3.51, SD=1.130). This implied that participants evaluated e-resources on the content, type, currency, authority and accuracy before using them. This confirms the statement made through the United States Government Publishing Office (2016) that reiterated on the importance of critically evaluating information on all metrics to affirm its authenticity.

The systems librarians were also interviewed on the evaluation abilities of postgraduate students. Their responses affirmed that prior to trainings done through the library, postgraduate students evaluation skills were poor, but after a series of training sessions,

they had improved. The trainings carried out were centered around the use of subscribed e-resources to verify the authority, content, and accuracy of information. In addition, the systems librarians emphasized on the use of the advanced search option to filter out information on the criteria of currency (timeliness) and type (kind of information) supporting Tunney and Wilson (2018) assertion that all these criteria can be applied concurrently.

The University librarians were also interviewed on the evaluation of postgraduate students. The challenges facing postgraduate students from their view included: identification of credible sources; non-exposure to evaluation criteria in their undergraduate; postgraduate students that are advanced in age did not attend institutions that trained them to evaluate information. This implied that evaluation competencies are vital in the modern age. This is supported by former President Barack Obama's claim that educators and institutions have a role in imparting critical evaluation skills such as separating facts from fiction and signal from noise (U.S. Government Publishing Office, 2016). Therefore, the suggestions put forward to mitigate these challenges included: assessment-based trainings targeting all evaluation metrics, emphasis on the use of peer-reviewed information resources and practice via continuous research by postgraduate students.

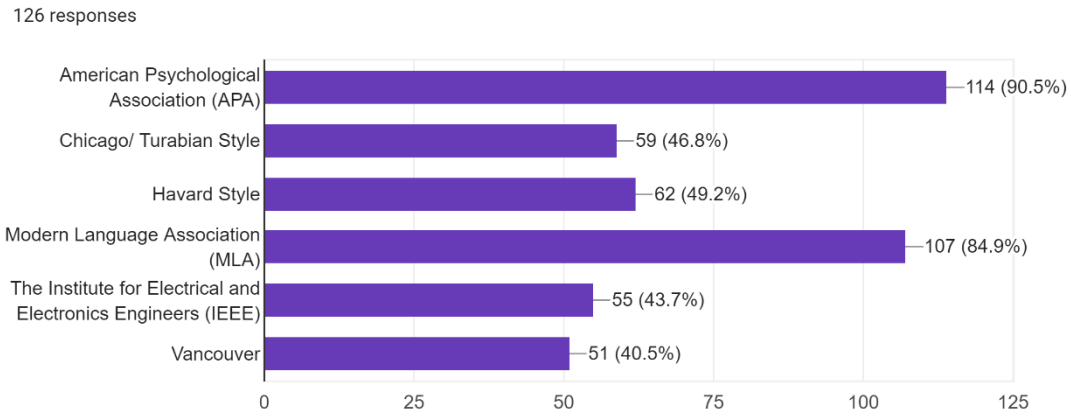
The findings confirm that the ability to effectively evaluate information before using it is integral in the age of information explosion, where information is easily accessible. This skill is also crucial in the utilization of e-resources. This assertion is corroborated by Mudave (2016) statement, which highlights the significance of a regular institutional program for Information Literacy (IL) training and novel pedagogical paradigms in order to foster appraisal competencies amidst the contemporary abundance of online information.

4.8 Results on Ability to Cite and Reference Information

The fourth objective sought assess how the ability to cite and reference information sources affects the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County. The first part of the query in this section investigated the conversance of postgraduate students with referencing styles. The respondents' were examined on the following referencing styles: American Psychological Association (APA); Chicago/ Turabian; Harvard; Modern Language Association (MLA); Institute for Electrical and Electronics Engineers (IEEE); and Vancouver. Figure 4.3 outlines the frequencies of the responses.

Figure 4.3

Conversance with referencing styles



The results revealed the top two referencing styles that postgraduate students were conversant with were: the American Psychological Association (APA) (90.5%); and the Modern Language Association (MLA) (84.9%). The referencing styles that postgraduate students were least familiar with were: the Vancouver (40.5%) and the Institute for Electrical and Electronics Engineers (IEEE) (43.7%). Based on the evidence presented, it can be inferred that postgraduate students exhibited a high level of proficiency in a diverse

range of referencing styles. This supports findings presented by Muzata and Banja (2019) that students were knowledgeable on more than one referencing style.

Moreover, the postgraduate students were probed on their application of referencing styles namely: APA; Chicago/ Turabian; Harvard; MLA; IEEE; and Vancouver, in their academic and research work. A 5-level Likert coded 1 to 5 whereby a score of 1 corresponded to "Very Poor" (VP), a score of 2 corresponded to "Poor" (P), a score of 3 corresponded to "Fair" (F), a score of 4 corresponded to "Good" (G), and a score of 5 corresponded to "Excellent" (EX) was used. Table 4.10 outlines the results of the descriptive statistics.

Table 4.10

Descriptive statistics on the application referencing styles

Referencing Styles (N = 126)	1	2	3	4	5	Mean	STD Dev
American Psychological Association (APA)	14 (11.1%)	2 (1.6%)	9 (7.1%)	8 (6.3%)	93 (73.8%)	4.30	1.340
Chicago/Turabian Style	12 (9.5%)	8 (6.3%)	53 (42.1%)	52 (41.3%)	1 (0.8%)	3.17	0.930
Harvard Style	9 (7.1%)	9 (7.1%)	56 (44.4%)	49 (38.9%)	3 (2.4%)	3.22	0.893
Modern Language Association (MLA)	14 (11.1%)	3 (3%)	10 (7.9%)	9 (7.1%)	90 (71.4%)	4.25	1.356
The Institute for Electrical Engineers (IEEE)	14 (11.1%)	11 (8.7%)	45 (35.7%)	55 (43.7%)	1 (0.8%)	3.14	0.994
Vancouver	13 (10.3%)	8 (6.3%)	59 (46.8%)	43 (34.1%)	3 (2.4%)	3.12	0.952
	Aggregate mean					3.53	1.078

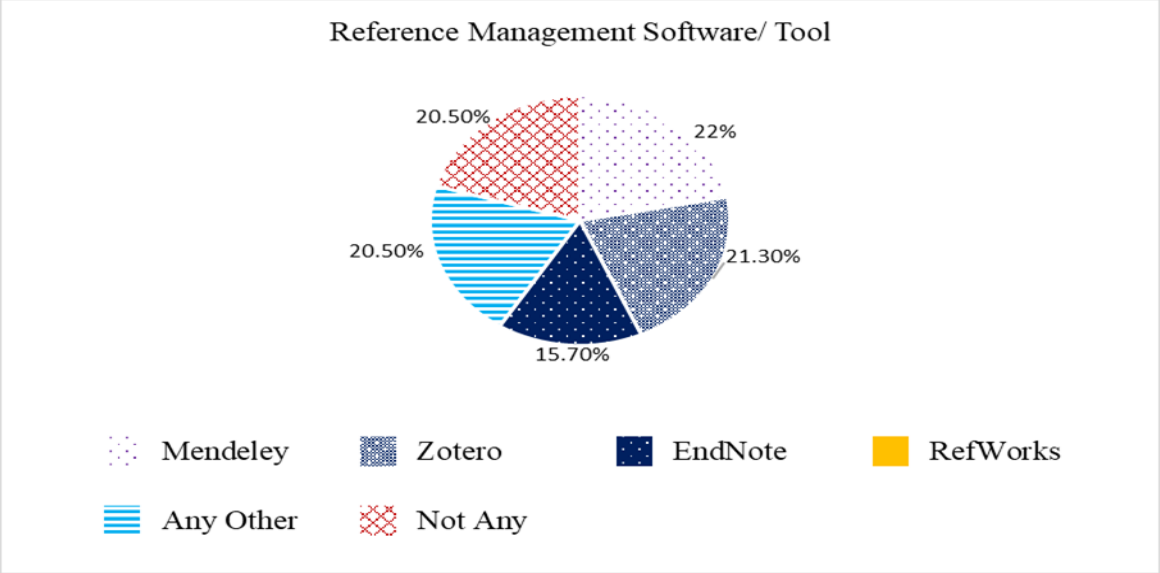
From the tabulated data, a considerable portion of the participants possess an aggregate mean score of 3.53 and a standard deviation of 1.078, indicating satisfactory familiarity

with the application of referencing styles. The respondents portrayed outstanding conversance in the application of APA (101, 80.1%, m=4.30, SD=1.340); and MLA (99, 78.5%, m=4.25, SD=1.356). The respondents exhibited the least conversance in the application of the Vancouver (46, 36.5%, m=3.12, SD=0.952); and the IEEE style (56, 44.5%, m=3.14, SD=0.994). This implied that the APA and MLA referencing styles were more popular among the postgraduate students, thus triggering the high application of the styles. The present findings provide empirical evidence in support of the proposition posited by Bautista and Pentang (2022) that familiarity with referencing styles serves as a cognitive cue in the proficient application of citation and referencing practices, thereby acting as a deterrent against plagiarism and facilitating the recognition of the intellectual ownership of a researcher.

Moreover, postgraduate students were also probed on their use of reference management software/ tools. The reference management software/ tool and options investigated were: Mendeley, EndNote, Zotero, RefWorks, Any Other and Not Any. Figure 4.3 outlines the frequency statistics of the responses.

Figure 4.4

Reference management software/ tool used



As per the data presented on Figure 4.3, the data clearly shows that the respondents use reference management software/ tool when citing and referencing their work. The three most used reference management software/ tool were: Mendeley (22%); followed by Zotero (21.3%); and then EndNote (15.7%). However, a fair number of respondents (20.5%) indicated that they did not use any reference management software/ tool in their work. The results of the current study indicate that a significant number of individuals rely on technological tools to support their citation and referencing practices, which contradicts the conclusions reached by Blicblau et al. (2016), who claimed that the majority of students do not utilize reference software to enhance their writing abilities.

The third part had statements that sought to assess the citing ability of postgraduate students. A 5-level Likert coded 1 to 5 whereby 1 denoted "Strongly Disagree" (SD), 2 denoted "Disagree" (D), 3 denoted "Moderately Agree" (MA), 4 denoted "Agree" (A), and 5 denoted "Strongly Agree" (SA) was used. To assess the citing ability of postgraduate students, the following statements were probed: I have a clear understanding of citation

styles; I pay close attention to detail such as punctuation, capitalization and spacing in citation and references; I am familiar with plagiarism and how to avoid it using proper citation; I am capable of applying in-text citations accurately; I can consistently use a citation style and format in written work; and I am familiar with the use of reference management tools. Table 4.11 outlines the results of the descriptive statistics.

Table 4.11

Descriptive statistics on citing ability

Citing ability (N = 126)	1	2	3	4	5	Mean	STD Dev
I have a clear understanding of citation styles	13 (10.3%)	3 (2.4%)	32 (25.4%)	44 (34.9%)	34 (27%)	3.66	1.201
I pay close attention to detail such as punctuation, capitalization and spacing in citation and references	11 (8.7%)	7 (5.6%)	30 (23.8%)	30 (23.8%)	48 (38.1%)	3.77	1.260
I am familiar with plagiarism and how to avoid it using proper citation	11 (8.7%)	6 (4.8%)	40 (31.7%)	33 (26.2%)	36 (28.6%)	3.61	1.200
I am capable of applying in-text citations accurately	15 (11.9%)	4 (3.2%)	30 (23.8%)	46 (36.5%)	31 (24.6%)	3.50	1.205
I can consistently use a citation style and format in written work	15 (11.9%)	4 (3.2%)	30 (23.8%)	46 (36.5%)	31 (24.6%)	3.59	1.235
I am familiar with the use of reference management tools	11 (8.7%)	7 (5.6%)	34 (27%)	37 (29.4%)	37 (29.4%)	3.65	1.209
	Aggregate mean					3.63	1.218

From the table, it is apparent that a significant number of the study participants, with an average score of 3.63 and a standard deviation of 1.218, demonstrated agreement in their

citing ability. The participants indicated their agreement with the aforementioned statements: I pay close attention to detail such as punctuation, capitalization and spacing in citation and references (78, 61.9%, m=3.77, SD=1.260); I have a clear understanding of citation styles (78, 61.9%, m=3.66, SD=1.201); I am familiar with the use of reference management tools (74, 58.8%, m=3.65, SD=1.209); I am familiar with plagiarism and how to avoid it using proper citation (69, 54.8%, m=3.61, SD=1.200); I can consistently use a citation style and format in written work (77, 61.1%, m=3.59, SD=1.235); I am capable of applying in-text citations accurately (77, 61.1%, m=3.50, SD=1.205). The present findings suggested that the respondents possessed a sufficient comprehension of citation styles, plagiarism prevention, appropriate citation practices, and precision in citation. These results support the claims made by Blicblau et al. (2016) that the development of effective citation skills among students can bolster their research habits and overall research proficiency.

The systems librarians were also interviewed on postgraduate students ability to cite and reference information. They mentioned the reference services they offered to postgraduate students in regard to utilization of e-resources include: consultation services through the ask-a-librarian function; reference management software installation; marketing and creating awareness of e-resources provided; referral services; APA check; plagiarism check; and IL training. Moreover, they suggested that IL trainings should be made mandatory and ought to be carried out continuously.

The University librarians were also asked to comment on the ability of postgraduate students to cite and reference information and give recommendations to enhance the ability. University librarian-02 noted:

"*At the moment the ability of postgraduate students is good since we intensify training of referencing. Here we use APA. Through the collaboration we have with the communication and languages department, we have divided IL into two whereby the second part we intensify on referencing and the use of APA. I recommend more exposure and making it an examinable course with the librarians teaching the course.*"

University librarian-03 added:

"*It depends, a good number have an idea of how to cite and reference. The challenge I see with postgraduate students is transitioning from one style to another, mostly theology students, from APA to Turabian style. We introduce them to a software, Zotero software, which is not perfect, it does not tell them how to cite in-text, it only helps them to generate bibliographies, which also skips some things. It is good that postgraduate students are introduced to other citation and referencing styles, to increase conversance with these other styles.*"

These findings reveal that the ability to effectively cite and reference information is integral among postgraduate students in the utilization of e-resources. As revealed in various studies, citation and referencing goes beyond knowledge of referencing styles, but also includes the application of the referencing styles, application of good in-text citations, integration of reference management software's and the ability to use multiple referencing and citation styles interchangeably (Bautista & Pentang, 2022; Blicblau et al., 2016; Muzata & Banja, 2019).

4.9 Results on Utilization of Electronic Resources

The study intended to explore the utilization of e-resources by postgraduate students which represented the main dependent variable. A 5-level Likert coded 1 to 5 whereby 1 denoted

"Strongly Disagree" (SD), 2 denoted "Disagree" (D), 3 denoted "Moderately Agree" (MA), 4 denoted "Agree" (A), and 5 denoted "Strongly Agree" (SA) was used. The electronic resources examined were as follows: e-books, e-journals; institutional repository (long essays/ theses/ dissertations); past examination papers; information literacy guides (referencing guides and citation manuscripts). Table 4.12 outlines the results of the descriptive statistics depicting the respondents conversance with the use of e-resources.

Table 4.12

Descriptive statistics on electronic resources

Electronic resources (N = 126)	1	2	3	4	5	Mean	STD Dev
E-books	12 (9.5%)	6 (4.8%)	22 (17.5%)	52 (41.3%)	34 (27%)	3.71	1.192
E-journals	10 (7.9%)	8 (6.3%)	27 (21.4%)	48 (38.1%)	33 (26.2%)	3.68	1.164
Institutional repository (long essays/ theses/ dissertations)	5 (4%)	9 (7.1%)	35 (27.8%)	41 (33.3%)	35 (27.8%)	3.74	1.067
Past examination papers online	14 (11.1%)	4 (3.2%)	23 (18.3%)	40 (31.7%)	45 (35.7%)	3.78	1.277
Information literacy guides (referencing guides and citation manuscripts)	14 (11.1%)	6 (4.8%)	16 (12.7%)	62 (49.2%)	28 (22.2%)	3.67	1.200
	Aggregate mean					3.72	1.180

Based on data presented on the table, it is apparent that a significant number of the study participants, with an average score of 3.72 and a standard deviation of 1.180, demonstrated great conversance with the use of e-resources. Regarding the aforementioned inquiry,

postgraduate students indicated a high level of familiarity and utilization of various resources, including: past examination papers online (85, 67.4%, m=3.78, SD=1.277); institutional repository (long essays/ theses/ dissertations) (76, 61.1%, m=3.74, SD=1.067); e-books (86, 68.3%, m=3.71, SD=1.192); e-journals (81, 64.3%, m=3.68, SD=1.164); and information literacy guides (referencing guides and citation manuscripts) (90, 71.4%, m=3.67, SD=1.200). These findings show that postgraduate students demonstrated a high degree of proficiency in accessing and using electronic resources made available to them. This is substantiated by Jogan's (2015) argument that automated libraries furnish a wide spectrum of online resources to their patrons, aimed at bolstering research endeavors, with electronic books, journals, and theses being the most commonly utilized.

The latter segment of the study aimed to evaluate the degree of concurrence amongst postgraduate scholars with respect to statements formulated pertaining to the utilization of electronic resources. A 5-level Likert coded 1 to 5 whereby 1 denoted "Strongly Disagree" (SD), 2 denoted "Disagree" (D), 3 denoted "Moderately Agree" (N), 4 denoted "Agree" (A), and 5 denoted "Strongly Agree" (SA) was used. The statements probing familiarity with the utilization of e-resources were as follows: I assess and utilize e-books in my academic work; I am capable of evaluating and finding journals that I can use freely; I utilize information on the institutional repository in my research work; I am capable of applying the information literacy guides in my academic work; I am capable of navigating the OPAC to find the information I need; and I access the library website regularly to keep up with current information. Table 4.13 outlines the results of the descriptive statistics.

Table 4.13

Descriptive statistics on the utilization of e-resources

Utilizing e-resources (N = 126)	1	2	3	4	5	Mean	STD Dev
I access and utilize e-books in my academic work	11 (8.7%)	8 (6.3%)	19 (15.1%)	51 (40.5%)	37 (29.4%)	3.75	1.198
I am capable of evaluating and finding journals that I can use freely	10 (7.9%)	7 (5.6%)	31 (24.6%)	52 (41.3%)	26 (20.6%)	3.61	1.117
I utilize information on the institutional repository in my research work	9 (7.1%)	10 (7.9%)	26 (20.6%)	58 (46%)	23 (18.3%)	3.60	1.096
I am capable of applying the information literacy guides in my academic work	14 (11.1%)	4 (3.2%)	27 (21.4%)	52 (41.3%)	29 (23%)	3.62	1.199
I am capable of navigating the OPAC to find the information I need	14 (11.1%)	6 (4.8%)	25 (19.8%)	28 (22.2%)	53 (42.1%)	3.79	1.335
I access the library website regularly to keep up with current information	14 (11.1%)	5 (4%)	20 (15.9%)	53 (42.1%)	34 (27%)	3.70	1.228
	Aggregate mean					3.68	1.196

Based on the tabulated data, it is apparent that a considerable portion of the participants, possessing an aggregate mean score of 3.68 and a standard deviation of 1.196, agreed with several statements on utilization of e-resources. Based on the responses obtained, the top three statements that garnered agreement among the participants were: I am capable of navigating the OPAC to find the most recent information (81, 64.3%, m=3.79, SD=1.335); I access and utilize e-books in my academic work (88, 69.9%, m=3.75, SD=1.198); and I

access the library website regularly to keep up with current information (87, 69.1%, m=3.70, SD=1.228). This implied that electronic resources cater to diverse objectives for postgraduate students, as corroborated by the claims of Ali et al. (2018) which elucidate that learners utilize these resources not only for academic pursuits but also for recreational purposes, staying abreast with current events, seeking employment opportunities, and enhancing their prospects of career advancement.

The statements that garnered least agreement among the participants were: I utilize information on the institutional repository in my research work (81, 64.3%, m=3.60, SD=1.096); and I am capable of evaluating and finding journals that I can use freely (78, 61.9%, m=3.61, SD=1.117). However, even though these two statements had the lowest level of agreement, more than 50% of the total number of respondents indicated agreement with them. This suggests that the institutional repository and e-journals are accessible to postgraduate students. This aligns with the assertion made by Hendal (2020) that the use of e-journals has increased during and after the COVID-19 period.

The systems librarians were also interviewed on utilization of e-resources. They mentioned that the e-resources they provided to postgraduate students included the following: theses/dissertations, e-books, e-journals, online past examinations, audio-video referencing and citation guides, links to download reference management software, and news and updates on the institutional library website. Additionally, the systems librarians were asked to give suggestions to enhance postgraduate students use of e-resource and systems librarian-02 noted *"Universities should have basic computer skills course as a compulsory in the first semester, since this will help postgraduate students, mostly the older students get IT skills that will enhance utilization of e-resources."* Systems librarian-04 added: *"Continuous awareness and marketing of e-resources will enhance utilization."*

The University librarians were asked to comment on the utilization of e-resources and give suggestions that would enhance e-resources utilization. University librarian-02 stated:

> *"During COVID-19 period, we transitioned to e-learning fully and we are yet to return to physical learning especially for postgraduate students. We have thus intensified the use of e-resources and the uptake is very high. Making sure the interfaces are user friendly will enhance utilization. In our case, we are using MyLOFT which is quite user friendly to us, since you only need to sign in once then you are good."*

University librarian-03 added:

> *"Use of e-resources is much higher than the physical ones, 60 – 40 percent. There should be emphasis on discipline-based training. Postgraduate students need to be trained separately, that way, they will be introduced to discipline specific databases that focus on the disciplines they are studying; either psychology, education and theology."*

The findings reveal that the library plays its role in provision of a wide range of e-resources and all the necessary support services to enhance the utilization of postgraduate students. In addition, the findings reveal that there is a high-level awareness of e-resources which is supported by Akussah et al. (2015) assertion that there is a significant relationship between awareness and the usage of e-resources in the library. Furthermore, these findings contradict findings made by Amunga (2011), which suggest that the extent of e-resources usage is limited. This can be attributed to robust technological advancements over the years, which reached its peak during the COVID-19 period and enhanced e-learning, thus facilitating virtual library operations and services, as ascertained by Singh (2020).

4.10 Diagnostic Tests

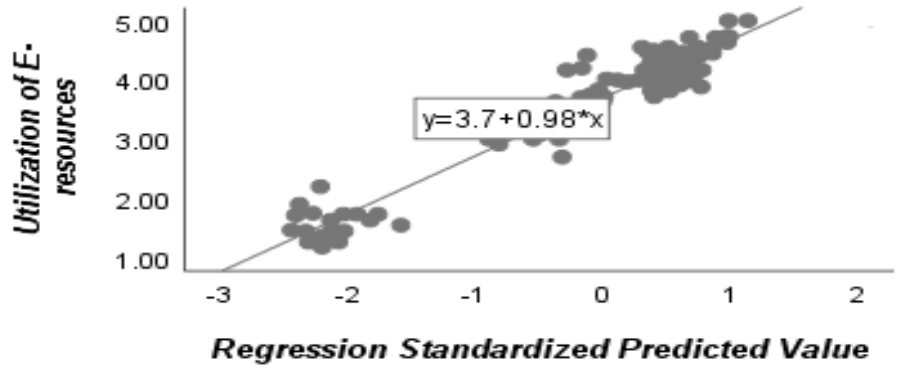
Diagnostics tests were conducted to ensure the validity and reliability of the results, prior to testing of hypotheses. They included linearity, multicollinearity, autocorrelation, heteroscedasticity and normality tests.

4.10.3.1 Linearity Test

The scatter plot of the dependent variable against the standardized predicted values shown in Figure 4.4 was used to test the linearity assumption, which demands a linear relationship between each predictor and outcome variables.

Figure 4.4

Linearity model



The scatter plot clearly demonstrates a linear relationship between utilization of e-resources and the standardized predicted value of the regression. As a result, we can say that this model satisfied the linearity assumption.

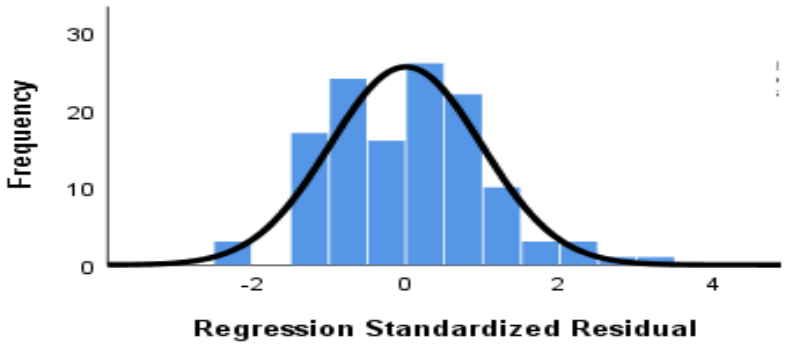
4.10.3.2 Normality Test

The distribution of the regression standardized residuals is displayed in the histogram created and visualized in Figure 4.5. According to Holcomb (2017), the histogram's bell curve closely approximates a normal distribution, indicating a roughly normal shape. This

implied that the standardized residuals' distribution conforms to a normal distribution. The nearly normal nature of the distribution suggests that the statistical analysis results were more likely to be reliable and trustworthy.

Figure 4.5

Normality histogram model



The measures for skewness and kurtosis for the main variables of the study are outlined in Table 4.14.

Table 4.14

Skewness and kurtosis for normal distribution

Variables	Skewness			Kurtosis		
	Statistic	Std. Error	Z Value	Statistic	Std. Error	Z Value
Y	0.100	0.250	0.400	2.950	0.550	5.360
X1	-0.200	0.200	-1.000	2.100	0.400	5.250
X2	0.050	0.300	0.170	2.500	0.600	4.170
X3	-0.150	0.275	-0.550	3.200	0.500	6.400
X4	0.000	0.225	0.000	2.000	0.320	6.250

It is evident from the table that z-values for the skewness and kurtosis statistics are also consistent with normality, falling within the range of -1.96 to 1.96. In addition, the kurtosis statistics range from 2.1 to 3.2, representing mesokurtic, which approximates to a normal distribution. This shows the variables were normally distributed.

4.10.3.3 Multicollinearity Test

To detect multicollinearity, Variance Inflation Factors (VIFs) were calculated for each independent variable, and the results are displayed in Table 4.19. According to Field (2018) the VIF is a measure of the degree of multicollinearity, with a value of 1 indicating no correlation between independent variables and values greater than 1 indicating some degree of correlation. Severe multicollinearity is indicated by VIF values greater than 10. The findings in Table 4.19 reveal VIF values below 10 indicating the presence of multicollinearity among the predictor variables.

4.10.3.4 Autocorrelation

The Durbin-Watson test produced a value of 1.976 in this study, as shown in Table 4.17, which falls within the acceptable range of 1 to 3. A value of 2 indicates that there is no significant autocorrelation in the data since it is close to the mid-point of the range (Field, 2018). Consequently, based on the results of the Durbin-Watson test, it can be concluded that the data had no significant autocorrelation, and the regression estimates were dependable and unbiased.

4.10.3.5 Test for heteroscedasticity

The Levene's test was done to examine the variability of the residuals across the range of values of the independent variables. Table 4.15 outlines the results of the test.

Table 4.15

Test for heteroscedasticity: Levene's test

Variables	Statistic	df1	df2	Sig.
Recognizing information need	5.204	3	122	.054
Searching for information	3.841	3	122	.087
Evaluation of information	2.030	3	122	.157
Citing and referencing information	1.705	3	122	.194

From Table 4.15, the results show that the p values for the independent variables (recognizing information need, searching for information, evaluation of information, citing and referencing information) were greater than 0.05 (Field, 2018). Based on the analysis of the data, we can infer that there was no substantial indication to propose that the residual variances are notably distinct between the groups. Therefore, we can conclude that the assumption of homogeneity of variances was reasonably satisfied.

The diagnostic test results showed no violation of assumptions since this was a parametric test. Therefore, we can affirm with certainty that the statistical analyses carried out on the data were sound and dependable, and that the outcomes can be comprehended with a significant level of assurance, hence the adoption of parametric statistical analytical techniques.

4.10 Inferential Statistics

In this study, inferential statistical methods were employed, specifically correlation analysis and regression analysis. Correlation analysis was utilized to determine the degree and direction of the association between four distinct abilities (recognizing information needs, searching for information, evaluating information, citing and referencing information). Meanwhile, regression analysis was used to explore the primary dependent variable, which is the utilization of e-resources, and the independent variables, which constitute the aforementioned abilities. These inferential statistical findings could contribute to an improved understanding of the impact of information literacy on postgraduate students utilization of e-resources in faith-based universities in Nairobi County. These results may inform policy, prevention, and intervention strategies.

4.10.1 Correlation Analysis

Correlation analysis was done in order to test the hypotheses that guided the study, by examining the guiding variables, their association, strength and direction of their

relationship. The Pearson correlation coefficient was the statistical measure employed. This being a parametric test, whereby there was no violation of data as exhibited from the results of diagnostic tests, the Pearson correlation was found to be the most suitable measure of correlation.

According to Holcomb (2017) a correlation has to lie between -1 and +1, with +1 indicating perfect positive relationship and -1 revealing perfect negative relationship. The main independent variables (recognizing information need, searching for information, evaluating information need, citing and referencing information) and the main dependent variable (utilization of e-resources) were measured for correlation. The results of the correlation analysis are presented in Table 4.16

Table 4.16

Results of Correlation analysis

		Utilization of E-resources
Utilization of E-resources	Pearson Correlation	1
	Sig. (2-tailed)	.000
	N	126
Citing and referencing information	Pearson Correlation	.958**
	Sig. (2-tailed)	.000
	N	126
Searching for information	Pearson Correlation	.940**
	Sig. (2-tailed)	.000
	N	126
Recognizing information need	Pearson Correlation	.941**
	Sig. (2-tailed)	.000
	N	126
Evaluating information	Pearson Correlation	.889**
	Sig. (2-tailed)	.000
	N	126

The first null hypothesis ($H_0$1) was formulated with the expectation that the ability to recognize information needs does not significantly affect the utilization of e-resources by postgraduate in faith-based universities in Nairobi County. The correlation analysis results

from Table 4.16 revealed there was a significant positive linear correlation between recognizing information need with utilization of e-resources (p-value < 0.001, r=0.941). As a result, we reject the null hypothesis raised and find there is a statistically significant positive association between the ability to recognize information needs and the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County. The positive association means an increase in the predictor variable (recognizing information need) causes and increase in the outcome variable (utilization of e-resources).

The second null hypothesis ($H_0$2) was formulated with the expectation that the ability to search for information does not significantly affect the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County. The correlation analysis results from Table 4.16 revealed searching for information exhibited a significant strong linear positive association with utilization of e-resources (p-value < 0.001, r =0.940). As a result, we reject the null hypothesis raise and find that there is a statistically significant positive correlation between the ability to search for information and utilization of e-resources by postgraduate students in faith-based universities in Nairobi County. The positive association means an increase in the outcome variable (utilization of e-resources) is impacted by an increase in the predictor variable (searching for information).

The third null hypothesis ($H_0$3) anticipated that the ability to evaluate information sources does not significantly affect the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County. From Table 4.16, it is apparent that evaluation of information exhibited strong positive significant linear correlation with utilization of e-resources (p-value < 0.001, r=0.889). Consequently, we reject the null hypothesis and conclude that there is a statistically significant positive correlation between the ability to evaluate information and utilization of e-resources by postgraduate students in faith-based universities in Nairobi County. The positive correlation indicates that an increase in the

predictor variable (evaluating information) leads to a corresponding increase of the outcome variable (utilization of e-resources).

The fourth null hypothesis ($H_0$4) predicted that the ability to cite and reference information sources does not significantly affect the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County. From Table 4.16, it is apparent that citing and referencing information revealed a significant strong positive linear association (p-value < 0.001, r=0.958). Consequently, we reject the null hypothesis and find that there is a significant positive correlation between the ability to cite and reference information and the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County. The positive correlation suggests that when the predictor variable (citing and referencing information) increases, the outcome variable (utilization of e-resources) also increases proportionally.

Our study presents a unique perspective on the relationship between information literacy skills and the utilization of e-resources, yet it aligns with findings made by Joshua (2014), which acknowledge the impact of information literacy skills on e-resource utilization. Joshua (2014) identified inadequate information literacy skills as a significant barrier to effective e-resource use, and recommended training on information retrieval as a solution. However, our findings align with the argument made by Tlakula and Fombad (2017) that information literacy encompasses more than just information retrieval, and a more comprehensive approach to integrating IL training into curricula is necessary to equip users with the necessary skills to enhance e-resource utilization. These recommendations are consistent with our findings and suggest that a broader approach to information literacy training is needed to improve the effective use of e-resources, whilst confining the specific IL skills that will enhance e-resource use.

4.10.2 Multiple Regression Analysis

The purpose of this study was to examine the role of information literacy in enhancing utilization of electronic resources among postgraduate students in faith-based universities in Nairobi County, Kenya. After ascertaining that there is a statistically significant positive association between each of the four predictors - namely information need recognition, searching for information, evaluation, citing and referencing - and the outcome, which is the utilization of e-resources, a multiple linear regression was conducted. Table 4.17 provides the model summary; Table 4.18 highlights the ANOVA model and Table 4.19 outlines the overall regression model respectively.

Table 4.17

Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.964[a]	.929	.927	.27455	1.976

According to the regression model summary, the model has a strong explanatory power, with an R of 0.96 and an R^2 value of 0.93. The high values (R of 0.96) indicate that independent variables in the model are highly correlated with the dependent variable. The value R square of 0.929 implies that the model accounts for 93% of the variance in utilization of e-resources by postgraduate students. The Durbin-Watson value of 1.976 indicates that there is no significant autocorrelation in the residuals, which means that the model is a good fit for the data.

Table 4.18

ANOVA Model

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	119.763	4	29.941	397.213	.000[b]
	Residual	9.121	121	.075		
	Total	128.884	125			

The analysis of variance (ANOVA) model summarized in Table 4.18 reveals a significant relationship between the predictor variables and the outcome variable, with an F-value of $397.213_{121,4}$, $p < 0.001$ where df = N-1, thus a result of 125. Meaning the model is valid because the P value is less than 0.001 (level of significance). This suggests that the independent variables have a significant impact on the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County.

Table 4.19

Regression model

Model		Unstandardized Coefficients		T	Sig.	Collinearity Statistics	
		B	Std. Error			Tolerance	VIF
1	(Constant)	2.890	103	-.406	685		
	Citing and referencing Information	2.646	.093	6.966	.000	.074	2.3435
	Searching for information	1.170	.123	1.387	.008	.047	1.2343
	Information need recognition	2.218	116	1.882	.042	.050	2.0112
	Evaluation of information	2.234	.068	-.007	.049	.147	4.0796

Table 4.19 can be simplistically be expressed as:

$Y= 2.890 + 2.646X1 + 1.170X2 + 2.218X3 + 2.234X4+ \sum$

Where; Y= Utilization of electronic resources (DV)

$\beta 0$ = Constant

X1 = Information need recognition

X2 = Searching for information

X3 = Evaluation of information

X4 = Citing and referencing information

ε = Error term

All independent variables were found to be statistically significant in predicting the dependent variable, utilization of e-resources, according to the regression model shown in Table 4.19. Holding all independent variables constant, the dependent variable (utilization of e-resources) had the value represented by the constant value (2.890). The constant value in this instance represents the basic framework for utilization of e-resources before any independent variables are considered. When all the independent variables are combined in a model, the most significant predictor of utilization of e-resources by postgraduate students in faith-based universities in Nairobi County is citing and referencing information ($\beta4=2.646$, p-value < 0.001); followed by searching for information ($\beta2=1.170$, P =0.008); then information need recognition ($\beta1=2.218$, P=0.042); and evaluation of information ($\beta3=2.234$, P=0.049).

The results showed that all independent variables were statistically significant predictors of e-resource utilization. This is in-line with the circular nature of the SCONUL core model, which opines that one can develop across the seven pillars, that represent IL abilities, despite their correlation (Bent & Stubbings, 2011). The SCONUL core model was feasible in this study, since it was drafted for the tertiary education setting, and that the main independent variables of this study were well represented by the four pillars namely: identify, gather, evaluate and manage. Of all the pillars, manage, the sixth pillar of the SCONUL core model, which represented the ability to cite and reference information was the most significant predictor. This greatly contradicts with Kanori's (2018) assertion that citation and referencing does not affect utilization of e-resources. However, Blicblau et al. (2016) opine that the use of reference software like EndNote, Bibtex and RefWorks, improved students referencing abilities and thus enhanced their use of e-resources. Therefore, emphasizing the importance of citing and referencing

information could potentially increase e-resource utilization among postgraduate students in faith-based universities in Nairobi County.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECCOMENDATIONS

5.1 Introduction

This chapter provides a comprehensive review of the study, including a summary, conclusions, and recommendations. The study aimed to investigate the role of information literacy on the utilization of electronic resources among postgraduate students in faith-based universities located in Nairobi County, Kenya. The research descriptive survey design was adopted, and the SCONUL model guided the investigation process. The target population included 843 postgraduate students and 8 select library staff that constituted the systems librarian and university librarians of CUEA, AIU, KeMU, and Daystar Universities. Stratified and systematic sampling were applied to select 168 postgraduate students pursuing Masters and PhD programs, and 8 library staff members were selected purposively.

The research instruments included online questionnaires and interviews. Data quality was ensured by using content and construct validity, and Cronbach's alpha value was used to assess the dependability of the research tools. The study employed descriptive and inferential statistics to analyze the data collected, and tables and figures were used to present the results. Additionally, the reviewed literature indicated that there were knowledge gaps in the area of study, and recommendations for further research were suggested. This outline of this section begins with summary, followed by conclusions then recommendations.

5.2 Summary of the Findings

This section has been subdivided into segments that correspond to the research objectives. The purpose of this subdivision is to facilitate comprehension of each objective and its

respective findings. The study had a response rate of 75% for questionnaires and 100% for the interviews, which represented 126 postgraduate students and 8 library staff.

5.2.1 Ability to Recognize Information Needs and Utilization of Electronic Resources

The study aimed to assess the relationship between the ability of postgraduate students in faith-based universities in Nairobi County to recognize information needs and the utilization of e-resources. The results revealed that a significant proportion of respondents demonstrated agreement with the statements, indicating satisfactory proficiency in articulating information needs which was supported by a high mean of 3.67 and standard deviation of 1.121. The majority of participants concurred with statements about being able to present their information needs clearly, knowing where to find information, and formulating research questions based on their needs. The most utilized e-resources were e-books, followed by e-journals and online past examination papers. Participants also concurred with statements about the accessibility and usefulness of various information resources provided by university libraries, including past papers, e-books, the institutional repository, e-journals, and IL guides with a mean of 3.65 and a standard deviation of 1.177. These findings support previous studies indicating a positive relationship between the availability and use of electronic information resources.

The results of the correlation analysis showed that there is a strong positive link between the capacity of postgraduate students in faith-based universities in Nairobi County to identify their information requirements and their use of electronic resources. This conclusion was backed by a correlation coefficient of 0.941 and a P-value of 0.000, indicating high statistical significance.

Information from the University librarians and systems librarians revealed that postgraduate students in faith-based universities in Nairobi County have good ability to

recognize their information needs after receiving information literacy training. However, more intensive and mandatory training is recommended for all postgraduate students. University librarians have implemented measures to enhance information need recognition, including an IL course, library semesters teaching IL, and collaboration with lecturers to expose students to e-resources.

5.2.2 Ability to Search for Information and Utilization of Electronic Resources

The objective of the study was to evaluate the impact of search skills on the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County. The results indicate that a significant proportion of respondents had a satisfactory level of knowledge of search databases with a mean of 3.64 and standard deviation of 1.138. Specifically, the respondents showed good knowledge of OPAC, ProQuest, DOAJ, institutional repositories, Google Books, Google Scholar, JSTOR, and SAGE databases with a mean of 3.67 and standard deviation of 1123. Moreover, the participants showed agreement in their ability to formulate search strategies and execute search queries repeatedly. They demonstrated good conversance with search techniques such as the use of keywords, phrase searching, Boolean operators, truncation, and wildcard which was supported by a mean of 3.73 and standard deviation of 1.163. These findings confirm the importance of information retrieval training with an emphasis on searching techniques in equipping users with searching competencies, as well as the significance of knowledge of search techniques and strategies in students perception towards use of e-resources.

The results of the correlation analysis showed a strong positive connection between the capacity of postgraduate students in faith-based universities in Nairobi County to search for information and their use of e-resources. This relationship was statistically significant, as demonstrated by a correlation coefficient of 0.940 and a P value of 0.000.

The findings obtained from both the University librarians and the systems librarians indicate that possessing information searching skills is a critical aspect of postgraduate students research work. Based on these findings, specialized training and an evaluated Information Literacy (IL) course were recommended to enhance students searching abilities. The study concludes that search competencies are fundamental to the academic work and professional growth of postgraduate students in their capacity as researchers.

5.2.3 Ability to Evaluate Information Sources and Utilization of Electronic Resources

The study aimed to investigate how the ability to evaluate information sources affects postgraduate students use of e-resources in faith-based universities in Nairobi County. The results show that the majority of postgraduate students (82%) evaluate e-resources before utilizing them, and only a minority (18%) do not. This suggests that most postgraduate students are likely to efficiently use e-resources. The participants demonstrated familiarity with evaluation metrics, including content, type, currency, authority, and accuracy, before using e-resources with a mean of 3.60 and standard deviation of 1.120.

The results of the correlation analysis showed a strong positive connection between the capacity of postgraduate students in faith-based universities in Nairobi County to evaluate information and their use of e-resources. This relationship was statistically significant, as demonstrated by a correlation coefficient of 0.889 and a P value of 0.000.

Information from the systems librarians revealed poor evaluation skills in postgraduate students before library training, but a significant improvement was observed after a series of trainings focused on e-resources to affirm information authority, content, and accuracy. University librarians identified challenges such as difficulty in identifying credible sources, lack of exposure to evaluation criteria in undergraduate studies, and advanced age of some postgraduate students who did not receive training on information evaluation.

5.2.4 Ability to Cite and Reference Information Sources and Utilization of Electronic Resources

The study aimed to investigate the impact of the ability to cite and reference sources on e-resource utilization by postgraduate students in faith-based universities in Nairobi County. The results showed that the majority of students were proficient in referencing styles such as APA and MLA, while they were less familiar with Vancouver and IEEE with a mean of 3.53 and standard deviation of 1.078. The study also revealed that most students used reference management software/tools to support their citation and referencing practices, with Mendeley, Zotero and EndNote as the most used. Furthermore, the findings indicated that the participants possessed a good comprehension of citation styles, plagiarism prevention, appropriate citation practices, and precision in citation. Overall, the study suggests that familiarity with referencing styles and the use of reference management software/tools can enhance students research proficiency and mitigate plagiarism.

The study's correlation analysis revealed a statistically significant, strong positive relationship between the ability of postgraduate students in faith-based universities in Nairobi County to cite and reference information sources and their use of e-resources. This relationship was supported by a correlation coefficient of 0.958 and a P value of 0.000.

The study found that systems librarians recommend mandatory and continuous IL training to enhance postgraduate students ability to cite and reference information, including the use of reference management software and plagiarism checks. University librarians also noted the importance of exposing students to different citation and referencing styles and offering courses taught by librarians. They suggested that students struggle with transitioning between styles and recommended the use of software such as Zotero to generate bibliographies.

5.2.5 Summary on the Purpose of Study

The study aimed at examining the role of information literacy in enhancing the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County. The results demonstrated that there is a significant relationship between the four information literacy abilities and utilization of e-resources. When all the abilities were combined in a model, the most significant predictor variable was the ability to cite and reference information, followed by ability to search for information, ensued by ability to recognize information need, then evaluation of information.

5.3 Conclusions

The findings of the study have been used to draw conclusions for each research objective.

5.3.1 Ability to Recognize Information Needs and Utilization of Electronic Resources

Based on the findings of the study, it can be concluded that there is a significant positive relationship between the ability of postgraduate students in faith-based universities in Nairobi County to recognize their information needs and the utilization of e-resources. The null hypothesis, which states that there is no relationship between the ability to recognize information needs and the utilization of e-resources, is rejected based on the strong positive correlation coefficient of 0.941 and the low P-value of 0.000, indicating high statistical significance. These findings support previous studies that have shown the importance of the availability and use of electronic information resources. The study also recommends more intensive and mandatory information literacy training for all postgraduate students to further enhance their ability to recognize their information needs.

5.3.2 Ability to Search for Information and Utilization of Electronic Resources

Based on the findings of the study, it can be concluded that there is a significant positive relationship between the search skills of postgraduate students in faith-based universities in Nairobi County and their utilization of e-resources. Therefore, the null hypothesis,

which states that there is no relationship between search skills and the utilization of e-resources, is rejected, based on the strong positive coefficient of 0.940 and the low P-value of 0.000, indicating high statistical significance. The study's results indicate that students who possess searching competencies are better equipped to access and utilize e-resources, and these competencies are critical to their academic work and professional growth as researchers. The study recommends specialized training and an evaluated Information Literacy (IL) course to enhance students searching abilities, confirming the importance of information retrieval training with an emphasis on searching techniques. The findings obtained from the University librarians and systems librarians further emphasize the significance of possessing information searching skills for postgraduate students research work.

5.3.3 Ability to Evaluate Information Sources and Utilization of Electronic Resources

Based on the findings of the study, it can be concluded that the ability to evaluate information sources significantly affects postgraduate students use of e-resources in faith-based universities in Nairobi County. The study revealed a strong positive correlation between the capacity of postgraduate students to evaluate information and their use of e-resources, with a correlation coefficient of 0.889 and a statistically significant P value of 0.000. These results suggest that postgraduate students who have good evaluation skills are more likely to efficiently use e-resources. The university librarians have implemented a series of trainings focused on e-resources to affirm information authority, content, and accuracy, which has led to a significant improvement in postgraduate students evaluation skills**.** However, challenges such as difficulty in identifying credible sources, lack of exposure to evaluation criteria in undergraduate studies, and the advanced age of some

postgraduate students who did not receive training on information evaluation have been identified.

5.3.4 Ability to Cite and Reference Information Sources and Utilization of Electronic Resources

Based on the findings of the study, it can be concluded that the ability to cite and reference information sources significantly affects postgraduate students use of e-resources in faith-based universities in Nairobi County. The study shows that proficiency in referencing styles and the use of reference management software can enhance research proficiency and mitigate plagiarism among postgraduate students. The correlation analysis revealed a strong positive relationship between the ability to cite and reference information sources and the use of e-resources, supported by a correlation coefficient of 0.958 and a statistically significant P value of 0.000. The study suggests that mandatory and continuous IL training, exposure to different citation styles, and the use of reference management software such as Zotero can improve students referencing skills.

5.3.5 Conclusion Based on the Overall Model

The study analyzed the results of a multiple regression and found that the combined abilities of recognizing, searching, evaluating, citing, and referencing information have a positive and significant impact on the utilization of electronic resources by postgraduate students. The most significant predictor of e-resource utilization was identified as the ability to cite and reference information, followed by searching for information, recognizing information needs, and evaluating information. Moreover, post-diagnostic statistics ascertained linearity, multicollinearity and a normal distribution. In addition, there was no significant autocorrelation, affirming regression estimates were dependable and unbiased.

5.4 Recommendations

Based on the aforementioned findings, the investigation put forward a variety of suggestions, each of which corresponds to the particular research objectives.

5.4.1 Recommendations on Research Findings

Based on the findings from objective one, postgraduate students in faith-based universities in Nairobi County possess satisfactory proficiency in recognizing their information needs, and there is a strong positive correlation between this ability and their use of e-resources. To further enhance their information needs recognition ability, the study recommends more intensive and mandatory information literacy training for all postgraduate students through the library administration. University librarians have already implemented several measures, including an IL course, library semesters teaching IL, and collaboration with lecturers. The faculty is vital in exposing students to e-resources. Nonetheless, more concerted efforts through the university administration are required to ensure all postgraduate students possess the requisite information literacy skills to fully exploit e-resources. The study's findings also reinforce previous research highlighting the importance of electronic information resources availability and use in academic settings. Therefore, the university administration should facilitate the acquisition of electronic information resources, through timely and purposeful allocation of the library budget.

Based on objective two, the study recommends that faith-based universities in Nairobi County should invest in information retrieval training with an emphasis on searching techniques to equip postgraduate students with searching competencies. This will enhance their ability to utilize e-resources, as demonstrated by the strong positive connection between the capacity of students to search for information and their use of e-resources. The university administration should engage the librarians in offering specialized training

and an evaluated Information Literacy (IL) course to enhance students searching abilities, which is critical for their academic and professional growth as researchers.

From the third objective, the study's results show that a majority of postgraduate students in faith-based universities in Nairobi County evaluate e-resources before utilizing them, indicating efficient use of e-resources. The participants also demonstrated familiarity with evaluation metrics, suggesting a good level of understanding. The study highlights the importance of possessing evaluation skills and its positive relationship with the use of e-resources. The findings suggest that there is need for more intensive training on evaluating information sources to enhance postgraduate students evaluation skills, particularly for those who did not receive training in their undergraduate studies or are of advanced age. University librarians can consider incorporating evaluation criteria into their information literacy training to support students in developing their evaluation skills.

Based on objective four, the study recommends mandatory and continuous training on citing and referencing information sources, including the use of reference management software and plagiarism checks, for postgraduate students in faith-based universities in Nairobi County. Exposure to different citation and referencing styles, including courses taught by librarians, can aid with the transition between styles. The study also emphasizes the importance of using reference management software/tools to support students citation and referencing practices and mitigate plagiarism. Additionally, the study highlights the correlation between the ability to cite and reference information sources and the use of e-resources, emphasizing the importance of citation and referencing skills for effective e-resource utilization.

5.4.2 Implications on Theories, Policies and Practices

The study was underpinned by the SCONUL core model, developed in 1999 by the SCONUL working group The SCONUL core model comprises seven pillars that represent

abilities and understanding in higher education, with four of those pillars serving as the guiding variables of this study. Moreover, SCONUL was made for the tertiary education environment, thus making it feasible for postgraduate students in faith-based universities in Nairobi County. The SCONUL core model offers a framework for developing information literacy skills in an educational context, with the aim of promoting academic excellence and lifelong learning through effective use of available information resources, including e-resources. Therefore, this study confirms the significance of the model's findings.

The study recommends that universities should invest more in e-resources to enhance research output. Additionally, universities should provide separate discipline-based training to postgraduate students to introduce them to discipline-specific databases. The findings can contribute to the information literacy literature and inform further research on the topic. Therefore, the library budget needs to be revised and improved from the current 10% stated by the CUE to be reflective of the current times, where there is high reliance of e-resources.

The study also highlights the importance of a user-centered approach when designing library services and resources, continuous marketing and awareness campaigns, and the need for libraries to evaluate the utilization of e-resources regularly. Additionally, libraries should prioritize the sustainability of their e-resources, ensure accessibility to all students, and prioritize privacy and security of postgraduate students data. Therefore, library integrated systems should offer an interactive option that provides frequent updates and information, allows for posing and receiving suggestions, and integrates with social media tools to improve the user experience. In addition, librarians and lecturers in faith-based universities in Kenya are expected to integrate the findings of this study to structure an examinable IL curriculum in a bid to equip students with IL competencies.

Overall, the study's recommendations will offer as guide in the generation of a curriculum, to be integrated in the academic programmes, thus enhancing information literacy policies and practices. In addition, they will revamp the collection development policies, to enhance the acquisition of e-resources. Greater financial and human resources resulting from increased subscription fees from increased member institutions will provide KLISC with increased bargaining power. Postgraduate students are expected to acquire advanced information literacy competencies that will enable them to effectively utilize electronic resources, resulting in high-quality research output. The production of such output is expected to be beneficial to faith-based universities, as it contributes to the creation of a high-quality alumni network.

5.5 Recommendations for Further Research

The study examined the role of information literacy in enhancing utilization of electronic resources among postgraduate students in faith-based universities in Nairobi County, Kenya. The findings suggest the need for further research to examine the accessibility of e-resources in these universities, with particular attention given to students with disabilities and their information literacy competencies. The results of such a study could inform the development of more accessible e-resources and assistive technologies, as well as the formulation of policies and procedures that ensure compliance with relevant accessibility legislation.

Moreover, the findings suggest a comparative study be done to examine the information literacy skills between postgraduate and undergraduate students in Kenyan universities. This could provide insights into how information literacy skills develop over time, and how they are influenced by factors such as academic level, discipline, and teaching methods.

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APPENDICES

Appendix I: Introductory Letter to Respondents

TO WHOM IT MAY CONCERN

RE: INFORMED CONSENT LETTER

Dear…….

My name is Kinoti Dennis, Registration number ISK-3-1547-1/2021, a Master's student from Kenya Methodist University, in the school of Science and Technology. I am conducting a research on the topic: "*The role of information literacy on the utilization of electronic resources by postgraduate students in faith-based universities in Nairobi County*". The Objectives of this study are to:

i. Assess how the ability to recognize information needs affects the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County
ii. Evaluate how the ability to search for information affects the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County
iii. Determine how the ability to evaluate information sources affects the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County
iv. Assess how the ability to cite and reference information sources affects the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County

In this regard, I am kindly requesting you to participate participating in giving feedback. The research tools will be questionnaires and an interviewing schedule that will not generally take more than 30 minutes to complete.

Participation in this study is completely voluntarily and there are no known risks in participating. Also, you may choose to participate or not or withdraw from the same any

time you wish. Meanwhile, I assure you that all the data collected in this research will be treated as very confidential, with your identity strictly hidden since only codes will be used instead of names.

The study will benefit you in the following manner:

a) You will have a chance to independently express your thoughts, feelings, understanding, perceptions and experience on the role of information literacy in the utilization of electronic resources by postgraduate students in Nairobi County.
b) The results, discussions and recommendations may enhance information literacy initiatives with a view of improving utilization of electronic resources by postgraduate students in faith-based universities.

I would therefore be grateful if you could kindly complete the schedule/ respond to the questions asked in this regard

Yours sincerely,

Kinoti Dennis. Phone: 0720158412

Email: dennismwaki1@gmail.com

School of Science and Technology

Appendix II: Questionnaire for Postgraduate Students

Section A: Demographic Information

1. What is your gender? ☐Male ☐Female
2. Which academic program are you pursuing? ☐Masters ☐PhD
3. Mode of study? ☐Full-time ☐Part-time / evening ☐Distance Learning

Section B: Ability to recognize user needs

4. Please tick the statement that best described the extent to which you agree or disagree with the statement regarding articulation of user needs where SD=Strongly disagree D=Disagree MA=Moderately Agree A=Agree S=Strongly Agree

Articulate User Needs	SD	D	MA	A	SA
i. I am capable of coming up with statements that reflect my information needs					
ii. I can explore general information sources online					
iii. I can identify key terms and concepts that describe my information need					
iv. I can formulate research questions based on my information need					
v. I can present my information needs clearly					
vi. I know where I can find information available					
vii. I can plan for acquisition of information that I need					

5. Please tick all the types of information resources you have utilized
   - E-books ☐
   - E-journals ☐
   - Online past examination papers ☐
   - Long essays/ thesis/ dissertations ☐
   - Information literacy guides (Referencing guides/ Citation tools) ☐

6. Please tick the statement that best describes the extent to which you agree or disagree with the statement regarding sources of information resources recognized where SD=Strongly disagree D=Disagree MA=Moderately Agree A=Agree S=Strongly Agree

Sources of information	SD	D	MA	A	SA
i. I have utilized the OPAC to find needed information					
ii. I have utilized the e-books provided through the library to meet my user needs					
iii. I have utilized the e-journals provided through the library to meet my user needs					
iv. I find the institutional repository resourceful for finding thesis/ dissertations/ long essays					
v. I am capable of finding past examination papers online					
vi. I find the information literacy guides online resourceful					

7. Kindly suggest ways through which the library can improve students ability to recognize information needs

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Section C: Ability to search for information

8. Rate your knowledge of these search databases where VP=Very Poor P=Poor F=Fair GD=Good EX=Excellent

Knowledge of search databases	VP	P	F	GD	EX
i. JSTOR					
ii. SAGE					
iii. Google Books					
iv. Google Scholar					
v. ProQuest					
vi. Institutional Repositories					
vii. OPAC					
viii. DOAJ					

9. Please tick the statement that best described the extent to which you agree or disagree with the statement regarding formulation of search strategy where SD=Strongly disagree D=Disagree MA=Moderately Agree A=Agree S=Strongly Agree

Formulate search strategy	SD	D	MA	A	SA
i. I can formulate a question for research					

ii.	I am capable of generating key concepts					
iii.	I can draft a logical search sequence					
iv.	I can derive related terms, synonyms, acronyms and alternative of ordering words					
v.	I am capable of mapping my concepts into a strategy					
vi.	I can effectively execute a search query repeatedly					

10. Rate your conversance with the following searching techniques where VP=Very Poor P=Poor F=Fair GD=Good EX=Excellent

Searching techniques		VP	P	F	GD	EX
i.	Boolean operators					
ii.	Wildcard					
iii.	Truncation					
iv.	Keywords					
v.	Phrase searching					

11. Suggest ways in which the library could enhance students ability to search for information

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Section D: Ability to evaluate information

12. How frequent do you evaluate electronic resources before use?

☐Always ☐Sometimes ☐Never

13. Rate your conversance with the use of the following metrics of evaluation where VP=Very Poor P=Poor F=Fair GD=Good EX=Excellent

Evaluation metrics		VP	P	F	GD	EX
i.	Authority					
ii.	Currency					
iii.	Accuracy					
iv.	Kind of information (Type)					
v.	Content					

14. Suggest ways in which the library can improve students ability to evaluate information

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Section E: Ability to cite and reference information

15. Please tick all the referencing styles you are conversant with

i. American Psychological Association (APA) ☐
ii. Chicago / Turabian Style ☐
iii. Harvard Style ☐
iv. Modern Language Association (MLA) ☐
v. The Institute for Electrical and Electronics Engineers (IEEE) ☐
vi. Vancouver ☐

16. Rate your conversance with the application of the following referencing styles where VP=Very Poor P=Poor F=Fair GD=Good EX=Excellent

Referencing Styles	VP	P	F	GD	EX
i. American Psychological Association (APA)					
ii. Chicago/Turabian Style					
iii. Harvard Style					
iv. Modern Language Association (MLA)					
v. The Institute for Electrical Engineers (IEEE)					
vi. Vancouver					

17. Tick the boxes that indicate the reference management software/ tool you use when citing and referencing information

i. Mendeley ☐
ii. EndNote ☐
iii. Zotero ☐
iv. RefWorks ☐
v. Any Other ☐
vi. Not any ☐

18. Please tick the statement that best describes the extent to which you agree or disagree with the statement regarding your citing ability where SD=Strongly disagree D=Disagree MA=Moderately Agree A=Agree SA=Strongly Agree

Citing ability	SD	D	MA	A	SA
i. I have a clear understanding of citation styles					
ii. I pay close attention to detail such as punctuation, capitalization and spacing in citation and references					
iii. I am familiar with plagiarism and how to avoid it using proper citation					
iv. I am capable of applying in-text citations accurately					
v. I can consistently use a citation style and format in written work					

vi.	I am familiar with the use of reference management tools					

19. Suggest ways in which the library can enhance students ability to cite and reference information

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Section F: Utilization of electronic resources

20. Rate your conversance with the use of the following electronic resources where VP=Very Poor P=Poor F=Fair GD=Good EX=Excellent

Electronic resources		VP	P	F	GD	EX
i.	E-books					
ii.	E-journals					
iii.	Institutional repository (long essays/ theses/ dissertations)					
iv.	Past examination papers online					
v.	Information literacy guides (referencing and citation manuscripts)					

21. Please tick a statement that best describes the extent to which you agree or disagree with the statement where SD=Strongly disagree D=Disagree MA=Moderately Agree A=Agree S=Strongly Agree

Utilizing e-resources		SD	D	MA	A	SA
i.	I access and utilize e-books in my academic work					
ii.	I am capable of evaluating and finding journals that I can use freely					
iii.	I utilize information on the institutional repository in my research work					
iv.	I am capable of applying the information literacy guides in my academic work					
v.	I am capable of navigating the OPAC to find the information I need					
vi.	I access the library website regularly to keep up with current information					

22. Suggest ways in which the library can enhance the utilization of electronic resources by postgraduate students

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Appendix III: Interview for Systems Librarian

Section A: Demographic information:

1. What is your highest academic qualification?
2. How many years of work experience do you have?

Section B: Ability to recognize information needs?

3. Describe the ability of postgraduate students to recognize their information needs using e-resources provisioned?
4. How would you improve students ability to recognize information needs?

Section C: Ability to search for information

5. How would you describe the searching skills of postgraduate students with regard to utilizing of e-resources?
6. What suggestions do you have to improve students ability to search for information?

Section D: Ability to evaluate information

7. What evaluation criteria do you apply in ensuring e-resources provided meet postgraduate user needs?
8. What recommendations would you offer to enhance students ability to evaluate information?

Section E: Ability to cite and reference information

9. Please describe the reference services offered to postgraduate students with regard to utilization of e-resources
10. What suggestions do you have to improve student's ability to cite and reference information?

Section F: Utilization of electronic resources

11. Mention the e-resources provisioned to postgraduate students for their utilization?
12. What suggestions would you offer to enhance utilization of electronic resources by postgraduate students?

Appendix IV: Interview for Head of Library

Section A: Demographic information:

1. What is your highest academic qualification?
2. How many years of work experience do you have?

Section B: Ability to recognize information need

3. What measures have been put in place to impact recognition of information competencies in their academic and research work?
4. What suggestions do you have to improve students ability to recognize information needs?

Section C: Ability to search for information

5. What practical approaches does the library engage with to improve postgraduate students searching skills?
6. How would you improve the students ability to search for information?

Section D: Ability to evaluate information

7. In your view, what challenges do postgraduate face when evaluating e-resources?
8. What ideas would you incorporate to improve students ability to evaluate information?

Section E: Ability to cite and reference information

9. Comment on the ability of postgraduate students to effectively cite and reference information
10. What recommendations would you offer to enhance students citation and referencing ability?

Section F: Utilization of electronic resources

11. Comment on the utilization of electronic resources by postgraduate students
12. How would you enhance utilization of electronic resources by postgraduate students?

Appendix V: Introduction Letter KeMU

KENYA METHODIST UNIVERSITY
P. O. Box 267 Meru - 60200, Kenya
Tel: 254-064-30301/31229/30367/31171
Fax: 254-64-30162
Email: deanrd@kemu.ac.ke

DIRECTORATE OF POSTGRADUATE STUDIES

February 27, 2023

Commission Secretary,
National Commission for Science, Technology and Innovations,
P.O. Box 30623-00100
NAIROBI.

Dear Sir/Madam,

RE: KINOTI DENNIS MWAKI – (REG. NO. ISK-3-1547-1/2021)

This is to confirm that the above named person is a bona fide student of Kenya Methodist University, in the School of Science and Technology, Department of Information Science undertaking a Master's Degree in Information Science. He is conducting research on; **"The Role of Information Literacy in The Utilization of E-Resources by Postgraduate Students in Faith – Based Universities in Nairobi".**

We confirm that his research proposal has been presented and approved by the University.

In this regard, we are requesting your office to issue a research license to enable him collect data.

Any assistance accorded to him will be appreciated.

Thank you.

27 FEB 2023
DIRECTORATE OF POSTGRADUATE STUDIES

Dr. John M. Muchiri (PhD)
Director, Postgraduate Studies

Cc: Dean SST
CoD, IS
Program Coordinator - IS
Student Supervisors

Appendix V: Research Permit NACOSTI

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Ref No: **713242**

Date of Issue: **07/March/2023**

RESEARCH LICENSE

This is to Certify that Mr.. Kinoti Dennis Mwaki of Kenya Methodist University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: The role of information literacy in the utilization of e-resources by postgraduate students in faith-based universities in Nairobi County, Kenya for the period ending : 07/March/2024.

License No: **NACOSTI/P/23/24182**

713242

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Verification QR Code

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