



Remote access, use, and management of library resources by select School of Social Sciences postgraduate students and librarians in the University of KwaZulu-Natal (UKZN), Pietermaritzburg campus.

By

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DECLARATION

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..... Date...21 June 2024.

Prof. Zawedde Nsibirwa

ABSTRACT

The study aimed to investigate the remote access, use and management of library resources by the select school of social sciences postgraduate students and librarians at the University of KwaZulu-Natal, Pietermaritzburg campus.

The study adopted a quantitative and qualitative research approach, with quantitative being the major approach. The post-positivism research paradigm was used and applied Kuhlthau's Information Search Process model, anchored on the social constructivism approach and the Unified Theory of Acceptance and Use of Technology developed by Venkatesh, Morris, Davis, and Davis (2003) based on social cognitive theory.

The study target was 108 respondents, which included 100 postgraduate students and eight Subject Librarians from the UKZN, Pietermaritzburg campus. A purposive sampling technique was adopted for the study, and a mathematical formula suggested by Taro Yemen (1970), $n = N/1+N(e)^2$ was used to determine the sample size of the postgraduate students. The total response rate of the respondents was 75(69%). Survey questionnaires were used to solicit quantitative data from postgraduate students, while interview schedules were used for qualitative data from the subject librarians. Self-administered questionnaires were sent to participants (students) via email to complete and return, and interviews were conducted with service providers via Zoom. Quantitative data were analysed through Statistical Package for Social Science (SPSS), and the qualitative data were analysed using thematic content analysis.

The findings of the study revealed that postgraduate students accessed and used library electronic resources remotely, and the findings also indicate the availability of e-resources and services at the UKZN library. However, the electronic resources were not used to the maximum due to challenges such as inadequate literacy skills, financial constraints, technical and network problems, lack of search skills and inadequate knowledge to navigate through the databases. Moreover, students experienced download delays and limited subscribed titles.

The researcher recommends that the university devise ways to help students get on board for training, as this will enable them to know what's available and how to get access to the library's e-resources. Likewise, the study proposed the need for extensive marketing and awareness of library e-resources, and most importantly the use of databases. Furthermore, strategies should be employed to enhance information literacy and self-efficacy.

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DEDICATION

This thesis is dedicated to the almighty God, for his sufficient Grace all through my journey.

To my parents, Mr. Lukas and Mrs. Milkah Wawire and to my beloved son Wrenson Smart Wawire.

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LIST OF ABBREVIATIONS

4IR	Fourth Industrial Revolution
BIPD	Books in Print Database
CMS	Course Management Software
C-TPB-TAM	Combine Theory of Planned Behaviour/Technology Acceptance Model
EBSCO-	Elton B. Stephens Co.
EE	Effort Expectancy
EIR	Electronic Information Resources
E-resources	Electronic Resources
ERMS	Electronic Resources Management Software
FC	Facilitating Conditions
HTML	Hypertext Markup Language
ICT	Information and Communication Technology
IDT	Innovation Diffusion Theory
ILSE	Information Literacy Self-efficacy
IMR	Internet Mediate Research
ISP	Information Search Process
IT	Information Technology
LBS	Location-Based Services
LIS	Library Information Studies
LMS	Learning Management Software
MAUTech	Modibbo Adama University
MM	Motivational Model

MPCU	Model of Personal Computer Utilization
MyLOFT	My Library on Fingertips
NUJS	National University of Juridical Sciences
OPAC	Online Public Access Catalogue
PDF	Portable Document format
PE	Performance Expectancy
PhD	Doctor of Philosophy
PMB	Pietermaritzburg
SCT	Social Cognitive Theory
SI	Social Influence
SPSS	Statistical Package for the Social Sciences
TAM	Technology Acceptance Model
TKM	Thangal Kunju Musaliar
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
UCT	University of Cape Town
UKZN	University of KwaZulu-Natal
UTAUT	Unified Theory of Acceptance and Use of Technology
VLE	Virtual Learning Environment
VPN	Virtual Private Network
WebCT	Web Course tools

CHAPTER ONE

INTRODUCTION

1.0: Introduction

The rapid development of technology has become part of our daily lives, providing multiple benefits and values in different sectors. Technologically, there is an increase in information communication technologies applied by human beings to help deal with communication difficulties, especially in the academic environment (Nyakweba, 2016). Recent decades have seen remarkable growth of the Internet and the resultant transformation in the learning landscape. Therefore, university libraries are considered the heart of universities, which provide an essential contribution to gaining knowledge by users, and a better platform for scholars, students, and teachers that helps enrich users' advanced knowledge (Khan, 2016).

Academic libraries have promoted university research and learning through information, communication and technology (ICT), hence developing systems to access electronic library resources from specific areas, including off-campus users. Using ICTs in learning institutions has helped boost educational systems by improving learning, research, and dissemination of knowledge to meet university library users' information needs remotely by providing timely and relevant information materials (Ankrah and Atuase, 2018). Technological changes due to the Fourth Industrial Revolution (4IR) have changed how information is accessed, preserved, and delivered to users. With the rapid growth and technological advances, information is accessed on a local, regional and international basis. The use of electronic resources has enabled this. E-resources are online information resources that are stored electronically and made accessible through electronic format and computer networks, supported by the Internet and other peripherals such as computers and smartphones. This led to the development of networks that allow multiple access, speed, richer content, reuse of information, time-lines and remote access to e-resources (Jogan, 2015; Ankrah and Atuase, 2018).

The massive growth of the higher education sector and the development of technology have led to a great demand for access to quality information by information seekers. The COVID-19 pandemic has significantly impacted academic libraries' services, resources, and many other professional aspects. Therefore, the role of service providers has to change in delivering information and services to users, because library services are no longer confined within the four walls but integrated into global networks. More so, with the rapid change in global circumstances, libraries have been pushed to

provide services entirely online to support the continuing learning and research in Universities (Craft, 2020:227). Furthermore, the reactive surge to offer service remotely offered the librarians both challenges and opportunities, such as the transition from partial physical to full online delivery of information services; therefore, it was important to upgrade library ICT systems to match the need to deliver services online.

The current research investigates the remote access, use, and management of e-library e-resources in the Cecil Renaud Library of the University of KwaZulu-Natal (UKZN), Pietermaritzburg campus. UKZN have other campuses with libraries that form part of the UKZN library. These include Westville, Howard, Edgewood, and Medical School.

This chapter will introduce the research background, outline the research problem, purpose and justification of the study, research objectives and questions, and scope and limitations of the research as well.

1.1: Background

The digital age is being ushered in by the Internet, which has forced libraries to gather, arrange, and make available e-resources. Libraries have been viewed as settings that involve the acquisition, organisation and dissemination of information resources mainly through crude and conventional ways. However, the introduction of technology and its advancement enabled the increase in the use of computers and telecommunication technology in information handling, management and use. Information professionals embraced the technology paradigm shift to enable the functionality of electronic library materials without difficulties (Chaputula, 2016:2). Adeleke and Nwalo (2017:51) ascertained that e-resources have significantly transformed information handling and management by academic libraries and have impacted scholarly communication, learning, and teaching. For this reason, technological development has changed the expectations of library patrons and the nature of librarian's work; hence, it is vital to understand that improper management can hinder the development, access, and use of e-resources in academic libraries. E-Resources are information resources created, generated, stored, accessed, and used electronically; they require access to a computer or any electronic device that can deliver a collection of data (Bentil, Liew and Chawner, 2022:114). According to Oluwaseun (2019:5), electronic resources are “multi-platform, synchronous/asynchronous information supply instruments that are accessible through information and communication technology (ICT) contrivances by multiple users at different locations”.

Access to online information materials enables efficient learning and research in institutions since remote access to e-resources improves the use of library electronic materials from diverse places (Nyakweba, 2016). For this reason, e-resources are accessed, retrieved, stored, and used through electronic devices and the Internet, and they can be accessed from any location. Remote access is access to library resources and services through electronic means; therefore, it is accessed, retrieved, stored, and used through devices and the Internet (Ankrah and Atuase, 2018). According to Sejane (2017:60), e-resources include e-databases, e-books, e-journals, e-magazines, e-newspapers and archives, among others. E-resources can be accessed and used remotely via the Internet or onsite. Therefore, providing library resources and services remotely in academic libraries can improve access to library resources outside regular opening hours and from any location. Hence, it will overcome the challenges of space and time and bring convenience to library use. Academic libraries are considered the storehouse for knowledge and information for local and remote users. E-resources have become part and parcel of the library collection to assist in expediting access to information and facilitate learning and research programmes (Opeyemi and Onyanha, 2021:1). Therefore, the library e-resources serve as the backbone of an academic library. This is because the development of networking technology has contributed to remote access to e-resources, thereby being considered a better practice for any library. It could help a user get access to their desired information wherever they are at any time (Jayalakshmi, 2018). For this reason, the functionality of a library depends on the resources available in the library and the services offered. Ankrah and Atuase (2018) opine that the development and growth of technology have radically taken over the sphere of activities in the library, including the dissemination, access and utilisation of library materials and services. Therefore, the library needs to keep up with technology innovation to cope with the user's constant information demand.

The concept and practice of remote access in the library are not new, but the transition speed to remote access and the utilisation of e-resources is unparalleled (Craft, 2020). Remote access was introduced in libraries in the 1990s, reflecting early exploration of remote services, and gradually became popular with various tools and techniques (Jogan, 2015). Access to libraries' e-resources and services remotely has become more convenient and intuitive, providing users access to relevant, current and updated information for use (De Sarkar, 2015). Hence, this has led to academic libraries prioritising the adoption, deployment, and integration of ICTs intending to satisfy their clients' diverse expectations and needs, such as completing assignments and research work, more so in the Covid-19 pandemic.

The COVID-19 pandemic has significantly impacted academic libraries' services, resources, and other professional aspects. With the rapid change in global circumstances, libraries have been pushed to provide services entirely online to support the continuation of university learning and research (Craft,

2020:227). According to Mbambo-Thata (2020:30), the pandemic led academic institutions to restrictions to help contain the further spread of the virus, including lockdowns to restrict movement and physical contact, among others. Therefore, higher education institutions opted to change their mode of teaching and delivery to continue with academic learning. In this case, many were compelled to move to e-learning and remote teaching.

Remote access has allowed access to and use of e-resources from libraries 24 hours a day from anywhere globally, thus increasing user satisfaction and reducing library operating costs (Chawinga and Selemani, 2017). Therefore, technological change significantly transformed how information is accessed, stored, and disseminated (Sushman, 2015). With technological advancements and e-publishing, access to information became easy and led researchers to make greater demands to access quality information provided by the library. Furthermore, faculties re-designed their courses to incorporate new technologies with library collections and many resources to provide effective services and e-resources to students.

In this era of information, e-resources are the foundation of any digital library. As technology advances, remote access to e-resources becomes the best practice for libraries, enabling users to quickly and easily obtain the information they need, no matter where they are. Technology makes the best use of online resources and provides convenient, anytime, anywhere access to various library materials via its interface (Jayalakshmi, Rao and Bhat, 2018). Interest in using remote networks to access library e-resources is increasing since it is one of the most important ways to access information and services provided by the library. Therefore, this calls for a mechanism that will enable easy access and use of e-resources from remote areas without hindrances, which might be caused by ineffective systems resulting from the off-site remote users (Oluwaseun, 2019). Patrons' requirements to access and use of library resources remotely are not distinct; they have information requirements similar to those of regular students (Owusu-Ansah and Bubuama, 2015). Therefore, how library e-resources and services are accessed, requested, and supplied requires the same quality of delivery as that provided to peers on campus. However, successful direct access is viewed as flexibility, reliability, availability, user-friendly interfaces, portability, efficiency, and serviceability of the systems (Owusu-Ansah and Bubuama, 2015). Hence, access to e-resources should be provided to patrons who may not be physically able to go to institutional facilities.

1.2: Statement of the problem

Online learning became a norm, and searching the Internet changed the expectations of information service providers and library users. These are patrons who would only depend on Google and expect to meet their information needs and get access to information through academic libraries, resulting in the use of library electronic information materials (Mwatimwa and Elia, 2017), especially for the patrons accessing resources remotely. Due to the increase in library remote users and the high demand for remote access, there is also a need to improve the networking technology to deliver library content. Therefore, it is vital to be more thoroughly versed with the demands and needs of distance users (Nagi and Parmar, 2021). Library users have become techno-savvy and gadget-oriented, demanding instant gratification and feeling that they have the right to access and use electronic information around the clock without hindrances (Nakitare, Sawe, Nyambala, and Kwanya, 2020). For this reason, users have relied on technology since it has allowed them to access, use, create and share information independently without relying on the librarians so much. Therefore, for academic libraries to serve this kind of patrons, they need interpersonal competencies such as dynamism, pragmatic problem-solving, practical customer service innovativeness, and effective technological competencies (Nakitare et al. 2020).

Owusu-Ansah and Bubuama (2015) emphasise the need to offer suitable library services to students so that they can use campus resources for their learning and research process properly. As a result, libraries fall short of patrons' demands and expectations about convenient, remote access, usage and well managed online resources. When users conduct online searches to obtain information through academic libraries, most libraries struggle to give them fair and sufficient access (Oluwaseun, 2019). Therefore, it is vital to understand the needs of remote users, those trying to access e-resources extensively to study from home, in offices and even while in transit. The remote delivery of library e-resources has been researched widely from different perspectives, explaining the applications that enhance information delivery through remote networks. Hence, there is an improvement in the use of academic library e-resources. However, there is limited focus on accessing and using library e-resources remotely from users' (postgraduate students) perspective in the School of Social Sciences and the management of e-resources by the librarians at the UKZN, leading to difficulties while accessing e-resources from the libraries from remote locations.

1.3: Significance of the study

The significance of a study is determined by the gap in the existing literature that a study aims to fill. How the study strengthens what has been overlooked in the past initiates a better understanding of

something and leads to improvements. Therefore, the importance of a study can be measured by the impact it may have on the organisation, individuals and society at large (Chaputula, 2016:7). Studies on both quantitative and qualitative research, such as Bunton, (2017), Eyaufe (2018), Jayalakshmi et al. (2018), Bhat (2019), Oluwaseun (2019), and Anyim, (2020) have been conducted on the access and use of library electronic resources, among students at the UKZN and other universities in South Africa. There is a paucity of information related to the universities' remote access to library e-resources. Therefore, this study contributes to the existing body of knowledge regarding postgraduate students' remote access to library e-resources.

The study is expected to generate findings that will improve the efficient use of e-resources and, therefore, benefit both library management and postgraduate students. For this reason, the study aims to help service providers provide requisite access and use to library e-resources. The usage assessment of library e-resources will be presented to the management. Therefore, the study's outcome is expected to help librarians improve their services to library users and recommend what they should do, thereby enhancing student access and use of library e-resources remotely. This study is expected to identify the contributions of information literacy self-efficacy in accessing and using library e-resources since there is a relationship between information literacy self-efficacy and the use of library e-resources. For this reason, the use of e-resources may improve; thereby, research output and academic performance may also improve.

It is expected that this would result in information provision at anytime and anywhere remotely to benefit students on campus and off campus. The COVID-19 pandemic called for a desperate need to evaluate the remote access and use of library e-resources to enable adequate and effective provision of information from remote areas and understand the needs of patrons accessing the e-resources remotely. The study is anticipated to contribute to the development of networking technologies that will help to manage and deliver electronic resources with the use of data systems. This includes, Internet protocol, server/client computational, among others. Therefore, a better understanding and effective use of library e-resources will be enhanced, and library resources and services will be provided anywhere and anytime to benefit service providers and information seekers.

Given the nature of the problem, the study aims to investigate the needs of postgraduate students accessing library e-resources remotely.

1.4: Research objectives

The study intends to achieve the following objectives:

- 1) To identify the library services and resources available for remote access and use at the UKZN library
- 2) To determine the usage pattern of library e-resources by postgraduate students.
- 3) To examine the efficacy of the library system provided for remote use and the self-efficacy of postgraduate students.
- 4) To determine the challenges faced by postgraduate students accessing the library remotely.

1.4.1: Research questions

From the above objectives, the study will address the following questions:

- 1) What library services and resources are available for remote access and use?
- 2) What are the postgraduate student's remote usage patterns of library resources?
- 3) What is the efficacy of the UKZN library systems in providing remote access and self-efficacy of postgraduate students?
- 4) What barriers hinders postgraduate students' remote access to the library?

1.5: Overview of theoretical perspectives

This study will be underpinned by two theories, namely, The Unified Theory of Acceptance and Use of Technology (UTAUT) and the Information Search Process (ISP). The models that illustrate theory explain the approach to the research question and highlight the relationship between the statement intended to explain and the aspects of social life. According to Ojukwu (2020), theories are an organised set of expectations, concepts and constructs systematically analysed to explain phenomena in a specific discipline or parts of human knowledge. Therefore, theories allow the researcher to relate the hypothetical and the practical, assuming reports and observations that enable development from the research (Shikongo, 2010).

The Unified Theory of Acceptance and Use of Technology merges eight fundamental theories: these include, The theory of reasoned action (TRA), the technology acceptance model (TAM), the theory of planned behaviour (TPB), the model of PC utilisation (MPCU), the motivational model (MM), Innovation diffusion theory (IDT), social cognitive theory(SCT) and a combine theory of planned behaviour/technology acceptance model(C-TPB-TAM) (Gümüšoğlu and Akay, 2017). These theories aim to explain the intentions of a user to use an information system and user behaviour; hence, the determinants of user intention and behaviour (Sejane, 2017:23). The key constructs are performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC). Variables such as gender, age, experience, and voluntariness of use provide aspects to investigate the

library's access and use of e-resources. Hence, the theoretical framework indicates the constructs that explain the access and use of library e-resources (Sejane, 2017:23). Seventy per cent of the variance concerning behavioural intentions to technology use allows UTAUT to test new technology, predict and explain the behavioural intention and use (Venkatesh, Thong and Xu, 2012:157).

Information Search Process describes a user's experience during the search process and indicates stages of the process from a user's thoughts, feelings, and actions. The stages include Initiation, Selection, Exploration, Formulation, Collection, and Presentation. This can be seen as the user begins at a lower end; however, as the research develops, they become increasingly focused and particular, as well as more confident. Through their action, more people search for e-resources from the most relevant towards the overall topic in the early phases of the search process and relevant to the targeted themes towards closure (Odede, 2018). The models will be discussed in detail in Chapter Two of this dissertation.

1.6: Scope and limitations of the study

The study focused on remote access, use, and management of library e-resources in the UKZN Cecil Renaud Library. The study examined postgraduate (Masters and PhD) students in the select School of Social Sciences and Subject Librarians at the UKZN, Pietermaritzburg campus. All other library users are not part of the study, including other library staff, undergraduate students, academic staff, and library users from other UKZN campuses such as Westville, Howard College, Edgewood and Medical School. The current study considers e-resources as library information materials that can be accessed, used, and managed in electronic format; thereby, the UKZN e-resources access systems are interrelated components working together over a given network on all campuses. Therefore, the study's participants were sampled from the Pietermaritzburg campus.

Given the uncertainties and inconveniences caused by the COVID-19 pandemic and the fact that this study is undertaken to fulfil the requirements of a Master's degree, the study is restricted to only postgraduate students and Subject Librarians.

1.7: Definition of key terms

This section will outline contextual key terms to guide the present research. These key terms include electronic resources, remote access, academic libraries, postgraduate students and Subject Librarians. As a result, the concepts are systematically provided in this section so that the research work can be comprehended better.

1.7.1: Electronic resources

E-resources are information materials stored and used electronically, requiring devices such as computers or smartphones to access and use them. E-resources include e-journals, e-books, and online databases, among others. End users can access readily available e-resources over the web through multiple library search platforms (Sejane, 2017).

1.7.2: Remote access

Remote access can be the retrieval and use of information materials in technological contexts regardless of a user's geographical location. E-resources can be accessed and used by users wherever they are, for example, in the office, at home, or in transit. Therefore, remote access to e-resources offers an opportunity to make the best use of library resources by making them accessible off-campus (Nyakweba, 2016).

1.7.3: Academic Libraries

Academic libraries are considered powerhouses of institutions that house all information materials used for teaching, learning, and research. Hence, it provides information and knowledge to patrons with information needs, especially scholars, students, teachers, and staff (Khan, 2016). Academic libraries are attached to academic institutions such as universities, colleges, and schools, and their major function is to serve researchers, students, lecturers/teachers, and staff (Quadri, 2019).

1.7.4: Postgraduate students

Postgraduate students can be referred to as students who have already completed the undergraduate degree and are proceeding with further studies this includes Masters and PhD programmes. The programmes can be taught coursework or by research work that allows further exploration of an area with an opportunity for independent study (Lekhetho, 2022).

1.7.5: Subject Librarians

Subject Librarians are library professionals who are trained and qualified and are responsible for managing broad subject areas in the library. Subject librarians are also referred to as professional librarians (Fagan, Ostermiller, Price and Sapp, 2021).

1.8: Outline of the dissertation

This dissertation has six chapters, which are briefly described below.

1.8.1: Chapter One: Introduction and background information

This chapter will introduce the topic, state the problem and background, and cover the purpose of the study, research questions, limitations, and delimitations. The chapter provided an overview of the theoretical framework and ethical considerations.

1.8.2: Chapter Two: Theoretical framework and Literature review

The theoretical framework will be based on UTAUT and ISP models, While. The Literature review will analyse existing literature on remote access, use and management of library e-resources and establish a gap that other studies have not researched extensively.

1.8.3: Chapter Three: Research methodology

This chapter will address the approach and design of the study used. Therefore, the research will use a quantitative approach. The quantitative approach allows one to find a quantitative answer or quantify attitudes, opinions, and behaviour to discover how a particular population feels about specific issues. Population and sampling techniques will be discussed in this chapter, and data collection tools and methods, data analysis, validity and reliability will also be discussed.

1.8.4: Chapter Four: Presentation of research

Demographic and descriptive formats will be used for data presentation in the study.

The main core of the data presented will be text, tables, and graphics. Text will be used to describe and interpret the information presented.

Tables will be used to methodically summarise vast volumes of data and graphics to highlight the trends and evidence of the presented data.

1.8.5: Chapter Five: Discussion of findings

Interpretation and discussion of results

1.8.6: Chapter Six: Summary, Conclusion and Recommendations

This chapter will state what has been covered and recommend future studies.

1.9: Overview of ethical consideration

An independent and competent ethical review of all research protocols helps minimise issues related to the researchers' conflict of interest. It ensures the researcher's liability to protect the public from

harm or exploitation (Silaigwana and Wassenaar, 2019). The researcher sought ethical clearance from the University of KwaZulu-Natal's Humanities and Social Sciences Research Ethics Committee, and the ethical approval (see Appendix Six) allowed the study to proceed.

Before recruitment, the information provided to potential participants should indicate the risks and benefits of their participation. Although the study did not have any invasive or medical procedures, the participants were protected from any possible adverse repercussions to their involvement. For this reason, the general research design should not injure, embarrass or negatively impact the subject. Participants were fully informed about the nature and the scope of the research before they were recruited. They were informed that participation is voluntary and that they can withdraw without penalty. The researcher ensured the privacy and confidentiality of information provided by the participants. Therefore, the participants were issued with informed consent (see Appendix One and Two). Participants who agreed to the study conditions were asked to carefully read the consent form and provide consent by writing their names and signing it. This showed that they understood the nature of their participation.

1.10: Summary of the chapter

This chapter introduces the investigated phenomenon: remote access, use and management of library e-resources in the University of KwaZulu Natal (UKZN) library. Chapter One provides general information, including the study's background, objectives, and research questions. The chapter discussed the significance and purpose of the study about the utilisation of library e-resources remotely. Two theories were introduced: the Unified Theory of Acceptance Use and Technology (UTAUT) and the Information Search Process (ISP). The scope and limitations of the study were established, and the outline and ethical considerations were highlighted to ensure the study was undertaken under the conditions that were fit for both the researcher and participants.

CHAPTER TWO

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.0: Introduction

The main objective of this chapter is to provide a deep understanding of the theoretical framework that guides the study of remote access, use, and management of library e-resources at the University of KwaZulu-Natal. This chapter will also discuss relevant literature from various electronic sources such as e-journals, e-databases, and e-theses/dissertations.

The literature review enhances and consolidates one's knowledge, which involves a search based on a study area, and it aids in examining current study findings on the problem under investigation (Somers, 2015). According to Anduvare and Mutula (2019), a literature review may be considered a systematic and reproducible method for identifying, evaluating and synthesising existing bodies of completed work produced by researchers and scholars. For this reason, the literature review builds a foundation based on existing related knowledge. Therefore, the researcher will establish a relationship between the current study and research in the same area (Odede, 2018).

Several empirical studies have been conducted on remote access and the use of library e-resources to find literature that discusses holistic support for remote access to e-resources in academic libraries.

2.1: Theoretical framework

Theories and models explain the approach to the research question and highlight the relationship between the statement intended to explain and the aspects of social life. Theories allow the researcher to relate the hypothetical and the practical, assuming views and observations that enable development from the research (Creswell 2009:51). Theories provide a foundation and structure for research. Theories are interrelated constructs or variables created as propositions or hypotheses that specify the relationships between variables (Kerlinger, 1986:9).

According to Bezuidenhout (2014), the theoretical framework is used in research to provide the lens through which a researcher investigates a problem. Therefore, describing the complex phenomenon enables the analysis of the underpinning relationships. Kutu (2020) affirms that the difference between the composition of journalistic writing and that of research (particularly academic papers) is improving a well-built and coherent theoretical framework. In addition, Anduvare (2019) states that the theoretical framework is the foundation for the research questions that investigate the researcher's

conceptions. Therefore, a proper theoretical framework must provide a well-supported rationale for conducting a study and assist the reader grasp the research perspective.

Sejane (2017) states that a theoretical framework is a broad system that incorporates assumptions, concepts, and specific social theories. Therefore, to better understand the factors influencing postgraduate students to use library e-resources remotely. The research will adopt two theoretical models: the Unified theory of acceptance and use of technology (UTAUT) and the information search process (ISP) theoretical models.

2.1.1: Unified Theory of Acceptance and Use of Technology (UTAUT)

UTAUT was developed by Venkatesh et al. (2003) based on social cognitive theory, which combined and examined eight prominent Information Technology (IT) acceptance models and determined technology's behavioural intention and usage behaviour. According to Sejane (2017), The UTAUT was developed by combining eight technology acceptance theories that had previously been utilised in research to explain knowledge management, information systems, and user behaviour.

The following theories and models were used to develop the UTAUT:

- Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975).
- Social Cognitive Theory (SCT) (Bandura, 1986).
- Technology Acceptance Model (TAM) (Davis,1989).
- Theory of Planned Behaviour (TPB) (Ajzen, 1991).
- Model of Personal Computer Utilisation (MPCU) (Thompson, Higgins and Howell, 1991).
- Motivational Model (MM) (Deci, Vallerand, Pelletier and Ryan, 1991).
- Combined TAM and TPB (C-TAM-TPB) (Taylor and Todd,1995).
- Innovation Diffusion Theory (IDT) (Rogers, 1995).

According to Venkatesh et al. (2011), UTAUT represents an integrated view of the state of knowledge. Therefore, it has been validated using data obtained in the workplace over many periods and demonstrated to outperform the eight distinct models it encompasses. The UTAUT is a theoretical model that unifies major theories about information technology acceptance and is considered to explain the endorsement of information technology services. Therefore, the UTAUT model integrates the

competing models' elements (Lu and Lee, 2011). Lewis, Fretwell, Ryan, and Parham (2013) state that the UTAUT model consists of four antecedents to behaviour intention: Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Condition. For this reason, UTAUT has been considered a baseline model used to study various technologies in different organisational settings.

UTAUT identifies four fundamental constructs: Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC). Furthermore, four moderators (age, gender, experience, and voluntariness of use) play a significant role as determinants of behavioural intention and technology usage behaviour in the library context (Parhamnia, 2022). According to Gümüšoğlu and Akay (2017), gender, age, experience, and voluntariness of use were added to the model and were hypothesised to moderate the effect of four constructs (performance expectancy, effort expectancy, social influence, and facilitating conditions) on intention to use and usage behaviour. For this reason, the UTAUT holds fundamental theories that aim to explain the intentions of a user to use an information system and user behaviour, hence, the determinants of user intention and behaviour (Sejane, 2017). Quadri (2019:50) highlights that age is how an individual's age affects the use of a new system. Gender, female or male, determines the extent to how easy it is to utilise a new system; experience is the use of the system over time, determines the skills and ability to use the system; and voluntariness is the degree to which a user decides to use a system willingly.

Figure 2.1: UTAUT model (Venkatesh et al. 2003:447)

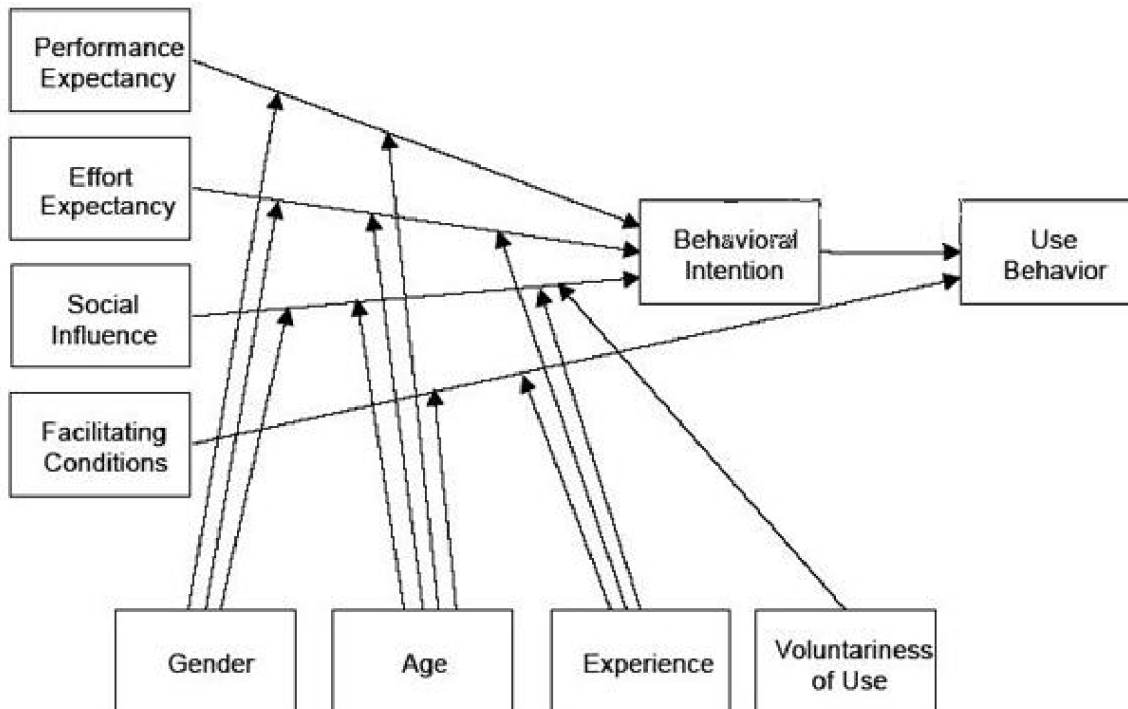


Figure 2.1 represents four components of UTAUT: performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC) linked to the moderators: Gender, age, experience, and voluntariness of use.

2.1.1.1: Performance expectancy

Performance expectancy is the extent to which a user believes and expects to attain a goal or meet their information needs by using effective systems and technology. Therefore, an individual believes that using a specific technology setup will enhance task performance (Alshammari, 2021; Moorthy et al., 2019). Sultana (2020) opines that PE positively influences behavioural intention toward using technology. Lewis et al. (2013) state that PE has high explanatory power concerning the intention to use technology and, therefore, the most significant factor used to explain behavioural intention. Therefore, regarding library e-resources access and use remotely, postgraduate students believe that using the library systems to access library e-resources from a remote location will enable and enhance productive results when studying and conducting their research. For this reason, the synthesis of variables such as extrinsic motivation in the motivation model, comparative advantage in the transmission of innovation theory, and results in expectancy in the Social cognitive theory were found

to positively impact the performance of a user (Gümüšoğlu and Akay, 2017). The study links the performance expectation of a user to investigate the effectiveness of access and usage patterns of the library resources. And find out how well users can achieve what is expected of them regarding the resources and services provided by the library.

2.1.1.2: Effort Expectancy

Effort expectancy is defined as the degree to which faculty perceive technology to be effort-free and, therefore, is associated with the ease of use of technology (Gümüšoğlu and Akay, 2017; Lewis et al., 2013). According to Brown, Dennis, and Vankatesh (2010), effort expectancy can be predicted by technology characteristics such as accuracy, concurrency and users' factors such as self-efficacy and technology experience. In the technology models such as the Technology Acceptance Model (TAM) and Theory of Planned Behaviour (TPB), The role of EE on intention can be mediated by attitude, and users may be more satisfied with self-service technologies that are easy to use (Venkatesh et al., 2011). Effort expectancy positively influences the behaviour intention to use a system or library resources remotely (Alshammari, 2021). As a result, the impact of EE on behavioral influence will be modulated by gender, age, and experience, with the effect being more significant for women, particularly older women (Gümüšoğlu and Akay, 2017). The current study intends to determine the influence of effort expectancy on the effectiveness of access to e-resources. Therefore, the strategies recommended will help create a conducive environment and enhance access to and use of e-resources, thereby encouraging a user to make the effort that will allow one to use library e-resources effectively.

2.1.1.3: Social Influence

Social influence is defined as other influential people's perspectives on using specific technologies and how important they believe they should use the new system (Tella, Ukwoma, and Kayode, 2020). In the remote access context, library service providers and library users were sufficiently essential people who could have a social influence on remote users (Alshammari, 2021). SI positively influences behavioural intention and is moderated by gender, age, voluntariness of use, and experience. Tella et al. (2020) opine that such an effect would be more substantial for women, particularly in the early stages of experience. Therefore, social influence impacts an individual's behaviour through mechanisms such as identification, compliance, and internalisation (Sejane, 2017). The study links social influence to the effectiveness of access and use of library e-resources due to the influence of the surrounding environment and people.

2.1.1.4: Facilitating Conditions

Facilitating conditions refer to the extent to which the user perceives that the technical infrastructure promotes the use of the system (Lewis et al., 2013). FC includes the support provided to the library staff to facilitate remote access to e-resources (Alshammari, 2021) and the necessary training for the technology users (Gümüšoğlu and Akay, 2017). Facilitating conditions are direct predictors of usage. However, the consequences of distinct beliefs such as, attitudinal, normative, and control, may cross over to influence other opinions (Venkatesh et al., 2011). The effect of facilitating conditions on usage is thought to be moderated by age and experience. Such an effect would be stronger for older workers, particularly those with more experience (Tella et al., 2020). The current research relates facilitating conditions to the adequacy and effectiveness of access to e-resources, such as adequate funding, availability of electronic library resources, and technological infrastructure. Therefore, if the latter are not effectively in place for users to access and use e-resources, patrons will not see the value of using them.

2.1.2: Kuhlthau's Model of the Information Search Process

Kuhlthau's ISP model was developed and conceptualised in the 1980s. Later in the 1990s, the model was refined and considered a framework and diagnostic tool that enabled the understanding of people's information search experience in various library and information settings (Kuhlthau et al., 2008). ISP model provides insights on how to guide students in the inquiry process developing students' ability to learn independently by using multiple knowledge sources. Moreover, it is considered the most outstanding model for examining and understanding the entire information-seeking process (Odede and Nsibirwa, 2018).

The information search process describes a user's experience during the search process and indicates stages of the process based on a user's thoughts, feelings, and actions (Odede, 2018). Kuhlthau (1988) defines the process as the information-seeking process. In contrast, someone may first believe that their current level of expertise is insufficient to address a problem. Still, users become more focused, specific, and confident as they continue the seeking process. Hence, the process ends when the perception no longer exists.

The theory of personal constructs, based on the work of cognitive psychologist George A. Kelly, presents a view of what may determine the behaviour of searchers. Therefore, he developed a six-stage model. Based on Kelly's phase of constructs, the stages included Initiation, Selection, Exploration, Formulation, Collection, and Presentation. Odede (2018) opines that the ISP model describes the user's

experience during the information-seeking process, which includes three human domains shared by each research stage. These include emotions (affective), thoughts (cognitive), and actions (physical) (Luo, Nahl and Chea, 2011). The model emphasises the interrelationships with feelings, thoughts, and actions, where the information search process often causes anxiety and uncertainty (Kuhlthau et al., 2008). It is seen as the user begins at a lower end, but as they continue, they become increasingly focused during the search process; their thoughts progress from ambiguity to specificity, and interest mainly grows after the focus has been set (Odede and Nsibirwa, 2018). The researcher engaged in the first three stages of the search to seek relevant information, and the last three focused on pertinent information (Kuhlthau, 1988). Through their actions, a person’s attention on the topic is a critical phase in the search process. At that point, feelings transition from uncertainty to confidence. The users’ thoughts move from ambiguous to more precise, and their curiosity grows towards closure as they search from a general topic to a focused one (Odede and Nsibirwa, 2018).

Table 2.1: Model of Information Search Process (Kuhlthau et al., 2008)

Model of the Information Search Process							
	Initiation	Selection	Exploration	Formulation	Collection	Presentation	Assessment
Feelings (Affective)	Uncertainty	Optimism	Confusion Frustration Doubt	Clarity	Sense of direction / Confidence	Satisfaction or Disappointment	Sense of accomplish- ment
Thoughts (Cognitive)	vague	→			focused	→	Increased self- awareness
Actions (Physical)	seeking	relevant Exploring	information	seeking	pertinent Documenting	information	

Kuhlthau’s empirical studies show that the information search process occurs in six stages: initiation, selection, exploration, formulation, collection, and presentation, named for the primary task to be accomplished at each point in the process (Kuhlthau et al., 2008). The model reveals a search process in which a person seeking meaning begins with a sense of uncertainty while seeking the information. It is articulated holistically in Six stages of information seeking from the user’s perspective (Buba et al., 2021).

2.1.2.1: Initiation

The initial stage is where a student is informed about an assignment, and contemplation on the possible topic takes place. A user recognises the need for information and becomes aware of a lack of knowledge. Therefore, feelings of uncertainty are expected when establishing a search process (Buba et al., 2021; Rather and Ganaie, 2017). Users may initially feel unprepared for research and anxious about successful completion. Physical actions at this stage will focus on the search to identify key concepts (Jefferson, Stierholz, Fontichiaro, and Hoelter 2020:207).

2.1.2.2: Selection

Selection is a more general area. The searcher has different ideas and tries to find a more suitable topic. This stage is filled with familiar feelings of hopefulness, and the initial uncertainty often leads to optimism; therefore, readiness to identify the most significant areas. Unfortunately, initiating a specific topic might be too broad, causing anxiety, confusion, and apprehension (Buba et al., 2021). At this stage, topics are evaluated based on personal interest, requirements, and likelihood of success (Jefferson et al., 2020:210).

2.1.2.3: Exploration

Confusion increases as the users encounter incompatibility and inconsistency while trying to scrutinise and understand the topic. The user will search and gather more relevant information on the topic. Therefore, the doubt will decrease (Buba et al., 2021). According to Jefferson et al. (2020), students may encounter concepts that do not fit into their current constructs and information; thereby, as the researcher becomes more focused on the topic, the feeling of confusion and uncertainty becomes anxiety. The researcher attempts to go deeper into relevant subjects because of the relevant readings and finding information that meets their needs considering the topic (Bapte, 2017:288).

2.1.2.4: Formulation

The formulation is considered the turning point of the search process, where the researcher finds focus, clarity, and the feelings of uncertainty are reduced while confidence increases (Jefferson et al., 2020). The students develop confidence as they find focus and understand the topic; therefore, they form a perspective on the topic and decide what is most pertinent. Self-efficacy is established as the search process becomes familiar, the confidence level becomes high and information materials retrieved at this point help the reader to focus on the study (Bapte, 2017:288; Rather, 2017).

2.1.2.5: Collection

At this stage, interest and involvement deepen, and the researcher confidently interacts smoothly with the information system as the topic is clear and understood. The student develops strong self-beliefs and feels comfortable searching and retrieving more relevant information without difficulties (Rather, 2017; Buba et al., 2021).

2.1.2.6: Presentation

This is the last stage, with enough information, and the process ends with a sense of confidence or failure, depending on how useful the findings were. They can share their learning experience with others (Buba et al., 2021).

2.1.3: The rationale for choosing UTAUT and ISP theories for this study

This study sought to establish the remote access, use, and management of library e-resources by the select postgraduate students and service providers in the UKZN library. Oluwaseun (2019:65) opines that technology has no value if it is not accepted and utilised. Hence, accepting the emerging and developing phases of technology is imperative. The study aims to identify how individuals accept and use technology to access, retrieve, and use information and how service providers deliver information for use. Examine how and what hinders technology from being used remotely to access and use library e-resources. Specific theories, such as UTAUT and ISP, have been chosen in this study because they play a vital role. Their role in the study was to provide an orientation lens whereby variables in the theoretical framework aligned with variables in the research questions.

According to Chaputula (2016:28) UTAUT offers a broader reach, allowing the research problem to be addressed in greater detail and serving as a foundation for researching technology at an individual level, including students and Subject Librarians. Quadri (2019:53) asserts that UTAUT was able to attain 70% explanatory power with regard to the intention to use technology. Therefore, UTAU was more effective than the other previous eight models (Theory of Reasoned Action, Social Cognitive Theory, Technology Acceptance Model, Theory of Planned Behaviour, Model of Personal Computer Utilisation, Motivational Model, Combined TAM and TPB, and Innovation Diffusion Theory) that were only able to describe between 17 and 53% of the variance in the user intention. The proposed four moderators (age, gender, experience, and voluntariness) that were introduced to UTAUT enhanced the predictive power of the model (Dwivedi, Rana, Jeyaraj, Clement and Williams, 2019:721); therefore, UTAUT is considered more appropriate for the study.

Odede (2018:3) states that ISP is an outstanding model that enables an understanding and examination of the entirety of the information-seeking process. The process includes stages (initiation, selection, exploration, formulation, collection, and presentation) that were considered effective. These stages explain the progress and development that constructs an important component to test and accomplish the way theoretical knowledge can be transferred to the practical situation. More so, the principles of information literacy within the context of research have been highlighted effectively by the ISP model. According to Kuhlthau, Heinström, and Todd (2008:4), ISP employs a mechanism for subject librarians to understand and employ essential instructional interventions in information to knowledge experiences that support and deliver services to students. ISP constructs are pertinent to the objectives of this study, as the study also focused on students' sentiments when searching, retrieving, and using information from the academic library throughout the process. The librarian's function is to manage and deliver information to its users; for this reason, the ISP Model was considered suitable for this study.

Table 2.2: Mapping research questions to UTAUT and ISP theoretical construct (own)

Research Questions	UTAUT Constructs	ISP Construct
What library services are provided to users, and what resources are available for remote access and use?	Facilitating conditions. Social influence.	Initiation. Selection.
What are the postgraduate students' remote usage patterns of library resources?	Performance expectancy. Effort expectancy. Social influence.	Exploration. Formulation. Collection. Presentation
What is the effectiveness of remote access?	Performance expectancy. Effort expectancy. Social influence. Facilitating conditions.	Collection. Presentation.
How does digital literacy hinder postgraduate students' remote access to the library?	Performance Expectancy. Effort Expectancy. Facilitating Condition.	Not applicable.

The table above links the research questions to theoretical constructs to indicate the relevance of the theories to this study.

2.1.4: Limitations of UTAUT and ISP

Based on the objectives of this study, the research questions were aligned with the UTAUT constructs that fit to fulfil the study's aim. Although the theory might have some shortcomings, UTAUT is found effective and suitable for this study. For this reason, this study chose to use the UTAUT theory and the new UTAUT-2. Although UTAUT theory has recently been revised, adopted, and used by various scholars, the model still has some shortcomings; therefore, it is criticised for failing to properly reflect the extrinsic circumstances that limit the performance of the behaviour (Brown et al., 2010). A study done by Van Raaij and Schepers (2008) criticised the UTAUT as being less frugal than TAM and TAM2. The naming and grouping of constructs and items is problematic due to unrelated items representing a single psychometric construct. Dwivedi et al. (2019) argue that some

studies have not applied the complete UTAUT as found in Venkatesh et al. (2003). They also claim that the moderators indicated in the original UTAUT model may not be appropriate in all settings; hence, they propose including the path from facilitating conditions to behavioural intention.

The ISP model does not consider gender difference as an area that may be used to determine users' confidence during the search process. The stages in the structure indicate that they can be achieved either simultaneously or at different times; this will place an individual in any of the stages. The possibility that any stage may be skipped or reverted throughout the process has not been expressed clearly in the model (Odede, 2018:6).

2.2: Literature review

This section aimed to introduce and enable the researcher to establish a relationship between the previous studies and the current study within the same area of library e-resources.

2.3: E-resources and services available in academic libraries

The main objectives and goals of any academic library are to enhance and strengthen the delivery of relevant and effective information resources and services to enable and support teaching, learning, and research. The library management can attain this by providing remote access to subscribed e-resources. However, many libraries have put in more effort to expand and balance available online services to ensure user satisfaction (Dadhe and Dubey, 2020). Due to the COVID-19 pandemic, academic libraries have been pushed to work harder to provide services and access to library collections to users. Therefore, libraries offer research tutorials and discipline-specific pathfinders, electronic reference materials, and user guides that display step-by-step processes on remote login to access licensed resources (Dadhe and Dubey, 2020).

Silvis, Botham and Beer (2019) evaluated the usability of information architecture of academic library websites to find usability problems and recommend possible solutions to fix the problem. The websites were examined to determine how reference information was presented and disseminated to users to ensure the effective usability of academic library e-resources. The study recommended advancing some web pages by including links to electronic resources, statements of eligibility for remote learning, authentication procedures, and information on document delivery services. De Sarkar (2015) pointed out that providing e-resources through embedded applications on personalised web page resources is least observed. Therefore, offering direct links to licensed e-resources, library research tutorials, and

electric reference materials may substantially improve the access and use of e-resources remotely, enabling effective research and learning for students off campus.

Majhi, Meher, and Maharana (2015) refer to cloud computing as Web applications used by library technologies to share services and information resources on the Internet instead of having them on local servers or personal gadgets. Therefore, the use of cloud computing has contributed to access to lots of information, communication, and learning, which is no longer confined to the classroom; instead, resources are provided and accessed remotely in virtual space (Tripathi and Pandey, 2019). Cloud computing applications have played roles in libraries to offer users e-resources and services that may not necessarily need to install specific applications in their systems, and service providers will still use these applications remotely. Therefore, the development of all kinds of services is done with the help of the Internet. Cloud computing systems may not include but are not limited to tools and applications such as software, databases, data, servers, etc., because the storage of information is stored on remote databases (Idhalama and Fidelis, 2020). Furthermore, technology pooling has enabled serving multiple users by providing data to different library users at the same time through the technology of the Internet, maximising advantage (Majhi et al., 2015).

Mobile devices and internet technology development offered by academic libraries have contributed to the growth of mobile information services. The provision of information services supported by the construction of mobile applications has integrated the essential functions of the library (Ming, Chen, and Tu, 2020). Mobile library applications with complete characteristics of mobile internet realise intelligent services such as location-based services (LBS) and book lending, have improved the delivery of library e-resources and services to meet users' needs in the mobile context. More so, access to library services and e-resources anytime from any place. For this reason, library users can break through the limitation of time and space with the help of advanced mobile technology that allows library users to connect to wireless networks and access e-resources using mobile devices (Ming et al., 2020).

Colleges and faculties have imposed Course Management Software (CMS) such as Moodle and, WebCT/Blackboard, Metacoon among others, as assessment tools and means of communication with students. CMS has enabled libraries to develop instructional design skills and improve the integration of course management tools for the libraries to reach distance users (Mukoviz, Ihnatenko, and Kovtun, 2019). CMS, also known as learning management software (LMS) or virtual learning environment (VLE) (Mărunțelu, 2019), are web-based platforms that are designed to assist in traditional classrooms and enable distance learning; CMS deliver and manage instructional content as well as assess students

work in both higher and other educational systems (Ghilay, 2019). According to Ghilay (2019), CMS have e-reserved materials embedded into online classes, although they require a password to access the e-resources, and they do not need to limit the number of copies you need, nor does it need to prevent patrons from sharing a link to an article. For this reason, students will be able to access databases and electronic reserves for classes remotely. A study done by Mukoviz et al. (2019) indicates that some CMS, such as WebCT, were effective and successfully used. Unfortunately, they are outdated and have not been improved, while Moodle has successfully been used worldwide since it is user-friendly, up-to-date and has a toolbox that allows it to be edited.

A study on the role of private university libraries in Kenya in supporting e-research by Anduvare and Mutula (2019) indicates that there were some significant infrastructures at the universities, and there was an overall lack of knowledge about research. In this case, they did not have specific strategies and policies to guide e-research. Therefore, libraries provided minimal support for this endeavour. Mgquba and Underwood (2015) suggest that there is a need for service providers to acquire new technology skills to support e-research, considering that technical skills involve the use of technology. Building in-house skills is essential for the customisation and development of library systems, such as Java web development to maintain web services, project management, and communication planning to help engage in projects involving other stakeholders such as IT staff. For this reason, professional librarians may need to take practical steps to ensure the implementation of strategic initiatives to sustain electronic information resources in the libraries. More so, librarians expect a wide range of competencies to support e-learning, access to e-resources, and the provision of services to library users (Ojukwu, 2020).

2.4: Remote access and use

The presence of electronic resources in a library without being utilised is meaningless, and regarding the concept of access and use, it is important for the patrons who are beneficiaries of the resources to use the available resources effectively. Therefore, Dukper, Sakibu, and Arthur (2018) add that utilising e-resources may be considered an effective way to achieve a specific objective. Therefore, access and use of e-resources add value and enhance a user's potential.

2.4.1: Remote access to e-resources

Information Communication and Technology (ICT) has enabled the development and growth of information resources, leading to a global phenomenon. With the help of emerging e-resources, ICT has significantly transformed information management, delivery, and usage. For this reason, technology development and growth have improved the university library set-up, enabling access to university learning resources (Adeleke and Nwalo, 2017). Somers (2015) adds that the paradigm

change has influenced and changed the way users search and use library e-resources. For this reason, the use of library e-resources has been improved. Joshua and King (2020) stated that e-resources may positively impact the information provided to students, such as access to better quality, proficient and effective information resources. Therefore, most students prefer to use e-resources for school projects, assignments, and research as well as to improve their class work and collaborations. Eden and Egbe (2016) observed that accessing up to date and relevant information resources from distinct subject areas and locations using devices such as laptops, smart-phones, and tablets was improved. Smart-phone service providers can easily connect to the internet, e-learning platforms, and social media platforms and keep pace with the current information. Therefore, providing accurate, reliable, up-to-date, and enough information to library users has enabled innovation in teaching and increased timeliness in research work by postgraduate students, leading to a productive and expected outcome (Adeleke and Nwalo, 2017).

The electronic resources usage and services in the academic library have changed how information is handled. The process is enabled by the help of ICTs, such as the university's electronic database, catalogues, research repositories, and indexes, among others, that are considered the most vital resources for information and knowledge organisation in an academic library (Saklani, 2020). For this reason, access to these resources has changed the use of traditional libraries and the attitude and expectancy of modern library users in the past few decades. And also, the nature of the work of librarians has been altered (Bentil et al., 2022). A study was done by Ayen (2015) on the relevance of reference Librarians in the 21st century aimed to examine the importance of service providers in the face of the development and growth of information technology tools that provide access to information resources from remote locations. The study revealed that librarians engage in new roles and different delivery methods, such as knowledge and digital management of information materials, organisation, and provision of electronic resources among others.

Somers (2015:25) observed that the roles of academic libraries are vital in accessing and using libraries' electronic resources. These roles have critically changed due to the technology paradigm shift. The technology change has called for a paradigm shift in information services to enable service providers to serve patrons from remote locations, including research, teaching, and critical thinking to meet and satisfy the information needs of patrons.

2.4.2: Electronic resources usage

According to Dukper et al. (2018), some library's e-resources and services may not be fully utilised because it appears that some users may not be aware of the existence of the resources. Thereby,

librarians may also need to offer training, awareness of e-resources, and develop skills to empower the use of resources from any location with ease and the use of licensed electronic resources to expand the means of access to scholarly content in the future. Moreover, Kadir et al. (2016) reveal that library staff and technology have a stronger relationship with user needs and satisfaction. Kaur and Walia (2016) add that library management is involved in the creation and management of library e-resources; therefore, to increase the usage of library e-resources effectively, libraries need to provide e-resources that are tailored to the actual needs of library users by considering the association between the library management and e-resources usage to make informed decisions.

Electronic Information Resources (EIR) have greatly supported the search for large, quality information and, therefore, succeeded in developing and growing new ways of scholarly communication and effectively restrained the physical restriction related to print resources (Eyaufe, 2018). The emergence of the Internet has revolutionised the ways of accessing and disseminating information. Adequate support from information professionals in developing e-resources and services for users has enabled the younger generation to embrace the digital learning culture and use of e-resources (Sudhier, 2016).

Ankrah and Atuase (2018) carried out a study on the use of electronic resources by postgraduate students at the University of Cape Town (UCT). The study established that most students were aware of the electronic resources that were available in the UCT library. Furthermore, they also established that most postgraduate students used e-databases but had specific e-databases that were mostly used, such as Google Scholar, EBSCOhost, SABINET, and ProQuest. Kundu (2021) analysed the use of e-resources among law students in the NUJS library. The study acknowledged that most students used e-resources for their studies because the availability of sufficient and effective e-resources in the library can fulfil the users' information needs. Edem and Egbe (2016:61) point out that e-resources allow access to up-to-date information, efficiency in full-text searching, availability of information anytime from anywhere, and quick irretrievability. The provision of hyperlinks to other resources, such as inter-library loans, enables the availability of e-resources at any time of the day from any location. The usage of e-resources depends on how difficult or easy it is to use those e-resources, as well as their availability, for this reason, the access to huge information reservoirs with relevant information has enabled easy retrieval, easy upload of information and easy citation. Therefore, the availability of relevant electronic resources 24 hours a day from any location has encouraged access and use of information materials. For this reason, students must use this opportunity presented by EIRs and IT to develop and improve their thesis effectively and produce results that meet international standards (Abubakar and Chollom, 2017). Off-campus students can also conduct their research, complete

assignments and undertake distance learning without physically visiting the library since e-resources can be accessed remotely. For this reason, physical libraries have benefited by saving storage space since they are not required to have large physical space to store information materials. It will save on the cost of tear and wear of information resources since electronic format can be uploaded, stored, archived, disseminated, shared, updated easily, and has flexible features (Joshua and King, 2020:49).

According to Kundu (2021), existing e-resources in an academic library could fulfil the users' needs, enable innovative teaching, and increase the longevity and productivity of research. Abubakar and Chollom (2017) add that the availability of relevant, up-to-date, authoritative, reliable, accurate and effective information will increase the access and use of electronic resources. Bentil et al. (2022) conducted a study to investigate the management and usage of ERs in academic libraries in Ghana to explore the connection between the two concepts of management and use; the study revealed a bi-directional influence on the use of library e-resources that both users and service providers serve as enablers and hindrances to the management and usage of e-resources at some stages. However, more hindrances were revealed than enabling activities from users and staff.

2.4.3: Access to library-licensed e-resources

Libraries have ensured that e-resources are subscribed to enable authorised patrons to provide access to library e-resources. Library users access e-resources from remote locations, and the technologies being used are better suited for users connected to the university or corporate network (Corado, 2020). The exception of remote access led to the development of authorisation and authentication methods. Access to e-resources remotely has become a norm. Therefore, service providers manage information and ensure dissemination to their users whilst users search, access, and use libraries from offices, homes, transit, and other locations. Access to e-resources has advantages and challenges due to the authorisation and authentication to access the library e-resources (Corado, 2020). According to Nagi and Parmar (2021), the access and use of licensed resources grow, and later, in some cases, they become the primary means of accessing scholarly literature in the future. Therefore, libraries may need to review various user-friendly methods and authentication systems such as 'My Library on Fingertips' (MyLOFT). MyLOFT helps facilitate seamless and secure subscribed e-resources. Moreover, it allows access to the library's licensed information material remotely. Service providers will be able to understand the level of access and use of e-resources to determine the future of remote libraries (Nagi and Parmar, 2021).

Information technologists, libraries, and vendors must consider privacy issues and user experience while selecting strategies to give access to and use licensed library e-resources. Some publisher's

license agreements limit access to the e-resources to authorised users of an institution, and this includes students and staff to ensure seamless and restricted users' access and use of library e-resources (Sharma, 2021). Therefore, academic libraries must provide various technologies such as proxy servers and Virtual Private Networks (VPN) or single sign-on for on-campus and off-campus patrons to licensed e-resources (Jayalakshmi et al., 2018).

Sharma (2021) suggests that to enable safe and continuous access to remote networks; academic libraries may need a set of manageable, authentic, and secure solutions such as Virtual Private Network (VPN), which gives access to library e-resources remotely and safely through a public network. VPN encrypts data passing through it with robust, secure algorithms to establish a secure and stable tunnel. For this reason, remote users are able to transmit data to one another through a functional network channel. This technology enables secure communication on the unreliable public internet, leading to multi-network between campuses.

EZproxy technology allows access to library e-resources by authenticating users through a password. It works between web browsers and servers and acts as an intermediary between the two ends of a user-server network connection. EZproxy is an effective tool for remote access, and it is considered an important platform for providing a single point to access subscribed library e-resources remotely; therefore, there is maximum utilisation of licensed e-resources in academic libraries (Joseph et al., 2019). Libraries' website pages can implement different methods that users can use to access restricted library content. This will enable access to e-resources through a proxy server and VPN provided to off-campus students. In contrast, students on campus are provided with wired and wireless connections. Software such as Shibboleth can be used for access through VPN networks, and in case a user is facing problems with using proxy servers the webpage provides links to troubleshooting tips (Jayalakshmi et al., 2018;4).

2.4.4: Awareness of e-resources

Access and use of library e-resources are made possible when the library users are made aware of library resources and services provided in the electronic format (Adeleke and Nwalo, 2017:52). Dukper et al. (2018) conducted a study to investigate the awareness and utilisation of electronic library resources by students of Tamale Technical University, Ghana. While, Moyo (2017) carried out a similar survey of the awareness and usage of electronic library resources in open distance learning by third-year students in the School of Arts at the University of South Africa. Both studies revealed a major challenge in the use of e-resources, which was a lack of awareness that led to the underutilisation

of e-resources. Posigha, Asagba, and Onah (2018) observed that insufficient knowledge on the existing database and a lack of training on the access to e-resources were major contributors to challenges faced during the utilisation of e-resources.

Sudhier (2016) conducted a study on awareness and use of e-journals by students of TKM College, which revealed that e-journals are the most preferred e-resources among students. The most important part that has embraced the digital culture and use of e-resources, especially electronic journals and university databases, is the information dissemination process in academic libraries. Unfortunately, lack of adequate training and improper infrastructure have brought about a major downfall in the ability of users to access and use e-resources effectively. Sejane (2017) suggested that System Librarians, Subject Librarians and other specialists need to fully embrace digital resources to enhance effective access to and use of e-resources in academic libraries. Adeleke and Nwalo (2017) are of the view that service providers assist users in making the best use of e-resources by making users aware of the library services and resources provided in electronic forms such as online databases, e-journals, e-books, internet and other computer-based electronic networks that can be accessed remotely.

Kwadzo (2015) conducted research on the awareness and usage of electronic databases by Geography and Resource Development Information Studies Graduate Students at the University of Ghana, while Akiniola et al. (2018) carried out a similar study at the University of Ibadan both studies aimed to investigate the awareness level and usage of the electronic database by graduate students in the Universities. Both studies revealed that most students had been made aware of the available databases in the Universities, and they used the resources. However, most of them were not aware of the individual databases, and the students only used what they were aware of. Therefore, there is a need for students to learn more about major channels, especially those that are relevant to their subject areas.

According to Akpojotor (2016:4), students' awareness and use of electronic information resources in the library are very important factors in the access and use of e-resources. Awareness is considered the core to using e-resources, especially those information materials that are in closed access and not easily accessed and used. Hence, their usage is by far reduced, but information materials in open access, those that are not subscribed, enable ease of access and usage.

2.4.5: Information-seeking behaviour and self-efficacy

According to Gyesi (2020), Information behaviour is the search for information to fulfil an individual's goal. Therefore, it is regarded as searching, evaluating, selecting, retrieving, and using the information to fulfil their information needs. Searching behaviour is determined by various factors such as information need, the environment, user skills to search and retrieve information, information sources,

and the infrastructure available for information search. Self-efficacy is defined as an individual's ability to perform a particular task and meet their goals, which is an attribute of self-confidence. Therefore, it's a reflection of an individual's confidence and effort with the capability to perform the behaviour required to produce an outcome that will have a positive impact (Odede, 2018). Schunk and DiBenedetto, (2021) state that self-efficacy serves an essential role in human behaviour. It influences humans' thinking patterns, emotions, and actions; therefore, emotional state or experience during a search can influence its performance.

Howlander and Islam (2019) conducted a study on undergraduate students' information-seeking behaviour and revealed that most undergraduate students have poor information-seeking and search skills because they are unaware of where to get relevant information and how to navigate around the systems to retrieve relevant information. Moreover, a study by. Khazer, Jan, and Ganaie (2016) intended to investigate researchers' learning and seeking behaviour. The study findings revealed that most researchers use e-resources compared to print resources because they believe that using electronic resources is easier due to their advanced features, such as ease of searching and browsing. However, some researchers may face problems while using e-resources; these include slow internet and power disruption.

Searching online resources sometimes varies with age; the younger generation tends to be more active and aggressive in searching and finding information online than their senior counterparts. Furthermore, students' search behaviour includes active, passive and ongoing search (Gyesi, 2020). According to Odede (2018), higher self-efficacy may impact students' efforts, thereby contributing to better results in their academic goals. Although students may be more active users of online resources than teachers, they prefer simple searches such as accessing the databases through the library links.

Alotaibi (2020) points out that in the digital age, those who search the Internet are influenced by information literacy, self-efficacy, organisational and environmental issues, and library awareness of available services and resources for remote use. Sources features, and demographics are also important in determining an individual's information-seeking behavior. Online resources keep changing over time to keep pace with the current changes. This is due to the rapid growth of technology, which positively and negatively impacts library users' behaviour while searching for information. For this reason, library users may need information literacy and guidance to help them gain knowledge and skills to navigate through the interfaces, use the new technology, and retrieve relevant information (Gyesi, 2020:19).

Das and Mandal (2021) researched to explore and examine the information needs and information-seeking behaviour of scholars in the mathematics department at the University of Burdwan. The study revealed that most scholars access and use information from the university library. According to Yahaya (2019), libraries play a significant role in influencing the behaviour of students when searching for information; therefore, it is important for library management to have the knowledge and to know and understand the user group to be served. Furthermore, students have different levels of exposure to e-resources and formats used to access information materials; therefore, different knowledge and skills in using ICTs are available at their exposure. Ternenge and Kashimana (2019) state that the increased amount and availability of information formats, such as functional e-resources, including e-databases, e-journals, e-books, emails, and the Internet, greatly impact library users' information-seeking behaviour. Although library users may still use print resources, and some may face some problems while trying to search the system's resources, they still pay attention to electronic resources because they perceive that technology has made work easier. For this reason, service providers have to re-evaluate their instructional programmes and provision of e-resources and services, and librarians must take the lead by working with academic staff and guiding students on the access and use of library resources.

2.5: Management of e-resources

The rate at which technology is growing is high, leading to a high demand for e-resources, especially in the academic environment. The demand for e-resources has pushed libraries to outsource information material, mainly in electronic format, to meet the users' needs.

E-resources have a unique characteristic compared to print resources; therefore, some management principles involved in e-resources may not apply to print resources (Bentil et al., 2021). For this reason, it is worth noting that there is a need for a functional management system for e-resources because improper management of e-resources may pose as a challenge to the development and use of e-resources in academic institutions (Abdulla and Devi, 2020). Additionally, according to Obidike and Mole (2015), the management of e-resources provides a convenient way for a user to access and use library e-resources. It is also used as a tool for the library staff to keep track of the resources accessed. According to Yisa (2021), e-resources management involves a process that includes the acquisition and organization of e-resources, as well as preservation and dissemination. Mukhtar and Miadabino (2021) add that the major procedures for effective management of library e-resources include e-resources collection policy statement, investigation of new content for purchase, acquisition,

implementation, evaluation and access, annual review, cancellation and replacement review, and lastly, preservation the material for use.

Abdulla and Devi (2020) conducted a study to analyse e-resources management at selective universities in Kirela. The study investigated the tools used to select e-resources, the technical aspects of e-resources, and the general management procedures of e-resources. The study found that with regard to the technical aspects of e-resources, the library is considered a multi-user facility of access to e-resources, Internet Protocol (IP)-based access. The library interfaces for access include Wiley Online Library, J-Gate Plus, and Spring Li. Patra (2017) conducted a study on Electronic Resource Management (ERM) in libraries of management institutes in India. The study revealed that these universities implemented library automation software but did not have operational procedures regarding e-resources management. According to Heaton (2020), e-resource management systems provide support but do not fully address the challenges of e-resources management. For this reason, most institutions have not implemented e-resource management systems because of financial constraints and a lack of expertise and skills needed to effectively manage e-resources (Hawash, Mokhtar, Yusof, and Mukred, 2020).

2.5.1: Library Management System

All academic libraries are responsible for providing reliable, up-to-date, complete, and optimum information resources to their users with different information needs (Peacock, 2022). A functional and active library system makes it ideal for students to access and use available library resources effectively. Therefore, a library system is designed to improve and maintain their services and resources by keeping them up-to-date and accessible for use (Syam, Indah and Fadhli, 2021).

According to Verma and Nair (2023), e-resources management systems are important in a library setup because it is used to manage the workflow of e-resources, such as the provision of applications that perform technical functions of a library which includes Online Public Access Catalogue (OPAC), reports, acquisition of new materials, cataloguing, and circulation. However, cost must be considered an important factor to avoid using commercial e-resources management systems. Wintolo and Farhati (2020) assert that the Library Information management system is freely available, and it is also designed to support library services and activities.

2.6: Factors that affect the utilisation of e-resources

A study by Posigha et al. (2018) on the access and management of e-resources in libraries and information centres revealed that there is a high rate of acceptance and usage of e-resources. Unfortunately, some challenges prohibit the effective use of e-resources. Most students cannot retrieve enough relevant information needed due to the lack of adequate search skills, erratic power supply,

and low bandwidth subscription that have proved to inhibit their utilisation. Soni, Gupta, and Shrivastava (2018) found that a lack of knowledge to search for information from suitable sources and inadequate training in retrieving information led to students being unable to get the useful information needed. This is because of the complicated searching interface and the frustrations of information overload, hence time wastage while retrieving irrelevant information.

Buhari (2016) pointed out major challenges that affect the management and use of resources such as inadequate infrastructure, slow internet connection, lack of access from home, access to back issues, difficulty in finding information and slow download speed. Acheampong, Boakye and Agyekum (2019) posit that these challenges lead to more limitations, such as reluctance to use electronic resources on a regular basis, low satisfaction with the use of e-resources, and the identified restrictions that may hinder the usage of electronic information in the universities. Dukper et al. (2018), pointed out that students' usage of electronic resources was negatively affected due to inadequate facilities provided for electronic use. For this reason, library professionals must try hard to ensure they have mechanisms that will sustain the provision of electronic information resources in their libraries. Additionally, the association between management and usage of e-resources must be considered to ensure informed decisions are made.

Mwantimwa and Elia (2017) found out that the existence of libraries and their resources not only enhances the ability to provide richer learning and research for students but also gives students an opportunity to retain and enhance personal knowledge. Therefore, librarians must provide training and orientation on search and retrieval skills to their users and create more awareness of the available resources (Moyo, 2017). More so, collaboration between faculties and library faculty is one of the measures that can help highlight possible ways to enlighten library users on the access and use of library e-resources. Libraries' infrastructure, unstable Internet servers that interrupt Internet connections, and electricity supply are considered a hindrance for users who need access to e-resources on-site and off-site. Therefore, generators are advised to be installed to support electricity and independent internet servers to supply uninterrupted Internet connections, especially for library users accessing information onsite (Yebowaah and Plockey, 2017).

The demand for remote access is increasing, as is the development of technology that delivers and retrieves information. For this reason, information users may encounter a challenge that may serve as a destructive force to deny library users the chance to explore the e-resources and use them as expected effectively. Therefore, librarians need to understand the needs of remote users as thoroughly as possible to deliver the overall quality of instructions that may not hinder the quest for information of

library users (Soni et al., 2018:57). Remote access to e-resources may also hinder the effective use of subscribed library material, this is caused by user registrations to authorise and authenticate the access of such materials. The use of passwords and usernames assigned may cause frustration due to a turnaround between the time a request was submitted and actual confirmation (Sharmar, 2021).

According to Thindwa, Chawinga, and Dube (2019), students find it difficult to search for information effectively and use specific information resources because they do not know how to search databases and different websites effectively. This makes it difficult for them to use information ethically; hence, they cannot access the relevant and quality information they need. Therefore, students are required to identify effective ways to intensify research activities by getting involved with research groups and research projects. They can achieve their academic demands and personal needs in the learning and research process if they master digital information and can find, interpret, evaluate, and use information efficiently and ethically.

According to Rafiq et al. (2021:7), the COVID-19 pandemic hit the functioning of academic libraries very hard since learning was ongoing, and educational institutions had to completely close down or switch to online learning. However, some libraries were in the process of developing digital collections but were not yet ready for a complete switch to serving patrons remotely. For this reason, not all patrons would benefit equally from online services due to geographical barriers, poor infrastructure, and families of low income.

2.7: Summary of the chapter

This chapter introduces the theoretical framework and literature review, whereas in the theoretical framework, the two models provide a framework in specific areas where librarians and students can support each other in accessing and using on-campus and off-campus library resources. According to Bapte (2017), Kuhlthau has considered the cognitive aspects of the researcher and their effect on the information-seeking process; Kuhlthau's grounded theory of the search process emerged from Kelly's phases of construction. The theory states that human function is the result of personal (Cognitive, emotional and biological events), behavioural and environmental influences. Therefore, it affects people's self-efficacy, personal standards, emotional state, and aspirations. The UTAUT model has been found to be suitable for use by higher institutions. The use of open access initiatives, access and use of library e-resources and other related websites (Chaputula, 2016:30). The elements of (PE, EE, SI and FC) moderated by age, gender, experience, and voluntariness in the UTAUT model are relevant for the study.

Several studies were reviewed regarding the access and use of library e-resources. The chapter examined the available e-resources and services that academic libraries offer to enable access and use of the resources on-campus and off-campus, and lastly, some challenges were reviewed and found that information access challenges may serve as a destructive force to deny students the chance to effectively explore the e-resources and use them as expected.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0: Introduction

The methodology section is an integral part of any study, as it outlines the researcher's rules, methods, and beliefs guiding the study. It is a framework of theories and principles based on procedures, techniques, and practices when implementing a research design. A researcher can systematically describe, explain and predict a phenomenon through methodology, providing a work plan for conducting research that aligns with the study context (Kothari, 2004:8). Methodology refers to the techniques employed for research, encompassing decisions on the research design, subject selection, data collection methods, and analysis (Creswell, 2009:365). Therefore, the methodology uses the appropriate forms and techniques to solve research problems in a particular study. Research is a logical and systematic process that aims for a dependable solution. By utilising the appropriate forms and procedures, the methodology enables researchers to address research problems within a particular study effectively (Rajasekar, Philominathan, and Chinnathambi, 2006:5). Moreover, research is an investigation that leads to the interpretation and discovery of new knowledge through systematic data collection, analysis, and interpretation. Effective planning and strategies, such as research design, data collection, and analysis methods, are necessary for successful research outcomes. In light of the above, this chapter outlines the research methods used to study the remote access, use, and administration of library e-resources, particularly on the UKZN library, Pietermaritzburg campus.

3.1: Research paradigms

Research paradigms are a set of values, beliefs and principles that guide how research is conducted and interpreted. These beliefs include knowledge creation, ontology, axiology, methods of collecting and analysing data, and interrelated practices employed to conduct research. Moreover, research paradigms guide researchers to perceive the world based on their assumptions and beliefs (Bryman, 1988:4).

Kuhn (1962:7) viewed the paradigm as a cluster of beliefs, variables, and concepts that influence what should be studied, how research is conducted, and how the results are interpreted. These definitions agree that research paradigms are crucial to research and guide a specific study's design, methods, and data interpretation. There are several research paradigm approaches, including positivism, interpretivism, constructivism, and critical (Pickard, 2013:10). A post-positivism paradigm guided this study on remote access, use, and management of library e-resources at UKZN. This approach

investigates the remote access to, use, and management of library e-resources, providing a structured and objective method for collecting and analysing data.

3.1.1: Positivism

Positivism is an approach that aims to apply a natural science model to efficiently explain a phenomenon of study. It is guided by objectivity, distance, control, reliability, and external and internal validity, thereby validating the quality of the research. Furthermore, positivism can be referred to as empirical science, quantitative research and post-positivism (Babbie and Mouton, 2001:645). Post-positivism allows the employment of both approaches (quantitative and qualitative) in a single study to enhance each other when evaluating the results (Gray 2004:8). For this reason, the current study used post-positivism paradigm, although the quantitative was the dominant approach adopted for the study. Post-positivism in this study was used to test the influence of independent variables, including accessibility, utilisation and management of e-resources by postgraduate students in the School of Social Science and the Subject librarians in the UKZN library, Pietermaritzburg.

3.2: Research approach

Creswell (2013:31) defines research approach as the plan and techniques/procedures to gather data and information for a research study. The choice of research approach is critical to the success of the research as it influences the collection, analysis, and interpretation of data. The current study employed two research methods. Quantitative and qualitative approaches were deployed during data collection, process, and analysis, but the main approach for the study was the quantitative method. Using quantitative and qualitative methods to collect data was necessary to encompass a holistic approach to accessing, using, and managing library e-resources.

3.2.1: Quantitative method

Quantitative research investigates a specific population phenomenon through numerical data and statistical analysis. Its main objective is to measure and quantify the relationships between variables while ensuring generalizability to a larger population (Kothari, 2004:3; Lodico, Spaulding, and Voegtler, 2006:12). Quantitative research follows a structured approach involving predetermined research questions and hypotheses guiding the research process. It utilises standardised procedures to collect, analyse, and interpret data while emphasising objective measures to minimise bias and subjectivity (Creswell, 2014:32). Quantitative research results are often presented using statistical analysis and visual aids such as tables, charts, and graphs. In brief, quantitative research is a rigorous and systematic approach that enables researchers to make precise and testable claims about the phenomenon being studied. According to Teddlie and Tashakkori (2009:256), the quantitative research

approach is a research method that uses numerical data and statistical analyses to conclude a population or phenomenon of interest. This approach is appropriate for this study as it allows massive amounts of data to be collected and statistically analysed to identify patterns and linkages.

3.2.2: Qualitative Method

The qualitative approach is primarily based on constructive ideas; it entails the analysis of events in natural situations in the same manner that qualitative research is conducted. Qualitative research is a non-statistical data technique that employs inquiry strategies such as phenomenology, case studies, ethnographies, narratives, and grounded theory investigations, among other methods of research practices. Qualitative research enables researchers to collect open-ended and developing materials, with the primary purpose of extracting logical inferences from them (Gorman and Clayton, 2005: 3). Qualitative research is used to address questions about the complex nature of events and covers a broad range of topics, including opinions, behaviour and attitudes, thereby, answer questions on the complicated nature of occurrences to describe and explain the phenomena from the participants' perspective (Kothari, 2004:5). For this reason, the qualitative approach provides a deep interpretation of a given phenomenon, thereby, qualitative can also be referred to as interpretive approach. Qualitative data objective is accomplished through various ways, such as observations, interviews and document analysis; thereby, active participation in the research process allows a greater grasp of the issues being investigated and enhances diverse views on the subjects examined (Kumar, 2011).

3.3: Research design

Research design is essential for providing a method of data collection and an analysis framework. It ensures that the survey is conducted systematically and rigorously. Thereby, conditions are laid down to ensure the aim of the research is accomplished (Kothari, 2004:31). Research design involves specifying operations for adequate performance to test a specific hypothesis under given conditions. It aims to link the relevance of research with the economic procedure and plan that guides the arrangement of requirements for data collection and analysis (Kothari, 2004:31). A research design is a thorough plan and strategy for study, including assumptions, data collection methods, and analysis. It is considered a practical plan that links research methods and techniques to acquire reliable and effective results from empirically collected and analysed data (Yin 1989:21) A good research design should possess specific characteristics such as flexibility, efficiency, appropriateness, and cost-effectiveness.

Furthermore, Kothari (2004:35) adds that multiple research designs must guide various research studies to facilitate a practical and sound design. In the current study, a descriptive survey research

design was used. The descriptive research design is appropriate for this study because it describes and interprets the characteristics of a specific population or phenomenon under investigation (Powell and Connaway, 2004:83). A questionnaire is a suitable data collection method for descriptive research; it allows for collecting quantitative data. Moreover, interviews for qualitative data were used to help in the analysis description of an in-depth understanding of the phenomenon under investigation. Overall, a well-designed research study is essential for ensuring that the research questions are effectively addressed and produce reliable and valid results.

3.3.1: Descriptive survey

Descriptive research involves collecting and analysing data to describe existing variables and situations. Descriptive analysis is often used to evaluate and interpret the present status of a phenomenon and describe what currently exists (Singh, 2006:104). This research type is non-experimental and suitable for collecting data using questionnaires and structured interviews. Thereby, descriptive survey research allows for collecting data from various respondents, including those who provide quantitative and qualitative data (Singh, 2006:105). Additionally, structured interviews and questionnaires are frequently employed in social science research to acquire empirical data. Questionnaires and interview schedules allow researchers to ask questions directly to the study's target respondents, which provides a way to collect quantitative data and statistically analyse the data collected (Creswell, 2013:239). Using a descriptive survey method is appropriate for social research because it has comprehensive coverage and allows for accumulating a large amount of data from a diverse range of respondents. The current study used a descriptive survey to collect empirical data from the UKZN library to describe the state of remote access, use, and management of e-resources.

3.4: Data Collection Methods and Procedures

The data collection methods should be carefully selected to guarantee that the information gathered is relevant, accurate, and dependable. The current study used questionnaires and interviews to collect data.

3.4.1: Methods

Methods in the study depend on the research question and objectives. One potential method is a research survey widely used for data collection. Thereby, the survey is considered the most preferred method to collect data that describes the characteristics of a population (Birley and Moreland, 1998:34; Babbie and Mouton, 2001:232;). A research survey was used to collect data on participants' usage and management of library e-resources. The survey includes closed-ended questions, which provide a set of predefined responses for participants to choose from, and open-ended questions, which allow

participants to express their opinions and experiences in their own words (Maree, 2007:161). On the other hand, interviews can provide in-depth information on participants' experiences and perceptions of remote access and the use of library e-resources. These can be conducted in person or remotely using video conferencing software or voice calls.

Table 3.1: Mapping research objectives to data collection tools.

Research Objectives	Data collection tools
To identify the library services and resources available for remote access and use at the UKZN library.	Questionnaire
To determine the usage pattern of library e-resources by postgraduate students.	Questionnaire and Interview schedule
To examine the efficacy of the library system for remote use.	Interview schedule
To determine the challenges faced by postgraduate students accessing the library remotely.	Questionnaire and Interview Schedule

The research utilised structured and semi-structured interview formats, depending on the research objectives and the flexibility required to capture the necessary information (See Table 3.1). This method can provide insights into patterns of use, frequency of access, and areas of interest. Consequently, selecting methods depends on the research question, objectives, and available resources. The researcher must ensure that the chosen methods are appropriate for the research topic and can provide accurate and relevant data (Chaputula, 2016). Therefore, the study used Internet Mediate Research (IMR) tools to collect data from the respondents. IMR tools are effective since they are time and cost-effective, allowing the researcher to collect data from a distance. Moreover, IMR tools allow an atmosphere of trust, making the responses confidential and anonymous, as well as the management of library e-resources.

Although IMR tools may be considered effective for data collection, they still have some challenges that may cause some discrepancies during data collection, such as unexpected breakdowns due to

software and hardware failures, power and Internet failures, especially during interviews (Fielding, Lee, and Blank, 2017:59). The current study used Google forms for survey questionnaires that were sent to respondents for quantitative data collection. A link was created and shared amongst the respondents via WhatsApp groups and emails, while interviews were conducted via Zoom meetings with the Subject Librarians to collect qualitative data

3.4.2: Instruments

The study used two instruments to collect participants' data on remote access, use, and management of library e-resources. These include self-administered questionnaires to collect quantitative data and interview schedules for qualitative data (Pickard, 2013:20). Tools used should be designed to capture relevant information and ensure the validity and reliability of the research findings. Therefore, it is important to pretest the instruments before using them to collect data (Powell,1997:105). The current study designed the survey questions to capture specific information, such as the types of e-resources used, the reasons for using the resources, and the level of technical support required. Questionnaires (see Appendix Four) were used to collect quantitative data on the participants' access and use of library e-resources, including frequency of use and any challenges encountered while using the e-resources.

Interview schedules were used to collect data on the participants' experiences with remote access and library e-resources. The semi-structured interview allows flexibility and captures unexpected insights (Motulsky, 2021). The questions were designed to explore the participants' opinions and perceptions on the effectiveness of remote access to library e-resources and any challenges encountered while using the resources.

3.4.2.1: Questionnaire

Questionnaires are considered listings that intend to acquire data from target respondents. They contain a list of written questions to be responded to in writing by the subjects being studied (Singh, 2006:192). There are two sorts of questions: open-ended(unrestricted) and closed-ended (restricted). This study employed open-ended and closed-ended questions to collect subjective and objective data in both formats. Open questions in this survey allowed respondents to respond on their terms and provide unprompted thoughts. Open inquiries are advantageous because they allow respondents to react in their own words and provide unprompted answers, which may be beneficial. Closed questions require the respondent to choose an answer from a list provided by the researcher. The possible answers are set out in a closed question (Singh, 2006:193).

The questionnaire in this study included closed-ended questions to gather specific information about the participants' (postgraduate students) use of e-resources, such as frequency of use and perceived

barriers to access. Open-ended questions allow participants to share more detailed feedback and insights; for example, postgraduate students who indicated that they did not use e-resources were asked to justify their answers. The study used IMR tools, such as Google Forms to distribute questionnaires to the respondents through a link created and shared to their emails and WhatsApp groups. The questionnaire aimed to obtain quantitative data, which was analysed using statistical methods such as SPSS to identify patterns and relationships between variables. This approach provided a comprehensive understanding of the research problem and enabled statistical data analysis.

The questionnaire was organised into sections; therefore, the study's questionnaire consists of four sections corresponding to the study questions, as indicated in Chapter One. These sections include:

- a) Demographic information.
- b) Identification of remotely accessed resources and services.
- c) Identification of devices, format, usefulness and techniques for accessing the library's e-resources.
- d) Barriers encountered when accessing and using library e-resources remotely.

3.4.2.2: Interview schedule

Pickard (2013) considers interviews as a method of collecting data consisting of semi-structured interviews with selected participants, including service providers, to gather in-depth information about their experiences with remote access and use of library e-resources. An interview schedule is a data collection method that allows an information seeker to understand a topic of concern through face-to-face interaction or phone calls with the respondent (Creswell, 2013:239). Interviewing entails eliciting information from respondents via verbal contact between them and the researcher (Kumar,2011:389). Interviews can be structured, semi-structured, or unstructured. When an interview guide is followed, the suitability of a semi-structured interview is guaranteed. This provides a more precise set of directions and instructions that will aid in collecting accurate data for a qualitative study (Sejane, 2017).

A structured interview follows the same pattern as a questionnaire. The researcher might choose from various answer systems or question kinds to acquire the necessary information. In this approach, a researcher reads questions from the questionnaire to the respondent and records the respondent's response to the questionnaire (Sejane, 2017). This study used semi-structured interviews to collect data from the respondents. Interview schedules were distributed to the Subject Librarians at the designated UKZN Pietermaritzburg library (Cecil Renaud Library) so that they would be aware of the questions

they would be asked. Therefore, a copy of the interview schedule was sent to the Subject Librarians via email before the day scheduled for the interview.

3.5: Population of the Study

This study comprised postgraduate students, including (Master and PhD) in the School of Social Sciences and library service providers (Subject Librarians) from the University of KwaZulu-Natal, Pietermaritzburg (UKZNP), who have access to the library's e-resources. Snyder (2019) defines the population of a study as a group of individuals on which the investigation will be focused. Specifically, the study focused on those utilising the library's e-resources remotely. It encompasses diverse individuals, including postgraduate students and Subject Librarians. Moreover, it was essential to align with the study's specific needs by understanding the population's interests, including age, educational level, and occupation. The study requires individuals who can access the resources for learning/reading, research and management of library e-resources.

3.5.1: Sampling

The study selects a subset of the population to be used as representatives for the study; the selected portion of the population is referred to as a sample. Sampling consists of probability and non-probability sampling (Singh, 2006:85). Probability and non-probability sampling techniques are the two main sampling methods researchers can use (Bhardwaj, 2019). Probability sampling is a technique that randomly selects participants from the population of interest, ensuring that the sample represents the population (Singh, 2006:85). Probability sampling methods can be time-consuming and expensive but provide the most accurate results. On the other hand, non-probability sampling methods, such as convenience and purposive sampling, are less time-consuming and less costly than probability sampling (Pace,2021:6).

The research study used a purposive sampling technique to ensure that the sample is representative of the target population. Teddlie and Tashakori (2009:170) define purposive sampling as selecting individuals based on the research objectives of a study. It allows researchers to gather data from a target population that can provide in-depth and meaningful insights related to the research question. The sample size was determined using the appropriate statistical methods to ensure it was adequate for the study's objectives. The study aimed to gather information from a representative population sample to derive significant judgements about the current condition of remote access, use, and management of e-resources provided by the UKZN library. By targeting this population, the study aimed to provide insights into the challenges faced by users and the library in providing remote access to e-resources and identify potential solutions to address these challenges.

3.5.2: Sampling Techniques and Procedure

Sampling techniques and procedures are essential for obtaining accurate and reliable data in any research study. The sample size must be determined to ensure that it is large enough to produce reliable results but not too large that it becomes difficult to manage or analyse the data (Bhardwaj, 2019). The research ensured that the sampling procedure was free of bias and represented the population of interest. Another critical consideration was documenting the sampling procedure to ensure that other researchers could replicate the study and review the sampling process.

The study adopted a purposive sampling technique for postgraduate students and Subject Librarians, an approach employed in in-depth investigations in which the researcher selects volunteers knowledgeable about a problem relevant to the study. The researcher further adopted a mathematical formula suggested by Taro Yemen (1970) to determine the sample size of postgraduate students (Nyakweba, 2016).

$$n = N/1+N(e)^2$$

N is the population size, e is the error level, and n is the sample size. The study will employ the 95% confidence level to achieve a more accurate sample result. Therefore, the error(e) term will equal 0.01. The sample was calculated as follows:

$$N = 195$$

$$e = 0.01$$

$$\text{therefore: } n = 195/1+195(0.01)^2$$

$$n = 195/1.96$$

$$n = 99.48$$

$$n = 100$$

Therefore, 100 postgraduate students were selected by reaching out to groups of postgraduate students in the College of Humanities, School of Social Sciences, via WhatsApp groups and emails who are believed to have used the library resources and eight Subject Librarians for the survey. The specific group was chosen because, other than completing assignments, they engage in research that needs more time and adequate resources, including access to library resources from anywhere. All Subject

Librarians on the Pietermaritzburg campus were purposively selected because they are in charge of the interface. Therefore, the management and use of e-resources depend on the service providers to deliver relevant and effective e-resources to information seekers.

3.5.3: Data collection procedure

Several procedures were followed to study remote access, use, and management of library e-resources. Permission to conduct research in the UKZN library was sought, and the gatekeeper's permission was granted (see Appendix Five). This study employed self-administered questionnaires to collect quantitative data from postgraduate students and interview schedules to collect qualitative data from Subject Librarians. Data was collected through surveys and interviews from 1st August to 10th September 2023. The questionnaire was distributed online to collect quantitative data on participants' use and management of library e-resources.

Conversely, the interviews were conducted via Zoom video conferencing platform for qualitative data, providing a more in-depth exploration of participants' experiences and perspectives. Therefore, IMR tools, such as Google Forms, were used to distribute survey questionnaires for quantitative data collection. Google Form link was sent to postgraduates via WhatsApp groups and emails on the UKZN, Pietermaritzburg campus. Qualitative data was collected through structured interviews via Zoom meeting services arranged with the participants who consented to participate in the study, and interview schedules were sent via email to the participants before the interview.

3.6: Data analysis techniques

The data analysis techniques used in the study on remote access, use, and management of library e-resources depended on the research questions and the data collection type. Data analysis entails studying and examining the outcome to determine the facts and make it meaningful (Singh, 2006:232). Additionally, Gorman and Clayton (2005:206) add that data analysis derives some meaning from the data collected for the project. Therefore, it is a computing process with various summaries and values derived from the information collected.

The study used quantitative and qualitative data analysis techniques. For quantitative data, the study used descriptive statistics to summarise the data, and statistics such as regression analysis and SPSS were used to analyse the variables. Additionally, the research used data visualisation techniques such as graphs and charts to present the data clearly and concisely. A different method was used for qualitative data, including thematic analysis, to identify patterns, themes, and relationships within the data. For this reason, data collected through surveys was sorted and coded before being analysed using SPSS, and data was presented in tables to show the numerical values of the results. In most

circumstances, symbols such as tables and figures depict outcomes that cannot be easily conveyed in words. Thematic material was used to analyse data acquired from interview schedules. For this reason, descriptive statistics (frequency counts and percentages) were used to handle and summarise numerical data.

Moreover, the quantitative and qualitative data provide a more comprehensive and nuanced understanding of the research topic. Creswell (2013:251) highlighted another vital consideration, triangulation, where data from multiple sources are compared and contrasted to increase the findings' validity and reliability. This study used a statistical package for social science (SPSS) version 20.0 to analyse the quantitative data collected. To justify using SPSS, it offers an extensive range of methods, charts, graphs, and procedures used in the social sciences. Furthermore, figures and tables were used in the study to understand and make it easier to interpret the research findings.

3.7: Validity and Reliability of the Research Instruments

The validity and reliability of research instruments are critical to ensuring that study findings are accurate and credible. In the case of the study on remote access, use, and management of library e-resources, the researcher ensured that the instruments used to collect data were valid and reliable to ensure accuracy and produce quality results (Teddlie and Tashakori, 2009:211).

Validity is the amount to which a research instrument measures what it purports to assess, whereas reliability is the consistency of results received from a research tool (Babbie and Mouton, 2001:119). Furthermore, to ensure reliability in the study, the survey questions and interview prompts must be clear, unambiguous, and free from bias.

In the current study, the survey questions and interview prompts were designed to capture the relevant information about the participants' use and management of library e-resources. On the other hand, to ensure validity, the researcher pre-tested the instruments and made necessary adjustments before administering them to the participants.

Additionally, test-retest reliability should be relevant for the study, where the same survey or interview is administered twice to the same group of participants to ensure consistent results (Babbie, 2007:143). In brief, the validity and reliability of research instruments are crucial for ensuring the accuracy and credibility of research findings. Various techniques, such as test-retest reliability, are essential to increase the validity and reliability of the instruments used in the survey of remote access, use, and management of library e-resources (Birley and Moreland,1998:41).

3.7.1: Pre-testing the instruments

Pre-testing is considered the method that measures and validates research instruments; therefore, this process allows the testing of tools to facilitate the adequacy of the items of the questionnaire and interview schedules. Moreover, the researcher is expected to use the same instrument to carry out the pretest (Creswell, 2013:236). Pretesting helps to avoid ambiguities in the questions in a larger study; for this reason, pre-testing ensures that all instructions are clear and understandable and that the questions are straightforward and easy to understand (Kothari, 2004).

The study conducted a pretest of research instruments to ensure the dependability of the research tools and that they were adequate for data collection. For this study, the researcher pretested the questionnaires on ten postgraduate students from the UKZN, Howards College, who were not among the main participants in the study. The reason for using this group of students in the pre-test was because all of them were postgraduate students with similar characteristics to those of the UKZN, Pietermaritzburg campus and interview schedules were pretested on two subject librarians from the UKZN, Howards College.

Data collected for the pretest was online in ten days (16th July 2023 to 26th July 2023). Google forms were created and sent to the participants (postgraduate students) to fill out and submit. Interview schedules were emailed to the Subject Librarians before the interview day, and the interviews were conducted on Zoom. All the respondents returned the questionnaires with some comments, which indicated that the questionnaires were clear and fit for data collection.

The pre-test results indicate that the items in the questionnaire were clear and straightforward; hence, the participants could fill them out without any difficulties. For this reason, no adjustments were made to the instruments, as no problems were identified. The interviews conducted to pretest interview schedule confirmed that they were fit for use; therefore, no adjustments were made.

3.8: Ethical consideration

Ethics play a crucial role in any research process, and researchers are responsible for upholding ethical principles and ensuring that their studies are conducted ethically (Babbie, 2007: 27) Ethical consideration involves several important considerations, such as obtaining informed consent from study participants, safeguarding their privacy and confidentiality, minimise any potential harm or risks, and evaluate whether the benefits of the research outweigh any possible negative consequences (Creswell, 2009:87). In this study, the researcher ensured that the study was conducted fairly, transparently, and with respect for the rights and dignity of all involved. Ultimately, this helps maintain the integrity of the research process and ensures that it benefits both the scientific community and

society. Furthermore, the current study adhered to the UKZN ethics policy guidelines (UKZN, 2014), and an ethical clearance letter was obtained (See Appendix 6).

Voluntary participation and informed consent are two vital ethical considerations that were applied in this research. Ethical considerations such as voluntary participation and informed consent are crucial in ensuring that research is conducted ethically and that participants' rights and welfare are protected. According to Pickering and Kara (2017), obtaining informed consent is not a one-time event but an ongoing process throughout the study. Researchers must ensure that participants are continuously informed about any changes in the study that may affect their participation. Researchers will also protect the privacy and confidentiality of the participants by using anonymised data and keeping their identities confidential.

3.8.1: Voluntary participation

One of the essential ethical principles in research is voluntary participation. It recognises participants' right to self-determination and emphasises their autonomy in deciding whether or not to participate in the study (Neuman, 2003:124). Researchers must provide comprehensive and detailed information about the study, including its purpose, procedures, risks, and benefits, to ensure voluntary participation. Information should be communicated to participants in clear and understandable language, and researchers must be available to answer participants' questions or concerns (Golder, Ahmed, Norman, and Booth, 2017: 190). Participants must not feel pressured, intimidated, or coerced into participating in the study. They should be free to make their own decisions without undue influence, whether from researchers or others.

Moreover, participants should be able to withdraw from the study without facing any negative consequences. Sim and Waterfield (2019) highlight that researchers should clarify to participants that they can withdraw their consent without facing any punishment, loss of benefits, or other adverse outcomes. Researchers can uphold participants' rights, promote their dignity, and protect them from potential harm or exploitation by ensuring voluntary participation (Sim and Waterfield, 2019). This principle is fundamental in studies involving vulnerable populations, such as children, older people, or those with cognitive or physical disabilities, where the risk of coercion or undue influence may be higher (Pickering and Kara, 2017). Ultimately, voluntary participation is essential in upholding the integrity and credibility of research and ensuring that it contributes to advancing knowledge while respecting the rights and welfare of human subjects.

3.8.2: Informed consent

Informed consent provides participants with clear and understandable information about the research project, including its purpose, methods, expected outcomes, and risks. It ensures that participants can make an informed decision about their participation in the study (Bailey, 1982:428). For this reason, the purpose of the research was explained to the respondents: being informed is essential to ethical decision-making. This concept highlights the moral obligation of individuals to gather and carefully consider all relevant information before making decisions that may impact others.

Consequently, decision-makers are better equipped to make sound, well-reasoned decisions promoting transparency, fairness, and accountability (Golder et al., 2017:16). It must involve the research and any potential risks or benefits and inform participants of their right to withdraw from the study at any time. In this study, participants were given a written informed consent form (See Appendix 1 and 2) to sign, indicating that they understood the information provided and voluntarily agreed to participate.

3.9: Dissemination of research findings

Dissemination of research findings is an essential component of the research process, as it allows for sharing results with a broader audience, thereby having a more significant impact (Klar et al., 2020). The dissemination process involves sharing research findings with various stakeholders, including policymakers, other researchers, practitioners, and the general public. Hanneke and Link (2019) state that multiple methods of disseminating research findings include publishing in academic journals, presenting at conferences, creating reports and infographics, and using social media platforms (Hanneke and Link, 2019). Considering the target audience and the best approach to communicate the information effectively is essential. The dissemination method chosen should suit the audience's style and format preferences.

Furthermore, disseminating research findings can also involve engagement with stakeholders to ensure that the research results are relevant and applicable to their needs (Hanneke and Link, 2019). Consultation with stakeholders can be achieved through workshops, focus groups, and other forms of engagement, which helps to ensure that research findings are practical and can be implemented in practice (Sim and Waterfield, 2019). It is important to consider ethical considerations during the dissemination process, particularly concerning confidentiality and anonymity. Researchers should avoid disclosing personal information about participants without their consent and present results in a way that does not stigmatise or harm any individual or group.

3.10: Summary of the chapter

Chapter three presented the methodology used in this study. The study used the positivist paradigm, which allowed for the collection of both quantitative and qualitative data. The study's population included eight Subject Librarians and 100 postgraduate students at the University of KwaZulu-Natal, PMB campus. Purposive sampling was used to select the sample for the study. A survey questionnaire was used to obtain quantitative data, while scheduled interviews were used for qualitative data. The instruments were pretested to validate them and ensure they were effective for data collection. SPSS software was used to analyse quantitative data, while qualitative data was analysed using thematic content analysis. Finally, the study followed the UKZN ethical guidelines provided.

CHAPTER FOUR.

DATA ANALYSIS AND PRESENTATION

4.0: Introduction.

The chapter presents the analysis and findings derived from the research instruments used to collect data. These are structured interviews and survey questionnaires. The analysis and findings are organised and presented following the sections of the research instruments. Furthermore, data analysis necessitates the researcher separating data into multiple portions to obtain answers to research questions (Singh, 2006:223). Therefore, the main goal of data analysis and presentation is to answer empirical results and summarise the study's research topic to reach conclusions. Therefore, the chapter analysed and presented data on the remote access, use, and management of library e-resources in the UKZN library by the selected postgraduate students in the School of Social Sciences and Subject Librarians at the UKZN, Pietermaritzburg campus. Data analysis and presentation were based on the constructs of ISP and UTAUT theories adopted for this study. The study addressed four research questions that were compatible with the UTAUT and ISP models used to collect data for this investigation. The research questions were:

- 1) What library services and resources are available for remote access and use?
- 2) What are the postgraduate student's remote usage patterns of library resources?
- 3) What is the efficacy of the UKZN library systems in providing remote access and self-efficacy of postgraduate students?
- 4) What digital literacy barriers hinder postgraduate students' remote access to the library?

The study employed descriptive statistics to portray the findings in accordance with the submission that figures and frequencies can best represent perspectives on quantitative data. Thematic analysis was employed to analyse qualitative data from the interview schedules. The results of the questionnaire are presented according to the main sections of the instrument in the following order:

- Demographic information.
- Remotely accessed resources and services.
- Identification of devices and techniques used when accessing the library's e-resources.
- Barriers encountered when accessing and using library e-resources remotely.

Qualitative data findings are presented in the following order according to the main sections of the interview schedule:

- Information literacy skills of postgraduate students.
- Information efficacy amongst librarians and social science postgraduate students.
- Students' usage patterns of electronic information resources.
- Information literacy barriers when using e-resources.

The questionnaire results are presented first, followed by qualitative data collected from the interview schedule; therefore, data from each instrument is presented separately. The percentages of the questionnaire results were rounded off to one decimal point; due to the rounding off to one decimal point, some percentages were slightly higher than 100%. Some of the questions allowed the respondents to choose multiple responses; hence, the percentage does not equal 100 percent.

4.1: Response rate

The total number of participants who consent to the study, such as respondents who completed and returned the survey questionnaires, is the response rate. The response rate is the percentage of people who filled out and returned the questionnaires. Therefore, the evaluation of survey quality is based on the response rate. According to Bryman (2012:224), the appropriate survey response rate should be 60% or more. Therefore, 60-79% is acceptable, 80% and more is outstanding and satisfactory for researchers, has great credibility, and is acceptable in any social science research. Moreover, greater credibility.

The study sampled eight subject librarians for the interview. All eight were from the UKZN (Cecil Renaud) library, Pietermaritzburg campus to represent all the UKZN libraries. For this reason, all eight service providers were contacted for the interview; the researcher managed to conduct the interviews with five. This is because of the time constraints and commitment of some of the service providers. The response rate of 62.5% was satisfactory, with five respondents, while three did not respond.

The response rate percentage for the questionnaires was calculated as the total number of returned questionnaires (70 returned) divided by the total number of distributed questionnaires (100 distributed), multiplied by 100. Moreover, the response rate of participants has been used to document and evaluate survey quality (Johnson and Wisler,2012:1805). The study targeted 100 postgraduate students who were sent the questionnaires; 70 questionnaires were completed and returned, giving a response rate of 70(70%); see Table 4.1 below.

Table 4.1: Response rate of UKZN postgraduate students

Data collection tools	Expected respondents	Filled and returned	Unreturned	Response rate (%)	Unreturned (%)
Self-administered questionnaires for postgraduate students.	100	70	30	70	30

4.3: Questionnaires results.

This section presents results from questionnaires administered to postgraduate students.

4.2.1: Demographic information of respondents

This section presented the respondents' demographic information (postgraduate students), including gender, age, study programme, and years spent at the UKZN. Moreover, demographic information for the Subject Librarians was in terms of gender, age, level of education, and years of working experience in the UKZN library. Demographic information enables the researcher to understand the study population clearly when analysing data.

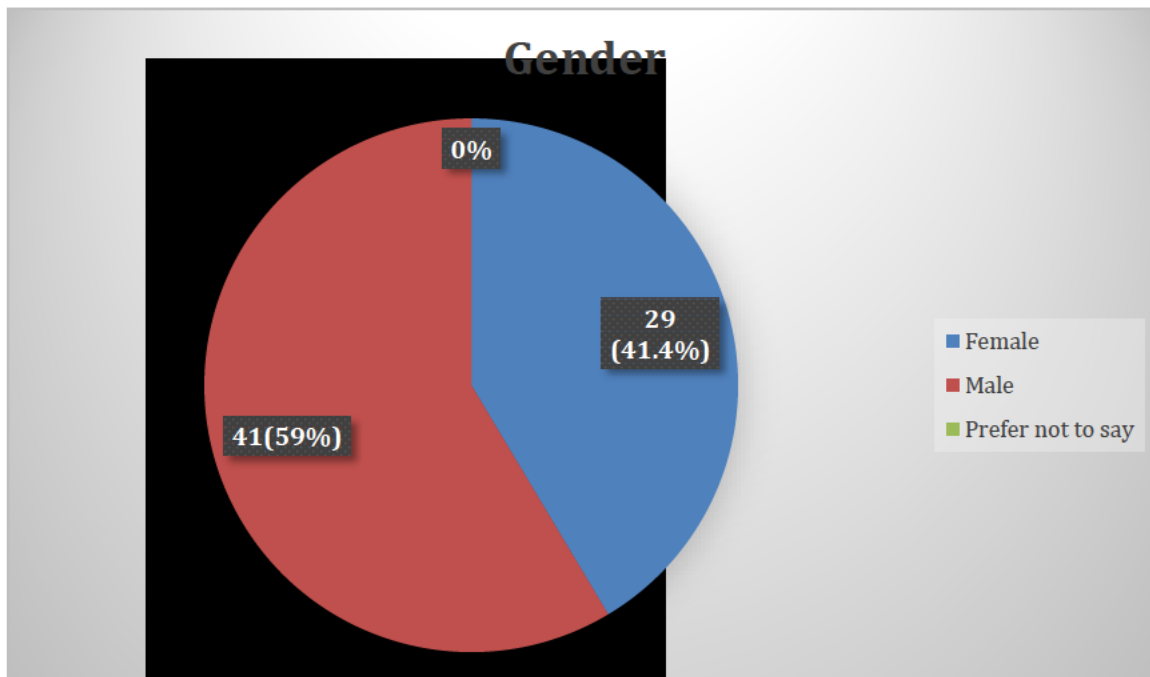
4.2.1.1: Gender of the respondents

The respondents were asked to indicate their gender. The findings show that 41 (59%) respondents were male and 29(41.4%) were female.

As shown in Figure 4.1, the study results indicate that most respondents were male, while female participants constituted the minority.

Figure 4.1: Gender of the respondents

N=70



4.2.1.2: Age of the respondents

According to Acheampong et al. (2019), age is regarded as a characteristic that may influence access and usage of e-resources. Hence, respondents were asked to indicate their age range. The findings from the study revealed that the majority of the respondents were between the age range of 30-39 years at a frequency of 39(55.7%) of the respondents, followed by 15(21.4%) of the respondents who were within the age range of 40-49 years. Furthermore, 14(20%) of the respondents were aged between 21 and 29, and only two (2.9%) were 50 years and above. The study findings indicated that 0% of the respondents were between 18 and 20 years old. For this reason, the results indicate that postgraduate students were aged between 21 and 49. Furthermore, the findings show that respondents involved in the study were from different age categories.

The results were summarised in the table below. Table 4.2 shows the age range, frequency and percentage of the respondents.

Table 4.2: Age range of the respondents

N=70

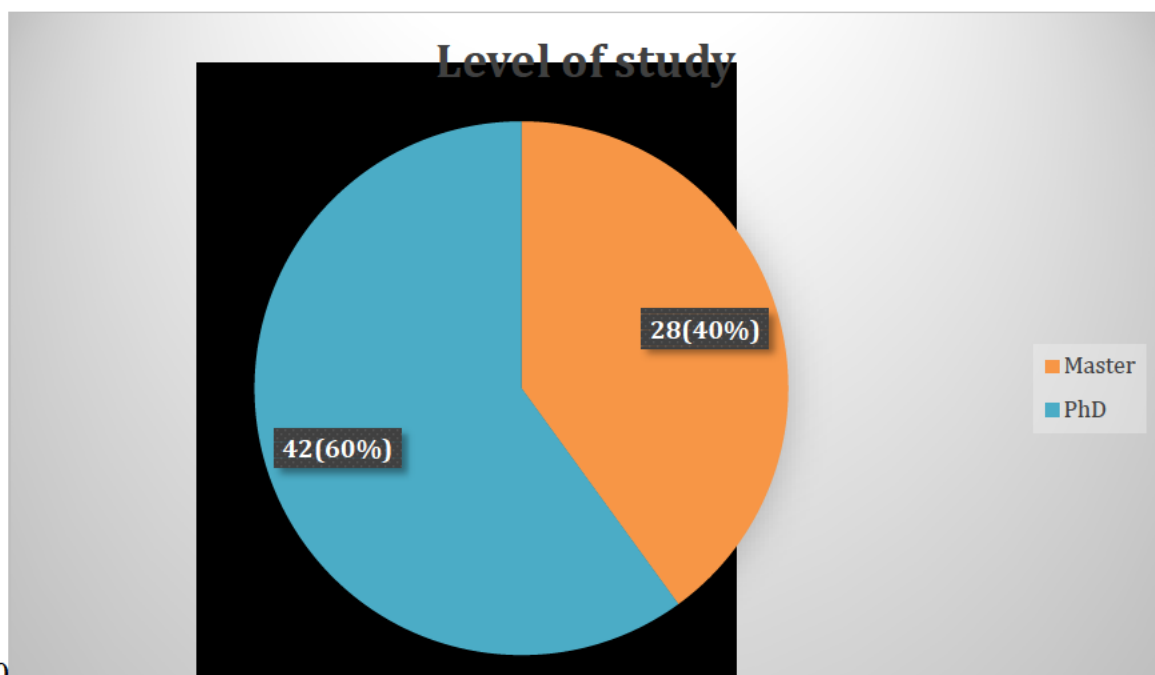
Age range(years)	Frequency	Percentage
18-20	0	0
21-29	14	20
30-39	39	55.7
40-49	15	21.4
50 above	2	2.9
Total	70	100

4.2.1.3: Programme /level of study

The students were asked to indicate their level of education, and the study was only to research the postgraduate students, masters, and PhD students; therefore, they only had to belong to either the master's or PhD programme. The level of qualification is considered a factor that may influence the use of technology. For this reason, the qualification of respondents was used to help the researcher relate the level of respondents' understanding of issues regarding the access and use of e-resources remotely.

The results are presented in Figure 4.2, which indicates that 42(60%) respondents were PhD students, while 28(40%) were masters students.

Figure 4.2: Level of study of the participants



N=70

4.2.1.4: Duration of study

The study sought to know the number of years the postgraduate students had been at UKZN. The results shown in Table 4.3 below indicate that the majority, 42(60%) of the students, have been in the university between three to four years, while 20(28.6%) of the respondents have been there between zero to two years. Furthermore, six (8.6%) respondents indicated five to six years. Two (2.8%) indicated six years and above.

Table 4.3: Duration of study

N=70

Years	Frequency	Percentage
0-2	20	28.6
3-4	42	60
5-6	6	8.6
Six years and above	2	2.8
Total	70	100

4.2.2: Remotely accessed resources and service

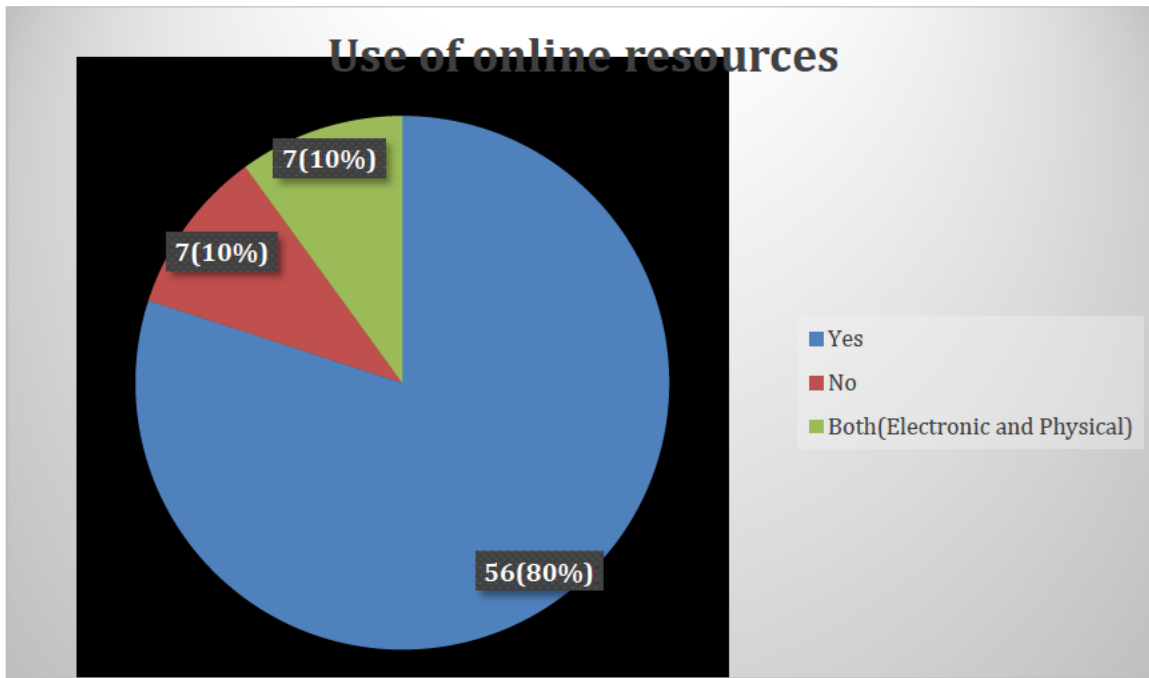
This section sought to find out the available electronic resources and services offered at the UKZN library.

4.2.2.1: Use of online resources

Respondents were asked to indicate if they used online resources, and the results showed that most postgraduate students used online resources. Fifty-six (80%) of the respondents indicated the use of online resources, while seven (10%) did not use online resources. Additionally, seven (10%) respondents used electronic and physical information resources. The findings are presented in the figure below.

Figure 4.3: Use of online resources.

N=70



4.2.2.2: Reasons for not using online resources

It was vital for the researcher to understand why some respondents did not use online resources. Results from Figure 4.3 show that seven (10%) respondents did not use online resources. For this reason, this question was open-ended, and respondents who had not used online resources were asked to provide reasons. The findings indicated several reasons why some respondents were not using library e-resources. They provided the reasons below:

- *Failure to access the databases for use.*
- *Three (43%) respondents indicated that they used Google Scholar.*
- *I get what I need through my office desktop and laptop. For this reason, I usually get everything I need right in my Computational Laboratory.*
- *I use it occasionally; I need a full explanation of a specific piece of information from one of the books.*
- *I think searching on the Internet is easy and quick, and the library is something you can trust, but I never thought I needed it.*

4.2.2.3: Frequency of use of online resources in the library

The frequency of use of electronic information resources is an essential factor in the access and use of library e-resources. Therefore, the participants were asked how often they used online resources.

The findings revealed that 31(49.2%) of students used online resources weekly, followed by 20 (31.8%) of the participants who used online resources daily. Furthermore, seven (11.1%) used online resources in less than a month. Five (7.9%) respondents said they used e-resources monthly. The study recorded the lowest number of participants who used online materials monthly.

The results in Table 4.4 summarise the frequency and percentage use of library e-resources.

Table 4.4: Frequency of use of online resources.

N=63

Frequency of use	Frequency	Percentage
Daily	20	31.8
Weekly	31	49.2
Monthly	5	7.9
Less than a month	7	11.1
Total	63	100

4.2.2.4: Available electronic resources in the UKZN library

The students were asked to indicate the available electronic resources that the UKZN library offered. Table 4.5 shows the findings from the respondents regarding the availability of electronic resources in the UKZN PMB main library. Seventy (100%) respondents were aware of the available e-resources. Each respondent gave multiple responses regarding the e-resources they perceived to be available in the UKZN library. Hence, the number of responses will not equal 100 percent.

Table 4.5: Available electronic resources

N=70

Electronic resources	Frequency	Percentage
e-journals	61	87.1
eBooks	54	77.1
e-research reports	33	47.1
e-newspaper	10	14.3
e- data archives	16	22.8
e-manuscripts	21	30

e-maps	12	17.1
e-bibliography	21	30
Books-in-Print Database (BIPD)	18	25.7
Electronic theses and dissertations	44	62.8
Digital Repository	25	35.7
Online database	42	60
E-reports	19	27.1

The frequency distribution of responses acquired from respondents in Table 4.5 above indicates that 61(87.1%) of the participants reported the availability of e-journals in the library, and 54 (77.1%) indicated the availability of ebooks. At the same time, 44(62.8) were aware of e-thesis and dissertations in the UKZN library. Furthermore,42(60%) indicated that online databases were available, followed by e-research reports, as shown by 33(47.1%) respondents. A digital repository was available, as indicated by 25(35.7%), while e-manuscripts and e-bibliographies were indicated by 21(30%) each. The results indicated that 19(27.1%) of the respondents stated the availability of e-reports, Additionally,18(25.7%) stated the availability of BIPD in the UKZN library, and 16(22.8%) indicated that e-data archives were available. Furthermore, e-maps were available as shown by 12(17.1%) of the respondents and lastly,10(14.3%) of the respondents indicate the availability of e-newspapers

4.2.2.5: Online information services available in the UKZN library.

A multiple-response question was used to indicate online information services in the UKZN library. The findings indicate that the respondents were aware of online Information services available in the UKZN library.

Findings presented in Table 4.6 show that the majority of the respondents, 53(76%), reported the availability of Online Catalogue services, and 52(74.2%) reported the availability of e-newsletters and journals in the UKZN library. Furthermore, 48(68.5%) of the participants indicated they were aware of e-thesis and dissertations, while 37(53%) reported that Online reference services were available in the UKZN library. Twenty-six (37.1%) respondents indicated the availability of awareness services, online tutorials, and web pages. Blogs were reported as having the lowest number of respondents,17(24.2%). This study identified the Online information services available to the UKZN postgraduate students. Due to multiple responses, the total percentage did not equal 100.

Table 4.6: Online information services

N=70

INFORMATION SERVICES	Frequency	Percentage
Online Catalogue	53	76
e-newsletter and journals	52	74.2
Awareness services	26	37.1
Blogs	17	24.2
Online reference service	37	53
Online tutorials	26	37.1
E-thesis and dissertations	48	68.5
Web pages	26	37.1

4.2.2.6: Identification of devices and techniques used when accessing the library's e-resources

The study sought to determine the devices and search techniques that users use when using library e-resources.

4.2.2.6.1: Devices used to access library e-resources remotely

Respondents were asked to indicate the devices used to access library electronic resources. The access and use of electronic resources require users to have devices such as laptops and desktops, among others. Furthermore, to access and use library e-resources, these devices must be linked to the Internet. Due to multiple responses, the total responses will not equal 100%.

Table 4.7: Devices used to access electronic resources

N=63

Devices	Frequency	Percentage
Desktop	40	63.5
Laptop	59	93.7
Palmtop	0	0
Tablet	7	11.1
Smartphone	35	55.5
IPad	0	0

Table 4.7 summarises the findings and reveals that 59(93.7%) of postgraduate students used laptops (making up the majority of the population), followed by desktops 40(63.5%). Thirty-five (55.5%) of the respondents reported using smartphones. Respondents who used tablets comprised seven (11.1%).

4.2.2.6.2: Frequency of use of devices

The study sought to establish the frequency of devices used to access electronic library resources. Therefore, the respondents were asked to indicate how often they used the devices to access the e-resources. This question prompts multiple responses from respondents. The findings indicated that most postgraduate students used laptops, desktops, and smartphones to access and use library e-resources, while palmtops and iPads were not used by postgraduate students.

Table 4.8: Frequency of use of electronic devices

N=63

Electronic devices	Daily		Weekly		Monthly		Less than once in a month		Never	
	N	%	N	%	N	%	N	%	N	%
Desktop	10	15.9	15	23.8	10	15.9	5	7.9	0	0
Laptop	47	74.6	6	9.5	4	6.3	2	3.2	0	0
Palmtop	0	0	0	0	0	0	0	0	63	100
Tablet	5	7.9	1	1.6	1	1.6	0	0	0	0
Smartphone	24	38.1	4	6.3	4	6.3	3	4.8	0	0
iPad	0	0	0	0	0		0		63	100

Results in Table 4.8 revealed that from the 63 respondents who indicated that they used e-resources, most of them used laptops daily, as indicated by 47(74.6%) of the respondents, followed by 24(38.1%) who used smartphones to access e-resources. Ten (15.9%) indicated the use of desktops. Five (7.9%) respondents used tablets to access library e-resources.

Respondents recorded the highest number;15(23.8%) of respondents used desktops every week, followed by six (9.5%) who used laptops weekly. Four (6.3%) indicated weekly use of smartphones, and one (1.6%) used tablets weekly.

The study results indicated that ten (15.9%) of respondents used desktops monthly, while laptops and smartphones were indicated by four (6.3%) each. Moreover, the study recorded a deficient number of respondents, with one (1.6%) using tablets monthly.

The study findings indicate that five (7.9%) participants used desktops less than once a month, followed by three (4.8%) using smartphones, and two (3.2%) of the respondents used laptops less than once a month.

4.2.2.7: Location of access to library e-resource

The study sought to find out where most students access e-resources remotely. The findings indicated that most respondents used library e-resources from home and the office.

Table 4.9 below summarises the findings of the location of access and use of library e-resources with the frequency and percentage of respondents. Respondents were allowed to select all applicable answers, therefore, a multiple response question.

Table 4.9: Location of access to e-resource

N=63

Location of access	Frequency	Percentage
Home	59	93.7
Office	33	52.4
On transit	8	12.7
Internet café	2	3.2
University LANS	2	3.2
Others	2	3.2

The study's findings indicated that 59(93.7%) participants accessed e-resources from home, followed by 33(52.4%) who accessed and used library e-resources from their offices. Eight (12.7%) indicated access to e-resources while in transit. Results show that respondents who accessed information material from Internet café and university LANs were indicated by two (3.2%) each. Moreover, two (3.2%) respondents indicated accessing online resources from other locations.

4.2.2.8: Format used to access e-resources.

The respondents were asked to indicate the electronic information resource format they preferred.

Table 4.10: Format preferred to use electronic resources

N=63

	Most preferred		More preferred		Preferred		Not preferred		Never preferred		Total %
	N	%	N	%	N	%	N	%	N	%	
PDF	54	85.7	3	4.8	2	3.2	2	3.2	2	3.2	100.1*
PowerPoint	11	17.5	15	23.8	20	31.8	12	19	5	7.9	100
Ms Word	28	44.4	18	28.6	8	12.7	5	7.9	4	6.4	100
HTML	7	11.1	5	7.9	10	15.9	20	31.8	21	33.3	100

Due to rounding off, some percentages are slightly higher than 100%.

Findings presented in Table 4.10 revealed that the majority of the postgraduate students, 54(85.7%), preferred to use electronic information materials in PDF format, followed by 28(44.4%) who indicated

most preferred MS Word format. Eleven (17.5%) indicated PowerPoint, while seven (11.1%) reported HTML as the most preferred. Similarly, MS Word was highly reported to have 18(28.6%) respondents, followed by PowerPoint with 15(23.8%) who recorded more preferred use. HTML was represented by five (7.9%), and PDF was represented by three (4.8%) respondents, who indicated more preference.

Findings obtained from the respondents indicate that 20(31.8%) of the respondents preferred PowerPoint, while 10(15.9%) preferred HTML. Eight (12.7%) indicated MS Word, and lastly, PDF with two (3.2%) respondents. Regarding respondents who did not prefer, findings indicate that 20(31.8%) of postgraduates did not prefer HTML, while 12 (19%) did not prefer PowerPoint. Moreover, five (7.9%) indicated MS Word and two (3.2%) indicated PDF format. The results also indicate that postgraduate students never preferred to use HTML 21(33.3%), PowerPoint five (7.9%), MS Word four (6.4%), and PDF two (3.2%).

4.2.2.9: Usefulness of library e-resources

The respondents were asked to rank e-resources' usefulness in the UKZN library. The results are presented in the table below.

Table 4.11: Usefulness of e-resources

N=63

E-RESOURCES	Most Useful		Quite Useful		Useful		Not Useful		Never Useful	
	N	%	N	%	N	%	N	%	N	%
E-journals	45	71.4	12	19.1	2	3.2	0	0	4	6.3
eBooks	24	38.1	20	31.7	12	19.1	4	6.3	3	4.8
E-research reports	3	4.8	5	7.9	19	30.2	2	3.2	34	54
E-newspaper	4	6.3	10	15.9	16	25.4	15	23.8	18	28.6
E- data archives	4	6.3	12	19.1	24	38.1	18	28.6	5	7.9
E-manuscripts	13	20.6	13	20.6	23	36.5	10	15.9	4	6.3
E-maps	5	7.9	3	4.8	16	25.4	15	23.8	24	38.1
E-bibliography	7	11.1	13	20.6	21	33.3	12	19.1	10	15.9
BIPD	9	14.3	2	3.2	23	36.5	22	34.9	7	11.1
E-theses and dissertations	45	71.4	14	22.2	4	6.3	0	0	0	0
Digital Repository	13	20.6	10	15.9	25	39.7	10	15.9	5	7.9
Online database	36	57.1	14	22.2	8	12.7	3	4.8	2	3.2

Table 4.11

revealed that e-journals and e-thesis/Dissertations were the most useful, as indicated by 45(71.4%) each. Moreover, 36(57.1%) respondents considered online databases the most useful. E-books 24(38.1%), while digital repository and e-manuscripts were reported by 13(20.6%) each. Other e-resources were most useful, but the results indicate that there were few respondents, less than 20%. With regards to those that are quite used, the study indicated e-books 20(31.7%), e-thesis/dissertations and online databases 14(22.2%) each, while e-bibliographies and e-manuscripts had 13(20.6%), followed by the rest of e-resources with less than 20% of respondents.

Table 4.11 reported that 25(39.7%) of the respondents indicated digital repositories to be useful, followed by data archives shown by 24(38.1%), while e-manuscripts and BIPD had 23(36.5%) each were also reported to be useful. E-bibliography was reported as beneficial by 21(33.3%) of the respondents. Other resources that were reported to be useful, with 30% or less, were e-journals, e-books, e-newspapers, e-maps, e-thesis/dissertations, and online databases.

Moreover, the study reported 22(34.9%) respondents reported BIPD as not useful, while 18 (28.6%) indicated e-data archives. Furthermore, e-newspaper and e-maps were indicated by 15(23.8%) each as not useful. Other resources had less than 20% of respondents who reported them as not useful.

E-research reports indicated the highest number, 34(54%) of respondents indicated never useful, e-maps 24(38.1%), e-newspapers 18(28.6%) and e-bibliographies 10(15.9%), while other e-resources were reported never useful by 10% or fewer respondents.

4.2.3: Self-efficacy of postgraduate students in accessing e-resources

The study sought to find out the self-efficacy of postgraduate students in the School of Social Science to access and use library e-resources.

4.2.3.1: Search Techniques for accessing e-resources

This question asked the participants to indicate their search techniques when accessing library e-resources remotely.

Table 4.12 below shows the findings of the techniques used to access and retrieve information. Statistics from the table revealed that the majority of the respondents, 56(88.9%), used More than one keyword search technique to search for information, and 54(85.7%) used Author/Title search techniques. In comparison, respondents who used Subject search were 38(60.3%), followed by 25(39.7%) who used direct links. Furthermore, 23(36.5%) of the respondents used One keyword search technique, while Hyperlinks were only used by 18(28.6%) of the respondents. Results indicate very few respondents; five (7.9%) used Boolean operators (OR, AND, NOT) to search for information. The

study reports that none of the respondents used Truncations (*) to search for information. Respondents were allowed to select multiple responses.

Table 4.12: Search techniques used to access e-resources

N=63

Search techniques	Frequency	Percentage
One keyword search	23	36.5
More than one keyword	56	88.9
Directly to URL	25	39.7
Boolean operators (OR, AND, NOT)	5	7.9
Truncation *	0	0
Hyperlinks	18	28.6
Subject searching	38	60.3
Author/Title Search	54	85.7

4.2.3.2: Use of search techniques

Most respondents used different search techniques to access electronic information materials from the library. Therefore, the study sought to determine how often the participants used these search techniques.

Figure 4.4: Frequency of use of search techniques

N=63

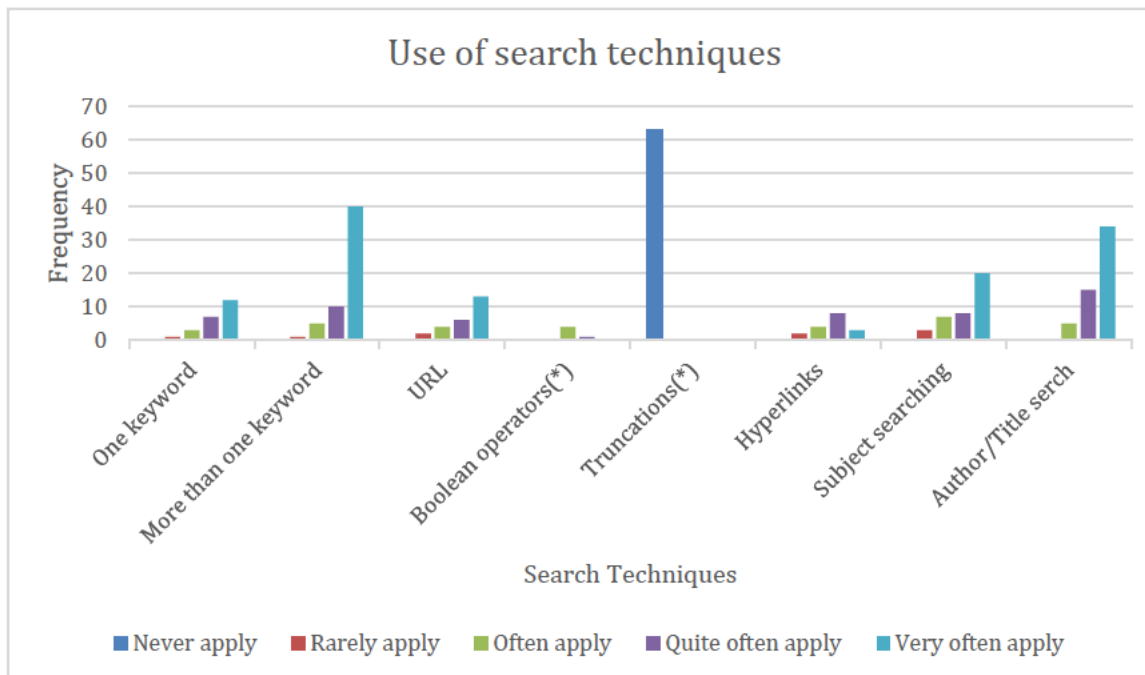


Figure 4.4 indicates that 12(19%) respondents used one keyword very often, and 7(11.1%) indicated they quite often apply it. Three (4.8%) indicated that they often applied, one (1.6%) rarely applied, and none of the respondents had ever applied one keyword search technique. Regarding more than one keyword technique, the study reveals that 40(63.5%) (majority) of the respondents applied it very often, followed by 10(15.9%) who applied it quite often. Five (7.9%) respondents indicated that they often applied more than one keyword technique, and lastly. One (1.6%) respondent rarely used it.

The study results indicated that 13(20.6%) respondents applied URLs very often, while 6(9.5%) applied quite often, and four (6.4%) often applied URLs. Moreover, only two (3.2%) rarely applied URLs. Furthermore, the study results revealed that Boolean operators were quite often applied by one (1.6%) respondent and often applied by four (6.4%) of the respondents.

Truncation indicated the highest number of respondents who never applied the technique, as shown by 63(100%) respondents. With regards to hyperlinks, the study result indicated that three (4.8%) of the respondents applied it very often, eight (12.7%) of the respondents applied quite often, four (6.4%) often applied and, lastly, two (3.2%) rarely applied hyperlinks. Furthermore, 20 (31.8%) respondents applied Subject searching very often, followed by eight (12.7%) who indicated quite often. Seven (11.1%) indicated they use subject search often, while three (4.8%) rarely used this technique. The study results had no participants who indicated they had never applied subject searching.

Author/Title search indicated 34(54%) respondents who used it very often, followed by 15(23.8%) who often used the author/title technique, and five (7.9%) often applied the Author/title search technique.

4.2.3.3: Modification of search methods

The respondents were asked to indicate whether they tried different ways to find information when the first search did not yield satisfactory results to fulfil their information needs.

Findings show that they used different opinions with regard to retrieving information that does not meet their information needs; the results indicated that most students would choose a different keyword, 50(79.4%), while 47(74.6%) of the students opted for a different information source. Furthermore, 20(31.7%) of the respondents changed the initial search techniques to a different one, such as using Boolean operators, if they had used keywords earlier or vice versa. Similarly, eight (12.7%) assumed that there were no satisfactory results and used what was available, while one (1.6%) presumed that there were no satisfactory results and stopped the search.

Table 4.13 indicates that most of the respondents tried to get satisfactory results by trying other search techniques, while very few did not try it but used what they found or stopped the search. The findings are shown in the table below. Respondents were allowed to choose more than one option, so the total was not equal to 100.

Table 4.13: Modified information search results

N=63

Search strategies	Frequency	Percentage
I chose a different keyword(s).	50	79.4
I choose different information sources (Search engines, databases, journals, etc).	47	74.6
I change the initial search technique, for example, using Boolean operators, truncations, search phrases instead of keywords, etc	20	31.7
I suppose there are no satisfactory results, and use what I find	8	12.7
I suppose that there will be no satisfactory results, and stop the search process.	1	1.6

4.2.3.4: Search skills adopted to access e-resources

This study sought to discover the skills students adopted while searching the systems remotely; the respondents were asked to indicate the skills they applied while searching for information. The question was a multiple-response question, so the total percentage of the respondents will not equal 100. The findings are shown in the table below.

Table 4.14: Search skills to access e-resources

N=63

Searching skills	Frequency	Percentages
Navigational Skills	38	60.3
Filtering Skills	32	50.8
Advanced Search Skills	41	65.1

Table 4.14. indicates that the highest number of respondents, 41(65.1%), found advanced search skills preferable; therefore, they were predominantly used by most respondents. Thirty -eight (60.3%) of the respondents used navigational skills to search for information. Furthermore, 32(50.8%) respondents opted for filtering skills to search for information.

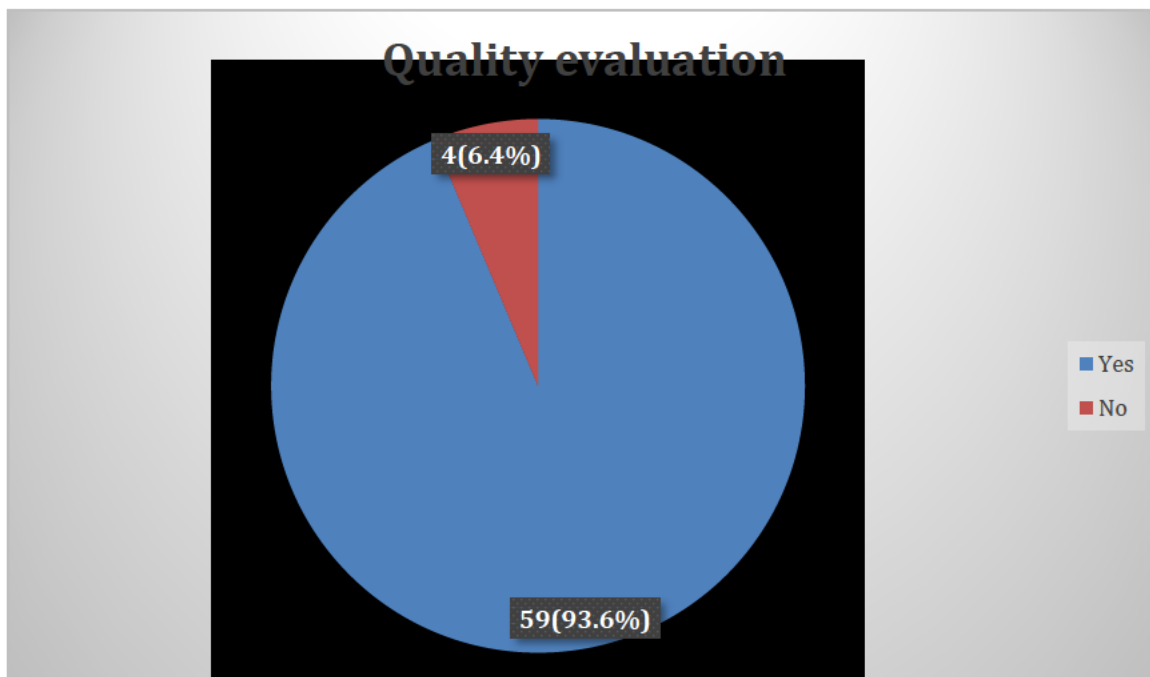
The table results indicate that the respondents used all three search skills fairly since they all had at least 50% or more respondents who used each search skill as indicated in the table above.

4.2.3.5: Evaluation of information

The participants were asked to indicate whether they evaluated the quality of information after retrieval. The findings in Figure 4.5 below show that 59(93.6%) library users evaluated their information before using it. Only four (6.4%) users did not evaluate the retrieved information.

Figure 4.5: Evaluation of quality of information retrieved.

N=63



4.2.3.6: Aspects of evaluation of the information

The researcher sought to find out what aspect of retrieved information postgraduate students evaluate before using it. The table indicated the findings of aspects that students mostly evaluate to ensure they have the right information needed for use. For this reason, postgraduate students evaluate information sources to ensure they are accurate and relevant to their research work. Furthermore, the respondents were allowed to give multiple responses; thereby, the total percentage will not be equal to 100

Table 4.15 indicated that the majority of the respondents evaluated their results before using them. From the respondents sampled for the evaluation, Relevance was the most checked aspect, which covered the highest percentage of 49(77.8%) of respondents, followed by the reliability of the information retrieved by 47(74.6%) of the respondents. Regarding accuracy and accessibility, they both had 37(58.7%), while 24(38.1%) of the respondents evaluated the timeliness of the information. The results from the survey also indicated that 22(34.9%) of the respondents considered the convenience of information as an aspect of evaluation.

Table 4.15: Aspect of evaluation of information

N=63

Aspect of Evaluation	Frequency	Percentage
Accuracy	37	58.7
Reliability	47	74.6
Convenience	22	34.9
Accessibility	37	58.7
Timeliness	24	38.1
Relevance	49	77.8

The study sought to establish the effectiveness of library e-resources accessed remotely. The results are presented in Table 4.16 below to indicate the frequency and percentage of respondents. The result had multiple responses; for this reason, the percentage did not equal 100.

Table 4.16: Effectiveness of remote networks

N=63

Effectiveness of remote networks	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
	N	%	N	%	N	%	N	%	N	%
Ease of use	14	22.2	3	4.8	10	15.9	16	25.4	20	31.7
Usefulness	12	19.1	5	7.9	5	7.9	23	36.5	18	28.6
Response time	6	9.5	8	12.7	14	22.2	22	34.9	13	20.6
Endurability	4	6.4	7	11.1	25	39.7	21	33.3	6	9.5
Result Satisfaction	6	9.5	4	6.3	17	27	25	39.7	11	17.5
Availability	4	6.3	6	9.5	12	19.1	31	49.2	10	15.9
Accuracy	9	14.3	6	9.5	18	28.6	20	31.7	10	15.9
User Satisfaction	4	6.3	7	11.1	17	27	21	33.3	14	22.2
Reliability	2	3.2	8	12.7	16	25.4	24	38.1	13	20.6

Table 4.16 reflects the response from the participants. The results indicate that most of the participants, 20(31.7%), strongly agreed with the ease of use of remote networks. Moreover, the results indicated that respondents who were neutral and agreed with the ease of use of remote networks were 10(15.9

%) and 16(25.4%) respectively. Three (4.8%) respondents disagreed, while 14 (22.2%) strongly disagreed. The study results indicates that 23(36.5%) agreed with the usefulness of remote networks,18(28.6%) strongly agreed, while,12(19.1%) strongly disagreed. Moreover, respondents who indicated neutral and disagreed were represented by five (7.9%) each. Regarding response time, 13(20.6%), 22(34.9%) and 14(22.2%) of the respondents strongly agreed, agreed and were neutral, respectively, whereas eight (12.7%) respondents disagreed and six(9.5%) strongly disagreed.

Table 4.16 showed that 21(33.3%) agreed, and six (9.5%) strongly agreed to endurability, while 25(39.7%) of the respondents were neutral. Additionally, results indicated that respondents who strongly disagreed and disagreed were represented by four (6.4%) and seven (11.1%).

The study reports 25(39.7%) and 11(17.5%) respondents agreed and strongly agreed, respectively to results satisfaction. In addition,17 (27%) indicated neutral, four (6.2%) disagreed, and six (9.5%) strongly disagreed to result satisfaction. In terms of availability, 31(39.2%) of the respondents agreed, while 10(15.9%) strongly agreed, 12(19.1%) were neutral, six (9.5%) disagreed, and four (6.3%) strongly disagreed. Furthermore, the study indicated that 20(31.7%) agreed and 10(15.9%) strongly agreed with the accuracy of remote networks, while 18(28.6%) reported neutral, six (9.5%) disagreed, and nine (14.3%) strongly disagreed. With regards to user satisfaction, 21(33.3%) agreed,14(22.2%) strongly agreed, and 17(27%) indicated neutral. Seven (11.1%) and four (6.3%) disagreed and strongly disagreed. The study results indicated that 24(38.1%) and 13(20.6%) agreed and strongly agreed, respectively, with the reliability of the remote networks. Sixteen (25.4%) indicated neutral, eight (12.7%) disagreed, and two (3.2%) strongly disagreed with the reliability of the resources.

4.2.5: Barriers encountered when accessing and using library e-resources remotely.

This question sought to discover any existing challenges that may affect the access and use of library e-resources.

4.2.5.1: Challenges experienced in the access and use of library e-resources remotely

The researcher sought to establish challenges that users face while accessing and using library e-resources, so they were asked to indicate the challenges they face while accessing library e-resources. The responses were presented in table format with multiple responses from the respondents. For this reason, the total percentage will not equal 100 percent.

Table 4.17: Challenges encountered while accessing library e-resources remotely

N=63

Challenges encountered while accessing library e-resources remotely	Frequency	Percentage
Information overload	22	34.9
The need to filter the results from the search	28	44.4
Download delay	28	44.4
Problem with the credibility of information	18	28.6
Failure to find information	18	28.6
Broken links	16	25.4
Lack of search skills/knowledge	12	19
High cost of access	10	15.9
Power outages	18	28.6
Access to limited information.	12	19
Difficulties in the navigation of some webpages	21	33.3
Poor Internet	16	25.4
Difficulties in downloading	12	19
Lack of knowledge of terminologies	16	25.4
Some interfaces are user-friendly	19	30.1
Limited subscribed titles	22	34.9

The study findings indicate the highest number of respondents, reporting the need to filter the result from the search and download delays with 28(44.4%) each. At the same time, Information overload and Limited subscribed titles were reported by 22(34.9%) each. Similarly, 21(33.3%) had difficulties navigating some web pages. Additionally, 19(30.1%) indicated some interfaces are not user-friendly.

Regarding the problems with the credibility of information, Failure to find information and power outages were reported by 18(28.6%) each. Broken links, poor Internet, and lack of knowledge of terminologies were each indicated by 16(25.4%) of the respondents.

Findings show that 12(19%) had challenges with access to limited information. Lack of search skills/knowledge and difficulties in downloading were each reported by 12(19%) of the respondents.

Moreover, the study recorded the lowest number, 10(15.9%), who indicated the high cost of access as a challenge encountered while using library e-resources.

4.3: Interview results

This section analysed and presented data collected from service providers using an interview schedule (see Appendix Three). Interviews were arranged with the five Subject Librarians, and interview schedules were shared with them before the interview. Structured interviews were done online via Zoom.

4.3.1: Demographical information

The first question on the interview schedule was about the personal information of the respondents, including gender, age range, academic qualification, and years of experience. Demographic data will be analysed using qualitative content analysis.

The interview findings of demographic information on service providers indicate that four respondents were female, while one was male. The results further reveal that four respondents were 50 years and above, and one belonged to the age group 40-49 years. Regarding the level of education, four of the Subject Librarians had masters, while one held a doctorate. The findings indicated none of the respondents had bachelor's and college diplomas.

The respondents were asked to indicate the number of years they have worked at the UKZN library, and the study shows that two respondents have been in the UKZN library between 11-15 years, one between 16-20 years, and two, 21 and above years of experience.

4.3.2: Information literacy skills for postgraduate students

The study sought to find out the information literacy skills of postgraduate skills that enabled postgraduate students to access and use library resources.

4.3.2.1: Information literacy skills for effective use of electronic information resources

The Subject Librarians were asked to indicate literacy skills that were needed to enable effective use of e-resources. The findings indicated that a student needed several skills to use EIRs effectively. All Subject Librarians affirmed that basic computer skills were important for accessing and using of library electronic resources. Understanding and in-depth knowledge of the database was an important factor. Moreover, the reports indicate that the students needed to know the context of the information they were looking for and its availability in the database.

Results from the interviews indicated that students should understand how electronic information is arranged and presented. Thereby, know how to engage and use various formats. For this reason,

students should understand access and how it impacts the search results; therefore, note that not everything is free. Often, students need to understand that particular licensing agreements, authentication issues, and identification elements would impact their access to viewing a particular resource. Below are some excerpts indicating that literacy skills are vital for using EIRs. SL1 states, *"In-depth knowledge and understanding of how databases work is critical. This will help them understand the process flow of finding information"*. Furthermore, SL1 continues to say: *"Basic computer literacy is imperative, and crucial that they know how to engage with the various formats of electronic documents example: PDFs/HTML, eBook readers, databases and navigating them, how to access, download and secure/save documents"*. In addition SL4 mentions: *"They would find it beneficial if they are able to understand various functionalities found in different databases"*.

Furthermore, SL2 states, *"They [library users] need to know how to use electronic devices such as computer, and smartphones, as well as know how to create a search strategy to effectively search the databases"*. SL5 states that:

"Students need to understand that there are particular licensing agreements, authentication issues, and identification element, that would impact their access to viewing a particular resource. Especially when it comes to aspects such as full-text articles or downloading of ebooks, accessing and converting PDFs or saving documents chapters of books".

In addition, SL2 states: *"Students should understand how information in electronic format is arranged and presented, and the fact that not everything is free"*.

4.3.2.2: Postgraduate student's information literacy in using electronic information resources

This question sought to find out if postgraduate students were information literate in using e-resources. The outcome revealed that the respondents agreed that postgraduate students were information literate, but there were still some challenges that postgraduate students faced. Therefore, as the Subject Librarians suggests, training is still required. Views from the Subject Librarians are highlighted below: SL5 affirms: *"Yes, I think they are information literate"*. SL4 adds, *"They may be familiar with online searching but not particular with academic resources; databases are set up quite differently and have different search functionality like Google"*. For this reason, SL3 highlights that: *"Some have problems to deciding on the right keyword or phrases for searching, and every database has its unique characteristics"*. Therefore, according to SL2,

".... Even though some of the students are literate or able to engage with electronic resources, a great deal of training is still required. And this is because the nature of information on

databases or the platforms themselves are continually going under upgrades and changes and interfaces are changed so often”.

Furthermore, “*You will often come across some candidates who are very adept at engaging with the electronic resources this could be owing to their age and familiarity with technology and electronic devices*” (SL1).

4.3.2.3: Use of electronic information resources

The service providers were asked to affirm if postgraduate students had independent use of EIRs, and the findings show that sometimes there is independent use, and sometimes there is no independent use of EIRs. Therefore, postgraduate students engage with information, but they contact the subject librarians if they face any problems. SL4 mentioned that: “*They are not completely independent, since some students are not well trained because they do not attend the training, thereby, they are not equipped to search e-resources and missing more information with regards to e-resources*”. SL2 added that “*Often, they would engage with the information or the resource, and when they experience any challenges, they will reach out to us via e-mail or visit us in our offices*”.

The results also reveal that there is much independent use of e-resources because most students have used e-resources from the undergraduate level, and the library also offers training and library guides that students can use independently to learn more about library resources. Subject Librarians indicated that: “*We have coordinated and put together library training and Lib guides which students can use as virtual support and this has essentially promoted independent learning and what we also stress is the ‘skilling’ that we do during the library instruction sessions essentially serves to empower the students thereby promoting independent learning* (SL3). In addition, SL5 states, “*Most of them used resources from undergrad degree and share information between themselves, it promotes more independence while using e-resources*”. Furthermore, SL5 adds that: “*Some follow guides*”.

4.3.3: Information efficacy amongst librarians and social science postgraduate students

The study needed to know whether information efficacy can be enhanced amongst service providers and postgraduate students. Therefore, some questions were asked to enable the researcher to ascertain the efficacy of the information.

4.3.3.1: Training on the access and use of library e-resources

The study sought to find out if training was offered to postgraduate students regarding access and use of e-resources. The interview results showed that the library offers training to postgraduate students on accessing and using library e-resources. The library staff offers the training more than twice a year.

According to the study results, some trainings are subject-based since some disciplines request the library to do the training. The training sessions cover all aspects of literature and database search. Although the library offers training, some students still don't attend the training. The following excerpts affirms that information efficacy can be enhanced. SL1 admits that "*specific subject-based training is offered since a lot of individual disciplines ask the library to do the training*". Furthermore, SL2 adds that:

".....over and above the twice-a-year mandatory training that the library undertakes for postgraduate students, they are offered one-on-one training sessions by each subject librarian as well as faculty-based training sessions on demand".

Furthermore, SL3 states: "*The training is structured in a manner which covers all aspects of literature searching and database searching. Training sessions also cover aspects such as referencing, search strategies and managing your library account*". Similarly, SL5 adds that "*Students are demonstrated and educated on how to download each item, how to actually save the items, and how to engage with the software that is necessary for reading an ebook such as Adobe, Digital editions etc*". Although, "*The library offers general training for anybody to attend. We offer training but some students don't attend the training in numbers*" (SL4).

4.3.3.2: Link between postgraduate students' information literacy self-efficacy and use of electronic information resources

The study sought to determine if students' information literacy self-efficacy was linked to their use of EIRs. The Subject Librarians state: "*..... there is a link between self-efficacy and use of e-resources*" (SL1). In addition, SL2 says: "*I am inclined to think that there is a direct relationship between their ability to engage with electronic resources and the effectiveness in how it feeds into their success in research efforts*".

4.3.4: Students' usage patterns of electronic information resources

The researcher sought to determine the usage patterns of EIRs, and this was guided by the questions below to determine how students access and use library e-resources.

4.3.4.1: Frequency of use of electronic information resources

The study sought to find out how frequently postgraduates make use of e-resources. The frequency of use of e-resources was difficult to know, as stated by SL5, while SL1 asserts that the frequency of usage was determined by the engagement of students and their supervisors. SL5 mentioned, "*It is difficult to know because the library does not have a way of tracking who is using what and when*".

While, SL1 says, *“I’m inclined to think this is determined by their engagements with their supervisors and the timelines of their actual theses and dissertation submissions”*.

The study reveals that the UKZN library e-resources were online, except for some books. Therefore, students had to use catalogues, databases, ebooks, etc. Most of the information materials were in the online environment, and the database was substantially higher at points when the initial search stages required full literature. Although there was an improvement in the usage of e-resources, unfortunately, postgraduate students used Google but not library databases. The following excerpts indicate: *“Noticeably the usage of databases is substantially much higher at points when the initial search stages full literature is required”* (SL3). In addition, SL3 says: *“Resources are online except for some of our books. So, they have to use the catalogues, databases, e-books etc. Because most of them are in the online environment”*. Furthermore, SL2 adds, *“From my years of experience, it is evident that the usage of electronic resources by postgraduate students has escalated considerably. Postgraduate students’ interaction with electronic information resources is quite popular and is currently on the increase”*. Nonetheless, SL4 highlights that. *“Students always use Google Scholar but not databases because, for example, accessing eBooks may be a process (more clicks) not straight forward”*.

4.3.4.2: Where postgraduates access e-resources from

The study sought to find out where postgraduate students access e-resources from. Interview results indicate that most library electronic resources were accessed via web pages, where they can access Google Scholar and direct links to subscribed information materials. The library's web page is designed to offer students seamless access to various databases. The Subject Librarians state: *“Most of our electronic resources are accessed via our library web pages and live room page where you can get all formats of articles”* (SL1). SL4 adds that, *“.... from the live room page, it is simple, and all the electronic resources are available on the live room page”*. Furthermore, SL3 adds that: *“Google Scholar from the library web pages and link directly to full text that the library pays for”*. Therefore, SL 2 highlights that *“It is also evident that students use Google to conduct their searches for open domain information”*.

4.3.4.3: Search engine used by postgraduate students

Subject librarians were asked to indicate what search engines were mostly used by postgraduate students.

The study respondents revealed that students mostly used Google Scholar because they were trained to use Google Scholar and Safari, while others used Science Direct. However, there might be some difficulties in knowing what search engines students may be using. The Subject librarian states: *“From my experience with reference to Android machines, often it is Google, and with Mac computers, it is*

Safari” (SL1), while SL5 says: “*They may be using Google*”. However, SL2 states that: “*It is difficult to say but, Students are trained to use Google Scholar*”.

4.3.4.4: Format preferred for getting information

The study intended to find the format that postgraduate students from the School of Social Science preferred. The respondents affirmed that the PDF format was highly preferred. As stated by SL5, “*PDF format*”. SL2 adds, “*PDF format because the article is very short they can be downloaded easily and read*”. Moreover, SL1 says: “*I am inclined to think that perhaps if it is journal articles, they would prefer for it to be in a PDF format*”.

The interview results also indicate that book format was also used, but it depends on how an ebook is set up for reading online. The study shows that some students preferred to download chapters and read offline; for this reason, students needed to have Adobe Digital Editions software to facilitate the download of eBooks. According to SL4, “*Sources such as ebooks, we find that students prefer accessing chapters and downloading them to read offline. In this case we have the software Adobe Digital Editions which facilitates for downloading of e-books and accessing for offline reading*”. Moreover, SL3 says: “*ebooks, but depends on how an ebook is set up to read online, but some are not very favorable you can only download only a few pages and it depends with the publishers*”.

4.3.4.5: Usage of electronic resources by postgraduate students

The study sought to find out from the Subject Librarian experience, if they felt that postgraduate students were well utilising e-resources. The study results indicate that e-resources were relatively well used, though some students preferred Google to some databases. The study reveals that the library training helped students engage with electronic resources. SL4 affirms that: “*E-resources are well used*”. Similarly, SL2 adds that: “*The electronic resources are relatively well used however there are some groups of postgraduate students who are still intimidated by using particular databases and prefer to simply use Google*”. Furthermore, “*User education or library sessions to these groups of students often are convinced otherwise and begin to engage with the electronic resources*” (SL3).

4.3.4.6: Purpose for using electronic information resources

Subject Librarians were asked to ascertain the postgraduate student’s purposes for using e-resources. The study results reveals that the main purpose for using e-resources was research and assignments. The study also reported that some students use e-resources for general information/knowledge. The following statements from the respondents affirm the reason for using EIRs. Subject Librarians state: “*Assignments and thesis*” (SL3), “*Academic purposes*”. (SL2) and “*General information and the major reason is research*” (SL4). Furthermore, SL1 adds that: “*From my experience the main purpose for their use of electronic information resources is dependent on what they need to develop their*

arguments in research, thereby, the primary reason to use e-resources was research and completing assignments". In addition, SL5 says: *"I think one of the main reasons for their engagement with electronic resources is that the appropriate and suitable information is sourced rather than irrelevant information and information that lacks literary integrity"*.

4.3.5: Information literacy-related barriers encountered

This question sought to discover the challenges the students and librarians face in enhancing library the access, use, and management of library e-resources.

4.3.5.1: Information literacy barriers postgraduate students face while using electronic information resources

The current study intended to find out if there was any information literacy-related barrier that postgraduate students were facing while using e-resources. The study respondents indicated several challenges that postgraduate students face while using e-resources; these include language barriers, lack of search skills, inadequate knowledge to navigate the system, and information overload.

The Subject Librarians indicated that the *"Language barrier is one of the greatest significance; this essentially poses a challenge in terms of understanding and for students to grasp how they should navigate electronic resources"* (SL1). SL4 adds that: *"Inadequate knowledge to filter information and use relevant information retrieved"*.

"I believe that their understanding and knowledge of how devices operate and how to manipulate the devices also is a challenge in terms of their ability to engage and use the devices to the end that is required" (SL2). For this reason, SL3 adds that: *"Lack of proper search skills and understanding how different databases are set up and the functionalities of the databases poses a challenge to the use of e-resources"*.

4.3.5.2: Challenges that libraries face in facilitating access to and use of e-resources

Subject Librarians were asked to indicate the challenges the UKZN library faces in facilitating access to and use of e-resources. The results revealed some challenges the library faced in facilitating access to and use of e-resources. The major problem was financial constraints. *"One of the most critical challenges facing all libraries would be that of financial constraint"* (SL3). Furthermore, SL1 adds: *"In terms of access, we can't provide everything that everybody wants; that's why they have interlibrary loans and pay-per-view services"*.

The study reported other challenges, including technical problems and network problems, infrastructure, and power failure. The following excerpts state the respondents' report: SL2 mentions: *"Technical problems, network problems"*. Furthermore, SL4 states: *"With reference to infrastructure,*

the libraries have to maintain all computers that are provided for searching purposes such as OPACs and ensure that the computers are in working condition at all times". Moreover, "To reach and convince students that they need training on how to access and use the e-resources also poses as a problem" (SL5).

4.3.5.3: What can be done to alleviate these barriers

The study sought to find out if there was anything that could be done to alleviate these barriers in the UKZN library. According to the study, respondent SL3 stated that technical problems, such as network and server problems, are beyond our control, and the library may be unable to help. According to SL4, *"Some of the libraries have got generators when it comes to power issues so they can keep going"*. However, SL3 highlights that: *"Technical challenges are beyond control such as network issues and server problems"*.

Regarding financial problems, the results suggested that collaborating with other institutions to share resources and develop coalitions could get more money from different vendors. Substantial funding would be of great help. Marketing and use of library guides should be advocated, and the library should consider different ways of offering training, such as Zoom, to reach more students around the clock; this will help alleviate the literacy barrier. The following statement is extracted from the interview: SL1 noted: *"Substantial funding will be of great help"*. SL2 adds that: *"Collaborating with other institutions in terms of sharing of resources and developing coalitions so that we could get more for our money from different vendors"*. Moreso, *"Fine-tuning contracts with publishing houses and vendors so that we are able to dictate exactly what we require and how to coordinate packages off journals or ebook collections"* (SL3). Furthermore, SL5 suggests: *"Marketing and use of library guides to encourage students on the importance and use of e-resources"*.

4.3.6: Strategies to enhance postgraduate student's information literacy self-efficacy

The study attempted to identify the techniques that may improve postgraduate information literacy self-efficacy, allowing for effective access and use of library e-resources. This was guided by some questions highlighted below.

4.3.6.1: Student's information literacy self-efficacy

The researcher sought to find out if student's information literacy could be enhanced, and all five respondents agreed that students' information literacy self-efficacy could be enhanced. For example, SL1 say: *"Yes, there is always room to improve and enhance"*, while SL2 adds: *"Yes, indeed, and this could be done through extensively marketing all the resources that are available at libraries"*.

4.3.6.2: Strategies to enhance student's information literacy self-efficacy

Subject librarians were asked if they had strategies employed to enhance the students' information literacy self-efficacy. The study indicated several strategies to enhance students' information literacy self-efficacy. The respondents indicated extensive marketing of all the resources available at libraries, as well as training and promotion of library e-resources. Furthermore, library training sessions could be made compulsory so that students attend, which would assist students in getting a better understanding of how to engage with e-resources. This was affirmed by SL2, who indicated that: *“Training and promotion of our e-resources and marketing”*. Moreover, SL1 states: *“Offering one-on-one training to ensure that people appreciate and understand that we are available to help them and they can consult”*. SL1 further acknowledged that: *“Library training sessions being made compulsory so that students attend and that would assist students in getting a better understanding of how to engage with e-resources”*, and SL4 adds, *“Formalize user education or library instruction sessions hosted by the library”*.

The Subject Librarians indicated that collaborations between the library and other facilities could improve student's self-efficacy and the presence of librarians. SL4 highlights: *“The availability of librarians is also important”*. In addition, SL5 says:

“Collaboration between the library and other facilities such as student academic services, the information and technology division together with the library could actually assist in facilitating for students being more in tune with the electronic resources and bumping up their literacy levels with respect to the use of electronic resources”.

4.3.6.3: Strategies to enhance access, use, and management of e-resources

The researcher sought to establish the strategies available for library e-resources. The interview findings revealed several strategies to enhance access, use, and management of e-resources. This includes budget allocation as stated by SL3, *“The university appreciate that there is need to budget for e-resources, since they cannot always every year subscribe to everything that they want”*. Interview results indicated the availability of library services such as pay per-view services and interlibrary loans, as indicated by SL4: *“There is a system that we have in place which is called a pay-per-view service. This pay-per-view service enables students to indicate to the library whether to purchase an article that we may not have a subscription to”*. Furthermore, *“Effective and well-organized interlibrary loans division that facilitates inter-institutional borrowing”* (SL1). SL 2 also adds that: *“Library management and discovery system Facilitates something called ‘My library account’. This particular ‘My library account’ enables students to, once they are searching the library’s catalogue, they are able to request for items that are not held in the library or that are held at other libraries”*. Moreso,

SL5 acknowledges that: *“The UKZN links with The National consortium called Sanlik that negotiate for good deals from the publishers on behalf of the institutions in the country”*.

4.3.6.4: Strategies and policies implemented that impact the sustainable provision of EIRs

The study sought to find the strategies and policies that were in place to sustain the provision of EIRs for library users. The findings indicated the library's acquisition policy, SL1 affirms that: *“Acquisitions policies that constitute to what percentage of the budget and what we spend on e-resources”*. SL3 adds: *“The library’s acquisition policy makes provision for the purchase of an extensive e-resources collection”*.

Subject Librarians indicated the availability of an e-resource librarian and formalised the methods of library training. According to SL2, *“The library has an e-resources Librarian who ensures that the core collection of databases is maintained each year as requested by the academics”*. In addition, SL2 adds that: *“There is an organisation in the library such as an e-resources Librarian and somebody responsible for the website, uploading materials to online resources, and ensuring that links work”*. However, SL3 suggests that: *“Librarian should be proactive to help students with research and library use of EIRs”*, and SL3 acknowledges that: *“In terms of the library structure of staff is one of the strategies”*. Concerning training, *“The library has adopted a formalised method of rendering library instruction”* (SL5). Furthermore, SL5 continues to say that:

“At the beginning of each semester, there are mandatory library training sessions which are devised through a collaboration of various service providers as well as experts in different areas such as referencing scoping reviews and other Services that postgraduate students may need in order to undertake their research”.

4.4: Summary of the chapter

Chapter four presents collected and analysed results based on the information gathered from the library users (postgraduate students) and service providers (subject librarians). The study used questionnaires and interview schedules to solicit from the respondents. The study findings revealed the availability of library e-resources and services, and students used the e-resources available. Still, they were not effectively used due to some students' challenges.

Findings further reveal challenges experienced during the access of e-resources. This includes inadequate literacy skills for the students to allow adequate access and use of library e-resources, and as much as the libraries offer training to students, they cannot bring a good number of students on

board for the training. Financial constraints for both the library and the library users, where some information materials were not subscribed to, or the library could not afford to subscribe to everything a user may need.

Power failure and network breakdown were among the problems that were encountered. Students also indicated information overload, therefore the need to filter results from the search, and language barrier, which sometimes led to a lack of knowledge of terminologies used.

CHAPTER FIVE

INTERPRETATION AND DISCUSSION OF RESEARCH FINDINGS

5.0: Introduction

Chapter Five interprets and discusses the data results from Chapter Four. Findings from Chapter Four were drawn from the interview schedules and questionnaires. This section draws the report in line with the initial objectives of the study and constructs of the theories adopted for the study. Therefore, this discussion addresses issues that align with research objectives and answers research questions. The interpretation and discussion enable a broader meaning of research findings, linking the results of a study and establishing some explanatory concepts, thereby allowing the researcher to expose relations and process the underlying findings (Emory, 2004:336).

Strangor (2015:312) observed that the most critical issue in discussing the results was determining if the data analysed agreed with the overall conclusion derived from a study. Discussing the results involves understanding, explaining, and making sense of the analysed data.

This section discusses the results of the questionnaires and interview schedules. Findings from both instruments were combined to generalise the results of the study. Discussions in this chapter followed the order of the research objectives. Thereby, the study addressed the following research objectives:

- Identify and describe library services and resources available for remote access and use at the UKZN library.
- Determine the usage pattern of library e-resources by postgraduate students.
- Examine the efficacy of the library system provided for remote use.
- Determine the challenges faced by postgraduate students accessing the library remotely.

5.1: Demographic analysis of the respondents.

The distribution of respondents is based on two categories: postgraduate students and subject librarians. Respondents' Demographic information (postgraduate students) includes gender, age, study programme, and years spent in the UKZN. Moreover, demographic information for the subject librarians was in terms of gender, age, level of education, and years of working experience in the UKZN library.

The findings show that 41 (59%) of the respondents were male and 29(41.4%) were female, while results from the Subject Librarian indicated that one was male and four were female respondents. Findings revealed a possibility that the majority of the respondents were male students enrolled for postgraduate studies rather than female students. Meanwhile, reports from interview schedules indicated more female counterparts than male ones. The interview results are in line with studies done by Ajegbomogun and Diyaolu (2018) and Ansari, Shahdadnezhad, Khalidian and Poorsani (2018), whose findings indicated that most of the respondents were female. Moreover, Quadri (2019) reported more female respondents than male respondents.

Regarding the level of education, findings indicate that in the majority of the Subject Librarians, four held masters degrees, while one held a doctorate. The findings indicate that none of the Subject Librarians had bachelor's and college diplomas. Figure 4.2 indicated that 42(60%) of postgraduate students (taking up the majority of respondents) were at the PhD level, while 28(40%) were at the master's level of their studies. With regards to the qualification level of Subject librarians is an indication that there is a positive effect on the performance expectancy.

The study sought to determine the number of years the respondents have been in the UKZN. Table 4.3 revealed that the majority, 42(60%) of the respondents, have been in the university between three to four years, followed by 20(28.6%) have been in the university between zero to two years, while five to six years were only six (8.6%), and six years and above recorded the lowest number of two (2.8%) of students in the UKZN. Interview results indicate that two Subject Librarians have been working in the UKZN library for 11-15 years, one in the UKZN for 21 years and above, and two in the UKZN library between 16-20 years. This indicates that the Subject Librarians have more years of experience in the library field; therefore, considering the number of years indicated by Subject Librarians, they should have a positive effect on their job performance.

5.2: Library resources and services for remote access and use at the UKZN library

The UTAUT constructs (Facilitating Condition and Social Influence) and ISP constructs (Initiation and Selection) were mapped to the first research question, the study findings revealed that the library provided electronic resources and services that enabled the users to access and use e-resources. In line with facilitating conditions and social influence, the UKZN library believed that providing effective library resources and services would greatly contribute to the use of the resources. As mentioned in Chapter Two (see Sections 2.1.2.1 and 2.1.2.2), initiation highlights the first step of a student's need for information, while selection involves the ideas and the users trying to find a more specific topic that will require assistance by getting the right information materials for use. For this reason, the study aimed to find out the availability of relevant resources and services in the UKZN library. According

to Venkatesh et al. (2011), they assert that UTAUT constructs are direct antecedents of usage thereby, the current study found that users believed that the availability of resources provided by the library and services would enable them to meet their information needs.

It is important to ensure the collection of electronic library resources and services are available and up to date; this will enhance utilisation of the said resources. Akpojotor (2016) asserts that awareness and use of library electronic resources are important factors; therefore, library users must be informed of the available resources to enable access and use of library resources and services. For this reason, the study sought to determine whether postgraduate students used library e-resources. The findings indicated (See Figure 4.3). Fifty-six (80%) used online resources, while seven (10%) did not use online resources, and seven (10%) indicated both. The study's result indicates that most students use online resources in the library. This result relates to the study done by Somers (2015:83), who found out that the use of library e-resources has improved due to the paradigm change that influenced the way users search and use library resources; this was shown by 87.5% of the respondents indicating that they used library e-resources.

Students who did not use e-resources provided reasons why, including failure to access databases and the use of Google Scholar. They never thought they needed to use library e-resources because searching the Internet was easier and quicker. Technological improvements have also contributed to some students not using library e-resources, facilitated by the Fourth Industrial Revolution (4IR) with technologies such as Artificial Intelligence and the Internet of Things (Sullivan, 2021).

The main aim of higher learning institutions is to provide effective and reliable electronic resources and services for their users. Moreover, the delivery of relevant information resources enhances effective learning and research. UKZN library had electronic resources and services available for its users; therefore, to facilitate efficient access to, use of, and management of library electronic resources, it was vital to take note of the available resources and services.

This study sought to establish electronic resources in the UKZN library, and respondents were asked to indicate available e-resources. The results indicated (see Table 4.6) the availability of library e-resources in the UKZN library, including e-journals, eBooks, e-research reports, e-newspapers, e-research reports, e-data archives, e-manuscripts, e-maps, e-bibliography, BIPD, Electronic thesis/dissertations, Digital Repository, and Online database. This study's findings concur with Sudhier's (2016) study findings that examined the awareness and use of e-journals by students of Thangal Kunju Musaliar (TKM) college; the results indicated that electronic journals were highly used amongst the students. Furthermore, Ankrah and Atuase (2018) conducted a study on using electronic

resources by postgraduate students at the University of Cape Town (UCT). The study established that most students, 185(73%), were aware of the electronic resources available in the UCT library.

Based on the current study findings, the availability of e-journals, eBooks, e-thesis/dissertations, online databases, and research reports were among the electronic resources that most students were aware of their availability at the UKZN library. For this reason, respondents were aware of the available library e-resources that encouraged effective use of e-resources. On the contrary, awareness and availability of e-resources do not necessarily guarantee effective utilisation by students. However, these findings contradict Kwadzo (2015) and Akiniola et al. (2018), whose results showed that most students were unaware of available e-resources. Therefore, they used what they were aware of, leading to low usage of library e-resources. For this reason, Adeleke and Nwalo (2017) suggest that service providers should help create awareness of available library electronic resources to effectively use e-resources.

The study sought to find out what online services were offered at the UKZN library, and respondents were asked to indicate the available online services. Respondents were allowed to give multiple answers with regard to the services offered. The study revealed that librarians offered several services to enable access and use of library e-resources. The results show (see Table 4.6) that more than 50% of the respondents reported the availability of Online Catalogue services, e-newsletters and journals, while, the rest reported the availability of e-thesis and dissertations, online reference services, amongst others. Based on the study's findings, Online catalogues services, Online reference services, e-newsletters and e-journals were services that most students were familiar with; therefore, the students were, to a certain extent, aware of electronic services in the UKZN library. Furthermore, the study findings revealed that awareness services, online tutorials, web pages, and blogs were only reported by less than 50% of the respondents. This shows that some services were not used as expected by librarians, this could be because of a lack of awareness that leads to underutilization of library e-resources.

5.3: Students' usage pattern of library e-resources

The second objective was to establish the utilisation of available library e-resources by postgraduate students. Moreover, it is important to understand how much information resources are being utilised. UTAUT (Performance Expectancy, Effort Expectancy, and Social Influence) and ISP (exploration, formulation, collection and presentation) constructs were mapped with the second research question, and the objective was to establish the usage pattern of library resources. As mentioned in Chapter Two (see Figure 2.1), the variables Performance Expectancy, Effort Expectancy, and Social Influence significantly affect a user's behavioural intention.

These variables are considered as the degree to which users expect to meet their information goals with the support of effective use of technology and the impact of people present regarding the use of specific technology. Therefore, the variables impact the behavioural intention of use of a library user (Venkatesh et al., 2003). In line with the UTAUT and ISP model, the study aimed to establish the utilisation of library resources. The study results showed that behavioural intention was affected by several factors, such as frequency of use, literacy skills, access format and location, search techniques/engines, and user information needs, amongst others.

5.3.1: Information literacy skills of postgraduate students

According to Buba, Song, and Abdullahi (2021) information literacy is the ability to identify and use information effectively, therefore, an individual can locate, access, and evaluate information strategically, thereby, considering the user's information needs. To effectively access and use e-resources, one will need essential computer and information skills. For this reason, using e-resources will depend on an individual's knowledge and skills.

Odede (2018) adds "skills to ascertain the reliability, bias, context and ascertain information's veracity". Moreover, information literacy is not just about reading and writing; more than that, it involves knowledge and skills to use computer systems and search for and retrieve information.

The study aims to determine students' information literacy skills that enable them to access library information materials. Results from the interview indicated basic computer skills were the main and important skill required to access and use library e-resources, as stated by the Subject Librarians. According to SL1, users must have in-depth knowledge and understanding of the database; SL2 adds that postgraduate students need to know how to create a search strategy. Based on the findings, digital skills are essential for any library user who intends to use library e-resources and services. Therefore, computers are a significant predictor of electronic resource use. Understanding how to work with computers is a thorough way to information literacy. Odede (2018) states that the ability to use a computer to locate and retrieve information determines the usage of electronic information materials. For this reason, there is a direct relationship between computer usage and literacy skills. Therefore, it is important for students to have computer skills and knowledge to navigate through the system; this will allow them to access and effectively use electronic resources and services. Ankrah and Atuase (2018) ascertain that computer literacy comprises a certain variety of complex skills, such as how to retrieve and use information, thereby, a component of computer literacy in which a user can efficiently and effectively search, access, assess, and use electronic resources to suit their information needs.

The study results also show that students should understand how information in electronic format is arranged and presented, and moreso, know how to use and engage with various formats of e-resources

such as PDFs and eBook readers. SL5 added that students should understand the element of access and how it impacts the search results.

This study sought to find out if postgraduate students used e-resources independently. This was to affirm the literacy skills that enable them to access and use library e-resources effectively. According to Sejane (2017), students should be information literate to effectively find and use information. Therefore, information literacy significantly impacts the user's ability to use library e-resources.

Results from the interview showed that respondents agreed that library users are information literate. There was an independent use of electronic resources, as indicated by SL5, with the view that most students used e-resources from the undergraduate level. Moreover, SL3 added that the library offers training and guides such as library guides. However, SL2 says that sometimes, some students will seek help from service providers when faced with challenges to engage with the systems or navigate through databases, which indicates that they cannot access the information materials independently. In line with the findings by Ankrah and Atuase (2018), whose objective was to examine the computer competence of postgraduate students of UCC, affirms that although students were information literate, there were still students who had inadequate skills in searching correctly for information needed. Therefore, they would seek assistance from the library staff to access electronic resources.

Odede's (2018) findings indicated that 63(54.8%) agreed that the ability to locate information determines the use of electronic resources; therefore, information literacy is a factor that contributes to the effective use of library e-resources. Moreover, user knowledge and experience in navigating through the system to locate and identify information without many challenges encourages more use of e-resources.

This study's findings further indicate that some students were not well trained and unable to interact with the systems effectively, as stated by SL4. This result correlates with a study by Joshua and King (2020) to determine the extent of using e-resources at MAUTech. Findings indicated that there was limited information literacy training, which led to minimum use of electronic resources. Based on the study findings, information literacy education is recommended for students. This will allow proper usage of information resources provided by the library.

The current study sought to establish if information literacy efficacy can be enhanced amongst service providers and library users. The study findings revealed positive results indicating that Subject Librarians agreed to training offered by the UKZN library to enhance information efficacy. Furthermore, SL1 indicated that some of the training is subject-based because some faculties request the library to do the training, and SL3 adds that the training is structured to cover all aspects of literature and database searching.

Based on the current findings, there is an indication that information efficacy can be enhanced with regard to the training offered by the library to postgraduate students. The results suggest that the UKZN library has tried its best to offer training to the students.

The study sought to determine if students' information literacy self-efficacy was linked to their use of EIRs. SL1 and SL2 confirmed a link between self-efficacy and use of e-resources. Based on the study findings, there is a positive response that information literacy self-efficacy plays a big role in enabling the effective use of electronic library resources and services. This finding correlates with Odede's (2018) study which revealed that 91(79.1%) of the respondents strongly agreed with the effect of self-efficacy skills on using library e-resources. In addition, information literacy self-efficacy (ILSE) was an important factor in enhancing and promoting electronic resource use. Ankrah and Atuase (2018) highlight that a student's ability to search, retrieve, and use information effectively is an aspect of information literacy self-efficacy that enables users to achieve their information needs and contributes to students' effective use of e-resources independently.

5.3.2: Students usage pattern

The study sought to determine postgraduate students' usage patterns of library e-resources. The study usage pattern was ascertained by frequency of use of electronic resources, location of access, the format used to access and use information resources, search techniques/engines, the usefulness of EIR, and the purpose of using electronic resources.

The literature review established that frequency is an important measure to establish the extent of use of library e-resources. Therefore, the extent of use of library resources was based on the importance of the library resources and how useful they are for the students. Ankrah and Atuase (2018) conducted a study to determine the use of electronic resources by postgraduate students at the UCT. The study established frequent use of library resources, though the students had specific databases that were mainly used, such as Google Scholar, EBSCOhost, SABINET, and ProQuest.

Given this, respondents were asked to indicate how frequently they used online library resources, and the study findings (as shown in Table 4.4) revealed that a significant number of 31(49.2%) students used online resources weekly. In comparison, 20(31.8%) used online resources daily. Seven (11.1%) indicated less than a month and five (7.9%) monthly. Generally, the study results indicate that students used online resources. The results revealed that most students access online resources weekly, which is an indication that they don't access e-resources more frequently; this may be because of some constraints such as inadequate skills to navigate through the library database, technical and network problems that may not allow them to use e-resources daily. The findings align with the results of Sejane (2017), who reported that 41% less than half of the respondents used library resources two to three

times a week, and 23.1% used e-resources daily. According to Sejane (2017), the findings may result from challenges that hinder the frequent use of library resources, such as lack of awareness, infrastructure, and poor information search skills.

Results from the structured interviews, as indicated by SL3, assert that library resources were online, except for some books; therefore, students had catalogues, databases, and e-journals, among others. Databases were highly used during the initial search, which required full literature, but SL4 says that students mostly used Google Scholar. Online resources were used more often because they were easy to use. However, the results from the interview schedule contradict the results from survey questionnaires where the majority, 31(49.2%) of the students admit to using e-resources weekly. In comparison, 20(31.8%) of the students used e-resources daily. Furthermore, weekly use of electronic resources indicates that online resources are not being used that frequently, even though the library has provided these resources online for students to use. This does not mean students get full access and use online resources as expected. This could be due to some challenges students face that obstruct them from frequent use of library resources.

The current study sought to find out the location of access and use of library e-resources for postgraduate students. Findings in Table 4.9 show that the majority, 59(93.7%) of the participants access e-resources from home, followed by 33(52.4%) from their offices, while eight (12.7%) get access to e-resources while in transit. Furthermore, Internet café, university LANs, and other locations are shown by two (3.2%) each, possibly because of COVID-19. Interview results revealed that most library electronic resources were accessed via web and live room pages. The library's web page is designed to offer students seamless access to various databases from different locations. In contrast, the live room page is simple, and all the electronic resources are available on the live room page. Therefore, students used Google Scholar from the library web pages and direct links to the full text that the library pays for, as reported by the Subject Librarians.

The findings indicate that library users can access library e-resources from remote locations (see Table 4.9). This has been enabled by the library's services and resources to access and use e-resources from remote locations. This result is supported by Majhi et al. (2015), who affirms that technology pooling provides data to library users from different locations at the same time; Idhalama and Fidelis (2020) add that cloud computing systems are not limited to tools and applications, therefore storage of information is done on remote databases, for this reason, the availability of web pages in the UKZN library is a breakthrough for students to access and use library e-resources remotely. The current study also shows that most students access e-resources from the

comfort of their homes and offices. This requires an effective web application that enables access to library e-resources remotely. Findings also reveal that UKZN library e-resources are not restricted by location and distance. Therefore, students can access library information materials and services from any location if they have the credentials to access the library web pages.

As shown in Table 4.10, the study findings revealed that 54(85.7%) of the respondents preferred using electronic information resources in Portable Document Format (PDF). Followed by MS Word 28(44.4%). These findings from the questionnaires corroborate the interview results, indicating that the Subject Librarian revealed that PDF was the most used format for accessing and using library resources. SL3 indicated that book format was preferred, depending on how an eBook is set up to be read online.

Based on the findings, PDF was the most preferred format because of its agility, ease of download and ease of use. In addition, PDF is preferred as it can be downloaded for later use.

The study revealed that MS Word was also most preferred by 28(44.4%) respondents. This shows that, besides PDF format, MS Word is also considered an effective format for accessing information resources. In line with the findings from Sudhier (2016), the study revealed that the majority, 80(40%) of the respondents used MS Word format to access electronic resources.

Current study findings indicated that most 22(31.4%) never preferred to use HTML; it is evident that most students do not like accessing information materials in HTML format; this could be because HTML may not be user-friendly and the documents in HTML format may need to be converted into a format such as a word or PDF that is readable for the students to understand the concepts.

The study asked postgraduate respondents to indicate their techniques to search for needed information. The findings indicated that the majority, 56(88.9%) of the respondents, used More than one keyword search technique, 54(85.7%) used the Author/Title search technique, and 38(60.3%) used the subject search technique. The study also revealed that direct links and One keyword search were used by 25(39.7%) and 23(36.5%), respectively. While 18(28.6%) used hyperlinks, few respondents indicated Boolean operators. The study had no respondents who indicated truncations as a search technique used while searching for information. The findings contradict a study by Sohail and Ahmed (2017), which revealed that the majority of the students 81.1% used Boolean operators and 91.1% of the students used truncations to search for information. Based on the current study results, the most preferred techniques were full-text search and author/title search techniques; therefore, the results revealed that respondents know the search options available for access to and use of library e-resources.

With regards to search engine results from the interview schedules. Subject Librarians indicated that most students basically used Google Scholar because they were trained to use it, while other students used Science Direct. SL1 stated, *"From my experience regarding Android machines, often it is Google, and with Mac computers it is Safari"*. This finding corroborates with a study by Sudhier (2016), whose findings revealed that most students used Google as the search engine. Somers (2015) reported that most respondents regarded Google Scholar as an important search engine for research. Furthermore, SL2 indicated that figuring out what search engines students may be using was difficult.

The study sought to find out an alternative search for the student if their search techniques did not yield satisfactory results. Table 4.13 indicated that the majority, 50(79.4%), chose different keywords, 47(74.6%) chose different information sources such as search engines, journals, databases etc, while 20(31.7%) changed the initial search techniques to a different one. The findings indicate that it was appropriate for the respondents to use different methods to search for the appropriate information. This was to ensure that they got what they were looking for, thereby searching for relevant information with their information need and purpose.

The findings also indicate that eight (12.7%) assumed there were no satisfactory results and used what they found, while, one (1.6%) assumed there were no satisfactory results and stopped the search. This could be because the students who used what was found and those who stopped the search could have been frustrated during the search process or did not have the information literacy skills to search correctly.

Furthermore, with regard to search skills, Table 4.14 revealed that respondents applied different search skills to retrieve information. The respondents' results indicated that advanced search skills and navigational skills were applied by 41(65.1%) and 38(60.3%), respectively, while 32(50.8%) applied filtering skills that enabled them to access and retrieve needed information remotely.

To ensure that students used relevant and accurate information materials, they had an obligation to evaluate and ensure that they retrieved relevant data for use. The study findings indicated that 59(93.6%) of the respondents evaluated their data before use, while four (6.4%) did not. This indicates that evaluation is crucial to ensure that one uses the correct data for their work to fulfil their information needs. According to Odede (2018), a critical examination is required when there is a large amount of information that may be erroneous and incorrect; as a result, students who can assess the content correctly will gain significantly.

Table 4.15 indicates the aspects that users evaluated to get quality information. Relevance of retrieved information was checked by majority 49(77.8%), reliability of information 47(74.6%), while accuracy and accessibility 37(58.7%) each. Furthermore, timeliness and convenience were indicated by

24(38.1%) and 22(34.9%), respectively. The study findings indicate that effectiveness enhances quality information, the delivery of quality research work, and user satisfaction

The study sought to find out the usage pattern of electronic library resources; therefore, some questions were asked of the respondents to show their views with regard to the utilisation of e-resources. The findings are shown in Table 4.11, which shows that 45(71.4%) postgraduate students indicated e-journals and e-thesis/dissertations each as the most useful e-resources. Moreover, 36(57.1%) considered Online databases the most useful. However, the results indicated the availability of other e-resources, with less than 50%, that were most useful. With regard to those resources that are quite used, the study indicated e-books 20(31.7%) with the highest number of respondents.

Based on the current study findings, e-journals and e-theses/dissertations are the most useful resources, as reported by respondents. This corroborates Odede's (2018) findings that 49(42.6%) respondents always make use of e-journals, while 42(36.5%) often used e-journals and non-indicated to have never used journals. For this reason, electronic journals are valuable and more effective to use, as postgraduate students indicated when using library e-resources. Odede (2018) ascertains that e-journals are more convenient and flexible to facilitate and provide more access to articles and content that may meet a user's needs.

Findings from interview schedules indicated that Subject Librarians agreed that students use e-resources well. The electronic resources are relatively well used; however, some postgraduate students are still intimidated by particular databases and prefer to use Google. Interview results reveal that the user education or library sessions offered have helped students and convinced them otherwise, thereby beginning to engage with the electronic resources.

The study sought to find out the major reasons why students use e-resources. The results from the study show that the majority of the students used electronic resources mainly for academic purposes. Findings from the interviews reported that students' engagement with e-resources in research and assignments was the major reason for engaging with e-resources. This finding aligns with a study by Somers (2015) on the use of electronic resources by postgraduate students and academics at the Graduate School of Business and Leadership, Westville Campus, University of KwaZulu-Natal. Findings indicated that 12(85.7%) of the 14 respondents' primary purpose of using e-resources was research. This finding corroborates Sejane's (2017) results that all the respondents, 39(100%), used e-resources for research, assignments, and to support teaching and learning. The findings are consistent with Odede's (2018) findings that the majority of the respondents, 112(97.4%) and 110(95.7%) of the

respondents, indicated that they used e-resources to prepare thesis and dissertations and for research work, respectively.

Based on the findings, it is evident that most students generally use electronic resources for academic reasons such as research projects, completing assignments and reports, and seminary presentations, among others. The study findings agree with those of Akiniola et al. (2018), who reported that the main reasons for using e-resources were research, course assignments, and writing conference and seminar papers.

5.4: Efficacy of the library information system

The third objective of the study was to establish the effectiveness of the UKZN library, based on the UTAUT and ISP models, UTAUT (Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions) and ISP (collection and presentation) variables were mapped to the third research question. The study investigated information literacy amongst librarians and postgraduate students and strategies and policies implemented to use library electronic resources effectively. In line with the adopted model, the study indicates that the variables directly impact a library user's use and intention behaviour.

The library's e-resources are utilised by the library information system that supports the provision of library e-resources and services. For effective teaching and learning, libraries should ensure the proper functioning of the library system. Anyim (2020) states that using e-resources can be enhanced by providing a user-friendly interface, user guidelines, and an information literacy platform and creating awareness of available resources.

The current study sought to establish the effectiveness of the library system for the delivery of library e-resources remotely, and this was determined by information literacy efficacy amongst librarians and students, the effectiveness of remote networks, strategies and policies implemented to ensure access, use, and management of available EIR.

Regarding information literacy efficacy, the study findings indicated that Subject Librarians agreed that information efficacy can be enhanced amongst service providers and library users, with the view that libraries offer student training. Moreover, library training is offered more than twice a year. SL2 indicated that there are also faculty-based sessions that are always in demand. Some disciplines request the library to conduct the training; therefore, they are subject-based, and SL3 added that the training covers all aspects of literature and database searching.

The findings indicate that library users are equipped with knowledge and skills regarding the use of library e-resources, so they can succeed in the learning environment. The findings align with the study done by Yahaya (2019), who affirms that libraries are always a factor that impacts students' behaviour when searching for information. Therefore, they play a significant role in accessing and using information resources. Odede (2018) adds that using e-resources is influenced by information literacy and self-efficacy; therefore, there is a great need for information literacy for students to acquire knowledge and skills to use technology and retrieve relevant information.

Higher institutions establish academic libraries to support learning and teaching by providing information resources and services; therefore, libraries are expected to provide effective and quality electronic information resources that will fulfil the information needs of library users. For this reason, the current study sought to establish the effectiveness of the UKZN library e-resources that may influence the access and use of e-resources in the UKZN library. The study used different factors to determine the effectiveness of library e-resources. This includes ease of use, usefulness, response time, endurance, result satisfaction, availability, accuracy, user satisfaction, and reliability.

Findings from the questionnaire (see Table 4.16) revealed that the majority, 20(31.7%) of the respondents strongly agreed to the ease of use of e-resources, followed by 16(25.4%) and 14(22.2%) respondents who agreed and strongly disagreed, respectively. With regards to usefulness, the majority of the respondents, 23(36.5%) agreed, 18(28.6%) strongly agreed, and 19 (19.1%) strongly disagreed with the usefulness of library e-resources.

The study results revealed that most students strongly agreed with the ease of use of the library interface and could navigate through the system to retrieve information. Respondents also found the importance of e-resources in the library and indicated that e-resources were useful. Only a few who strongly disagreed with ease of use and usefulness may not have had enough training on the access and use of library resources or could not obtain enough information literacy skills to access information resources. Those with problems with the interface may need assistance navigating through to enable the use of e-resources.

The current study also reveals that the majority of the respondents supported a number of factors that were effective in the library. This includes results satisfaction 25(39.7%), availability 31(49.2%), accuracy 20(31.7%) and reliability 24(38.1%). While a few strongly disagreed with the effectiveness of library e-resources. This indicates that the UKZN PMB main library has made efforts to ensure that electronic resources are fit for use and are effective in fulfilling the information needs of library users.

Given the pivotal role of libraries, it is paramount to understand the strategies and policies that would help promote the effective use of library materials. To enhance the access, use, and management of UKZN PMB main library e-resources, a number of strategies need to be in place. For this reason, the study sought to find the strategies and policies implemented to sustain EIR provision for library users. The study results from the structured interviews indicated the availability of some strategies that have been put in place for access and use of e-resources; for example, budget allocation was the major strategy implemented in the UKZN library. SL3 affirmed that the university appreciates the need to budget and plan for e-resources. Moreover, financial control is one of the major strategies that any library would need to enable the effective running and delivery of resources and services to its users. For this reason, SL 4 reported the availability of pay-per-view services to some e-resources and stated that the library chooses the most specialised subject-specific databases, such as Agriculture, Biological Sciences amongst others and gets a range of multidisciplinary databases to accommodate everybody; this is because the library cannot be able to subscribe to everything that every individual may need. From the interview results, SL5 states that the UKZN has been linked with the national consortium called Sanlik, which negotiates good deals with publishers on behalf of the institutions in the country. The study findings also show that three respondents reported the availability of self-service library guides with information of what is available in the library. This strategy helps to create awareness of library resources for practical use in the library. Studies done by Adeleke and Nwalo (2017:52) and Dukper et al. (2018) revealed that a major challenge was the underutilisation of e-resources due to a lack of awareness, therefore, creating awareness of e-resources will enable effective use of library materials.

The study findings reported an effective and well-organised interlibrary loans division that facilitates interlibrary loans; this is enabled by the availability of a library management and discovery system called "My Library account". This kind of system allows students to request items from other libraries.

With regard to policies, the findings of Subject Librarians indicated the library's acquisition policy. The library policies constitute the percentage of the budget and how much is spent on e-resources (SL1), thereby making provision for the purchase of an extensive e-resources collection (SL3). Based on the findings, proper planning of funds allocation will aid in implementing and developing well-managed electronic resources that will allow proper provision of needed e-resources that are in demand. Corroborating this assertion, Oluwaseun (2019) asserts that a well-planned budget and implemented policies support adequate funding of library e-resources, Furthermore, the engagement of other libraries for a joint acquisition reduces the cost of subscription to library electronic resources.

SL 2 acknowledges the presence of an e-resources librarian to maintain the core collection of databases, such as the website, uploading updated materials, and ensuring links work. Moreover, SL5 stated that the library had adopted a formalised method of rendering library instruction. Thereby, mandatory library training sessions are devised through a collaboration of various service providers and experts in different areas, such as referencing scoping reviews and other services that postgraduate students may need to undertake their research.

5.5: Challenges faced by postgraduate students accessing the library remotely

The final aim of the study was to determine what challenges library users face while accessing electronic materials and services. The objective was linked to the Performance Expectancy, Effort Expectancy, and Facilitating Condition variables of the UTAUT Model. The study findings indicated several barriers that caused challenges while using electronic resources, including financial constraints, inadequate skills to access and retrieve information, and power outages. Based on the findings, these challenges lead to the underutilisation of library e-resources. In line with the UTAUT Model, Performance Expectancy, Effort Expectancy, and Facilitating Condition are the key factors contributing to the effective use of library e-resources.

The study sought to determine the challenges that postgraduate students encounter when using library e-resources and what librarians face when providing electronic resources and services to their users. The use of e-resources has both sides of the coin (pros and cons); therefore, library users and service providers acknowledge the presence of e-resources, but they still face some challenges when using library resources.

According to the findings from the interview schedules, the study results indicated that respondents faced challenges while using e-resources. This includes language barriers, lack of search skills, and inadequate knowledge to navigate the system. Subject Librarians stated that students experienced information literacy barriers. The findings are in line with results from survey questionnaires (See Table 4.17), where respondents indicated some difficulties related to information literacy, such as lack of search skills, difficulties in the navigation of some webpages, lack of knowledge on terminologies, and information overload as reported by 12(19%), 21(33.3%), 16(25.4%), and 22(34.9%) respectively. This finding corroborates Odede's (2018) findings that 66.7% of respondents reported having faced information literacy barriers such as the digital divide, lack of information search skills, technophobia, information overload, and difficulty in downloading. As reported in the extant literature reviewed, studies conducted by Posigha et al. (2018), Soni et al. (2018), and Thindwa et al. (2019) reported barriers that affected the access and use of electronic library resources by its users and the barriers

included inadequate skills and knowledge to search for information, power outages, information overload, amongst others.

Based on the findings, a lack of search skills to search and retrieve relevant information is a major problem that library users face, leading to low usage of electronic information resources. Information literacy is an essential factor that must be considered for a library user. Therefore, adequate training on accessing and using library e-resources is needed to improve their knowledge.

The study findings reported more challenges encountered, as shown in Table 4.17, such as respondents having problems with the credibility of retrieved information, failure to find information, High cost of access, access to limited information, poor Internet, difficulties in downloading, some interfaces are not user friendly, and limited subscribed titles.

The findings indicated that these challenges obstruct the effective usage of library e-resources; therefore, they negatively impact research and learning outcomes. The results are in line with Yebowaah and Plockey (2018), who observed that unstable Internet and power supply may be a hindrance for library users when trying to access e-resources; therefore, it's suggested to install generators and independent Internet servers to supply uninterrupted Internet connections,

As a result of the interview, Subject Librarians reported financial constraints. *“One of the most critical challenges facing all libraries would be that of financial constraint”* (SL3) and technical problems (SL2). In line with the current findings, Kutu's (2020) findings indicated that funding was a major constraint, as reported by respondents; therefore, inadequate funding had a negative impact on the job performance of service providers. Also, Ani et al. (2016) reported a high cost of the Internet, inadequate funds, and poor electricity supply.

SL5 stated poor maintenance of computers and poor attendance of library training by students. Therefore, the library makes an effort to ensure that students are well-equipped with knowledge on the availability, access, and use of library materials. Unfortunately, students do not turn up in good numbers for training. This contributes to a lack of skill and knowledge that poses a challenge while using e-resources.

The current study sought to determine whether these barriers can be alleviated in any way possible; the results revealed that some technical problems, such as network and server problems, are beyond control; the library may not be able to help, but wait for the ICT team to work on it.

The study findings also suggested collaborating with other institutions to share resources and develop coalitions to get more money from different vendors, and this will reduce the impact of financial constraints, a major problem that libraries face. Proper training and tactics should be employed to lure students to attend library training, and this will help them understand and gain knowledge and skills

regarding electronic information resources and, therefore, ease the access and use of electronic resources. Ankrah and Atuase (2018) highlight that for proper usage of e-resources, skills must be acquired through proper training and guidance.

SL5 suggested marketing library resources and the use of library guides. The study findings advocate for creating awareness of the available library resources and services. This finding is supported by Adeleke and Nwalo (2017:52), Who asserts that users must be made aware of the services and resources provided in the library to enhance the effective use of e-resources.

5.6: Summary of the chapter

The major aim of Chapter Five was to discuss the study results from Chapter Four, and this discussion was guided by the research objectives and constructs of the UTAUT and ISP models adopted for the study. The study findings revealed the availability of electronic resources and services offered by the UKZN library, and postgraduate students were using online resources from remote locations. Based on the study findings, it is revealed that most postgraduates used online resources, and they accessed these library resources from different locations such as home, office, and other areas.

Strategies and policies were implemented to support the utilisation of the UKZN library were discussed. Lastly, the findings revealed some inadequacies that caused challenges while accessing and using library information materials.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATION OF THE STUDY.

6.0: Introduction

Chapter Six presents the summary, conclusion, and recommendations for the study. The study's contribution to policy, knowledge, practice, and methodology is presented in the current chapter. The study's main aim was to examine remote access, use, and management of the UKZN library electronic resources; therefore, the chapter is structured around the following research questions:

- 1) What library services and resources are available for remote access and use?
- 2) What are the postgraduate student's remote usage patterns of library resources?
- 3) What is the efficacy of the UKZN library systems in providing remote access and self-efficacy of postgraduate students?
- 4) What digital literacy barriers hinder postgraduate students' remote access to the library?

The UTAUT and ISP models guided the study. Quantitative and qualitative methodologies were adopted, and a positivist research approach was employed in the study. The study population comprised postgraduate students and subject librarians from UKZN, Pietermaritzburg campus. Questionnaires were used to collect quantitative data from postgraduate students, and interview schedules were used to collect qualitative data from the subject librarians. Data collection was done online, and a Google form was sent to students to fill out and return the survey forms, while interviews were conducted with the subject librarian on Zoom. Qualitative data was analysed with the help of SPSS Version 20.0 to generate results, while qualitative data used thematic analysis.

6.1: Summary of the chapters

Chapter One of the study introduced the study. Therefore, it provided general information that includes the study's background, research questions and objectives, significance and purpose of the study. The scope and limitations of the study were discussed in the first chapter. The study found the research gap for the study and, lastly, ethical considerations.

Chapter Two evaluated the theoretical frameworks for the study and literature review. Two models were established for the study, including the UTAUT and ISP models. The main constructs of UTAUT were Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC). At the same time, ISP constructs included initiation, selection, exploration, formulation, collection, and presentation. These constructs were mapped to the research questions.

Several studies were reviewed to establish the relationship between the current study and what has been researched. Access and use of e-resources, Access to library licensed e-resources, availability of e-resources and services in an academic library, awareness and utilisation of e-resources, information-seeking behaviour and self-efficacy of users, the impact of COVID-19 and barriers that hinder the utilisation of e-resources.

Chapter Three presented the research methodology, which encompasses the techniques used during the research. This chapter discussed research paradigms, research approach, design, data collection methods, and procedures. The chapter covered the study population, sampling techniques, data analysis, validity and reliability of the research tools, and ethical considerations.

Chapter Four of the study presented the results using data collection instruments. Two instruments were used to collect data for the study: questionnaires were used to collect quantitative data from postgraduate students, and interview schedules were used to solicit qualitative data from the subject librarians. Data was presented in figures and tables, quantitative data was analysed using the SPSS version 20.0, and qualitative data used thematic analysis to transform it into meaningful facts and presentation.

Chapter Five included the interpretation and discussion of the results. The research objectives of the study guided the discussion of findings. The discussion of the results was linked to the theories adopted and supported by the reviewed literature.

Chapter Six presents a summary, conclusion and recommendation of the study; this chapter also presents the contribution of the study to policy, practice, and theory, and lastly, it suggests further research.

6.2: Summary of the findings

This section summarises the findings of the study in relation to remote access, use and management of library resources by the select school of social sciences postgraduate students and librarians in the UKZN, Pietermaritzburg campus. The study aimed to establish the needs of postgraduate students accessing library e-resources remotely. The strength of the study was the fact that the remote access, use and management of library e-resources analysis of the questionnaire was complemented by in-depth interviews with the subject librarians by the use of an interview schedule. This provided the desired contextual information that helped in the analysis and interpretation of the results. This section presented the summary according to the research questions.

6.2.1: Library resources and services for remote access and use at the UKZN library

The first question examined the availability of library e-resources and services in the UKZN library, and the findings revealed that students used online resources provided by the library. The study findings also revealed the availability of library e-resources such as e-journals and ebooks, among others and services, including online catalogue services, and online reference services (see Tables 4.5 and 4.6). In line with the theories mapped with the first question, the study revealed that the availability of e-resources and services influences the behaviour of a user. The findings indicated that most students used online resources, though the users did not effectively utilize library e-resources; the use of online resources, including the Internet, was based on what the institution offered.

6.2.2: Students' usage pattern of library e-resources

The second question sought to establish the students' usage pattern of the library e-resources. The usage pattern of the students was determined by their information literacy skills and the utilisation of e-resources. The study revealed that students need to have computer skills and an understanding of and an in-depth knowledge of databases; they should also possess search skills that will enable them to navigate and search for information effectively. The results show that the library offered training and library guides to enable independent use of library resources, though some students were not well trained and did not have adequate knowledge and skills to access and use library resources independently. The study findings revealed a link between students' information efficacy and the use of e-resources; thereby, information literacy and self-efficacy play a major role in the effective use of library electronic resources remotely.

With regard to utilisation, the study revealed that most students used e-resources weekly. The fact most students use online resources does not mean that they always use electronic library resources. Factors like lack of information literacy, power supply, and lack of awareness and infrastructure may affect the frequency of use. The findings revealed that students accessed and used resources from remote locations, including home, office, and other places such as hotel rooms and in transit. Therefore, access to library resources is not restricted by location and distance, and the majority of the students preferred to use resources in PDF format because it was easy to download and use.

The study revealed that students used more than one keyword technique to search and retrieve information material, followed by author/title techniques. They also applied different search skills, such as advanced, navigational and filtering skills, to retrieve relevant information. The retrieved information was evaluated before use to ensure accuracy, effectiveness and relevance. From the findings, students reported the availability of electronic resources, but some resources were most

useful, such as e-journals and e-thesis/dissertations (see Table 4.11). The results further indicated that the main purpose of using e-resources was academic, including research and assignments.

6.2.3: Efficacy of the library Information System

The third research question of the study examined the efficacy of the library system provided for remote use. The findings show that the library offers training to students to enhance the use of e-resources, and the majority of the students agreed with the ease of use and usefulness, availability, and reliability of library e-resources; the few who disagreed with the effectiveness of e-resources may have faced challenges because of lack of enough training. The study revealed strategies and policies implemented to promote effective use of library resources. Strategies such as budget allocation for e-resources, availability of self-service library guides to create awareness, well-organised interinstitutional borrowing of resources and policies included Acquisition policy, maintenance of library e-resources, and mandatory library training.

6.2.4: Challenges faced by postgraduate students accessing the library remotely

The fourth research question sought to establish challenges faced while using library e-resources. The study revealed financial constraints, language barriers, lack of information literacy skills with regard to electronic use of resources (search skills, inadequate knowledge to navigate the system), and information overload. The study findings further indicated problems with the credibility of retrieved information, failure to find information, access to limited information and limited subscribed titles, among others (see Table 4.17). In line with the mapped construct, Performance Expectancy, Effort Expectancy, and Facilitating Conditions had a major impact on the access and use of library resources.

6.3: Summary of the chapter

The aimed to ascertain the remote access, use and management of library electronic resources by postgraduate students. Based on the findings, the study established that the library provided the students with electronic resources and services. They also offered training to enable effective use of the library resources. The study revealed that the majority of the students used online resources, but a few of them used library resources such as databases. This is because they are not aware or, rather, not well trained to access library e-resources, and some indicated that using the Internet was easier than searching library databases.

The study concluded that the library offers library training to enhance the access and use of library resources. Unfortunately, students do not take the training seriously. Therefore, very few attend the training, leading to a lack of information literacy skills with regard to the use of the library systems and access to electronic library resources. The study found some strategies and policies in place to

enhance the remote access and use of library resources; this includes budget allocation, interlibrary loans, self-service library guides, acquisition policies and the presence of e-resources librarians to ensure the maintenance of electronic materials.

The study revealed some challenges that the subject librarians and postgraduates faced while using library resources, such as financial constraints, information literacy barriers, information overload, and technical problems, among others.

6.4: Recommendations

Recommendations for the study were made based on the study's findings.

6.4.1: Library resources and services for remote access and use at the UKZN library

The study revealed the availability of library resources and services, the majority of the students affirmed the use of online materials, but the results reveal that there was no maximum usage of library e-resources such as databases. Therefore, the study recommends that users must be kept abreast of the available electronic materials in the library. Creating awareness is one of the major initiatives that should be taken seriously to inform users about what is available and the benefits of library information materials. Creating awareness involves marketing and updating students on newly subscribed library materials, through library displays, both physical and online, social media platforms (Twitter, Facebook, among others) and using print files like flyers and newsletters. Furthermore, student campaigns and community outreach can be used to create awareness of library resources that are available for use.

6.4.2: Students' usage pattern of library e-resources

It is recommended that the library consider other tactics to offer training to library users, they may incorporate library training into learning as this will capture a good number of students, thereby it will help to enhance their information literacy efficacy in searching, retrieving and use of library materials remotely.

Based on the findings, the library offers self-service library guides to create awareness of library resources, but this will only help those students who are able to navigate the systems effectively and are well-versed in technology. It is recommended that the library should devise other ways of creating awareness of available library e-resources via social media platforms, current awareness campaigns and capacity-building programs. Awareness can be promoted using different methods such as print materials, such as leaflets, brochures, and catalogues. Verbal means like workshops organized by the library management, and it can be done virtually or physically. The study reveals that postgraduate

students use electronic resources for academic reasons; therefore, sufficient, up-to-date and effective e-resources are recommended to support learning and teaching in the university.

6.4.3: Efficacy of the library information system

The study results revealed strategies and policies available to enhance the use of electronic resources, but that is not enough to enable maximum use of the resources; thereby, it is recommended that more effective policies be implemented, including collection development policies (acquisition, weeding and preservation), procedures and guidelines for budget allocation. The policy framework should be a guide to library funding, acquisition and library practices.

6.4.4: Challenges faced by postgraduate students accessing the library remotely

Based on the findings, it is clear that both librarians and postgraduate students face some barriers to the remote use of library resources. Therefore, it is recommended that the institution devise ways of training that will help to alleviate information literacy barriers, and students will be able to use the systems effectively when accessing e-resources. The study recommends developing a funding policy for library e-resources to properly manage the available funds allocated for library resources.

6.5: Originality and implications

This study investigated the remote access, use and management of electronic library resources in the UKZN library, Pietermaritzburg campus. The study has addressed its originality from three perspectives: context, theory and methodology.

Some empirical studies have been done on the remote access and use of library electronic resources Bunton (2017), Eyaufe (2018), Jayalakshmi et al. (2018), Bhat (2019), Oluwaseun (2019), and Anyim (2020). The study contributes to the literature by addressing the gaps that have not been addressed by other studies, for example, Adeleke and Nwalo (2017), Ankarah and Atause (2018), Gyesi (2020), and Kundu (2021) and proffered measures that academic libraries should consider to ensure effective access, use and management of library resources remotely. Therefore, this study contributes to the existing body of knowledge from the perspective of postgraduate students' remote access to library e-resources. Moreover, it benefits service providers and postgraduate students to enhance the effective and maximum use of electronic resources remotely and also improve research output and academic performance. The study established that the usage of library e-resources was affected by the inadequate information literacy of postgraduate students; for this reason, the study found the need for the UKZN librarians and institutions to consider and devise ways of training library users on the access and use of library electronic resources and also ensure to run current awareness services to inform users what is available and the importance to learning and teaching in the University.

Theoretically, the study strength is aligned to two theories UTAUT and ISP that were used to investigate the remote access, use and management of UKZN library electronic resources. This study established that a system's access and usage depend on a user's behavioural intention and usage. Therefore, the study will act as an advocate for service providers to understand that intention to use and usage behaviour of libraries are affected by what the library offers to the library users. Therefore, it highlights the need to create awareness of what is available and provide training regarding accessing and using the available e-resources.

The study contributes to practice and policies by recommending policies that guide and impact the usage and proper management of electronic resources. The study findings revealed a few policies available in the UKZN library with regard to electronic resources. This study has highlighted key aspects to be considered in implementing strategies and operational policies that will guide librarians in enhancing and encouraging access to and usage of e-resources. Moreover, the study recommends training, creating awareness, policies and strategies.

6.6: Limitations and suggestions for further studies

The current study investigated the remote access, use and management of the UKZN library e-resources and the study was limited to a select group of respondents, that is, postgraduate students and subject librarians in the UKZN library, Pietermaritzburg campus.

The study suggests expanding the scope to cover other UKZN campuses and students. The study also suggests that a similar study should be conducted frequently to track and determine the changes in technology.

6.7: Summary of the chapter

The current chapter provides a summary of all the previous chapters, findings, conclusions, and recommendations for the study. The ISP and UTAUT models provided a theoretical framework for the study. Literature was done to review the previous studies with regard to remote access, use and management of e-resources. The study used quantitative and qualitative methods, while quantitative was the main method used in the research.

Data presentation, analysis, and interpretation were made, and lastly, future research and recommendations were made to enhance the remote access, use, and management of electronic library resources at the UKZN library.

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Appendices

Appendix 1: Informed consent form for subject librarians



Dear Participant,

Invitation to participate in a survey

My name is Miss. Wawire Lindah. I am a Masters (Information Studies) candidate studying at the University of KwaZulu-Natal, Pietermaritzburg Campus. The title of my research is:

“Remote access, use, and management of library resources by Select School of Social Sciences postgraduate students and librarians in the University of KwaZulu-Natal, Pietermaritzburg campus”.

The study addresses users’ needs, preferences, and expectations. The study aims to investigate the access, use, and management of library e-resources remotely by postgraduate students (Masters and PhD). Therefore, there is a need to understand the peculiarities and challenges of serving patrons at a distance.

I would be grateful if you participate and share your experiences and observations on the subject matter.

Please note that:

- The information that you provide will be used for scholarly research only.
- Your participation is entirely voluntary. You have a choice to participate, not to participate, or stop participating in the research at any time. You will not be penalized for taking such an action.
- Your views in this study will be presented anonymously. Neither your name nor identity will be disclosed in any form in the study.
- The interview session should take approximately 15 to 20 minutes.
- The interview recordings and other items associated with the study will be held in a password-protected file accessible only by myself and my supervisor. After five years, in line with the university’s rules, they will be disposed of by deletion and shredding in the case of hardcopy.

- Please sign the declaration attached to this statement if you agree to participate.

Researcher: Wawire Lindah
School of Social Sciences,
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Email: hssrec@ukzn.ac.za
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Thank you for your contribution to this research.

Participant

Signed..... Date:.....

Researcher

Signed Date:

Declaration form

Informed consent for recording the interview

I..... (full names of the participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participate in the research project. I understand that am at liberty to withdraw from the project at any time, should I so desire without any form of penalty.

I understand the intention of the research. I hereby agree to participate.

Participant

Researcher

Signature.....

Signature.....

Date.....

Date.....

Appendix 2: Informed consent form for postgraduate student



Dear Participant,

Invitation to participate in a survey

My name is Miss. Wawire Lindah. I am a Masters (Information Studies) candidate studying at the University of KwaZulu-Natal, Pietermaritzburg Campus. The title of my research is:

“Remote access, use, and management of library resources by Select School of Social Sciences postgraduate students and librarians in the University of KwaZulu-Natal, Pietermaritzburg campus”.

The study addresses users’ needs, preferences, and expectations, the study aims to investigate the access, use, and management of library e-resources remotely by postgraduate students (Masters and PhD). Therefore, there is a need to understand the peculiarities and challenges of serving patrons at a distance.

I would be grateful if you complete the questionnaire to share your experiences and observations on the subject matter.

Please note that:

- The information that you provide will be used for scholarly research only.
- Your participation is entirely voluntary. You have a choice to participate, not to participate, or stop participating in the research at any time. You will not be penalized for taking such an action.
- Your views in this study will be presented anonymously. Neither your name nor identity will be disclosed in any form in the study.
- Completing the questionnaire should take approximately 10 to 15 minutes.
- The questionnaire and other items associated with the study will be held in a password-protected file accessible only by myself and my supervisor. After five years, in line with the university’s rules, they will be disposed of by deletion and shredding in the case of hardcopy.
- Please sign the declaration attached to this statement if you agree to participate.

Researcher: Wawire Lindah

School of Social Sciences,
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Phone number 031 260 8350/4557/3587.

Thank you for your contribution to this research.

Participant

Signed..... Date:.....

Researcher

Signed Date:

Declaration form

I..... (full names of the participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participate in the research project. I understand that am at liberty to withdraw from the project at any time, should I so desire without any form of penalty.

I understand the intention of the research. I hereby agree to participate.

a

Participant

Researcher

Signature.....

Signature.....

Date.....

Date.....

Appendix 3: Interview schedule for subject librarians

INTERVIEW SCHEDULE FOR SUBJECT LIBRARIANS

Interviewer: Lindah Wawire

Date of Interview:.....

The study aims to investigate the remote access, use and management of library e-resources by postgraduate students (Masters and PhD). Therefore, there is a need to understand the peculiarities and challenges of serving patrons at a distance.

I would be grateful if you consider to participate and share your experiences and observations on the subject matter.

1) Background information on subject librarians (Service provider).

a) Gender of the respondent:

Male { }

Female { }

b) What is your age group?

Below 30 years { }

31-39 years { }

40-49 years { }

50 years and above { }

c) What is the level of education?

College diploma { }

Degree { }

Masters { }

Doctorate { }

Other.....

d) Years of work experience

1-5 years { }

6- 10 years { }

11-15 years { }

16-20 years { }

21 years and above { }

2) Information literacy skills of postgraduate students.

- a) What information literacy skills are required to make effective use of electronic information resources?
- b) Do you think that library users (postgraduate students in particular) are information literate in using electronic information resources?
- c) Do they independently make use of electronic information resources without necessarily asking for assistance?

3) How can information efficacy be enhanced amongst librarians and social science postgraduate students.

- a) Are postgraduate students offered training on how to access and use library e-resources?
- b) From your experiences as a subject librarian, is there a link between postgraduate students' information literacy self-efficacy and their use of electronic information resources?

4) Students' usage patterns of electronic information resources

- a) How frequently do postgraduate students make use of electronic information resources?
- b) From your point of view, where do postgraduates access e-resources from?
- c) What search engine are mostly used by postgraduate students?
- d) Which format do they prefer for getting information?
- e) From your experience as a subject librarian, do you feel electronic resources are well used by postgraduate students?
- f) Could you ascertain their purpose or purposes for using electronic information resources?

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

- a) What information literacy-related barriers do you think postgraduate students are facing while using electronic information resources?
- b) What challenges do libraries face in facilitating access to and use of e-resources?
- c) What can be done to alleviate these barriers?

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

- a) Do you think that students' information literacy self-efficacy could be enhanced?
- b) If yes, what are the strategies that could be employed to enhance students' information literacy self-efficacy?
- c) What strategies are available for enhanced access, and management of e-resources in your library?
- d) What strategies and policies are implemented that impact the sustainable provision of EIRs

Appendix 4: Questionnaire for postgraduate students

QUESTIONNAIRE FOR POSTGRADUATE STUDENTS

Thank you for agreeing to participate in this survey for the completion of a masters study on Remote access and use of library resources, UKZN academic libraries, Pietermaritzburg campus. All information provided will be used only for educational purposes and will be anonymous and confidential. It will take you approximately 15 minutes to complete the questionnaire.

Instructions for completing the questionnaire.

- a) Please tick (✓) where appropriate.**
- b) Where space is provided, provide further explanation.**

SECTION A: DEMOGRAPHIC INFORMATION.

1. Gender of the respondent :

- a) Male { }
- b) Female { }

2. Age of the respondent

- a) 18- 20 years { }
- b) 21-29 years { }
- c) 30-39 years { }
- d) 40-49 years { }
- e) 50 years and above { }

3. a) Programme of study and discipline of the study.

- a. Masters { }
- b. PhD { }

4. Duration of study for all qualification at the University of KwaZulu-Natal.

- a) 0-2 years { }
- b) 3-4 years { }
- c) 5-6 years { }
- d) Others please specify.....

SECTION B: IDENTIFICATION OF REMOTELY ACCESSED RESOURCES AND SERVICES.

5. (a) Do you use online resources?

Yes { }

No { }

Both { }

If YES, how often do you use online resources in the library?

- a) Daily { }
- b) Weekly { }
- c) Monthly { }
- d) Less than once in a month { }

If NOT, please indicate why.....

(b) Indicate the type of e-resources available remotely for students in UKZN library.

- a) e-journals { }
- b) e-books { }
- c) e-research reports { }
- d) e-newspaper { }
- e) e-research reports { }
- f) e- data archives { }
- g) e-manuscripts { }
- h) e-maps { }
- i) e-bibliography { }
- j) Books-in-Print Database (BIPD) { }
- k) Electronic theses and dissertations { }
- l) Digital Repository { }
- m) Online database { }
- n) Others, please specify _____

6. Indicate the type of online information services available for students in UKZN library.

- a) Online Catalogue { }
- b) Electronic newsletters and journals { }
- c) Current awareness services { }
- d) Blogs { }
- e) Online reference service { }
- f) Online tutorials { }
- g) Electronic theses and dissertation { }
- h) Web portal { }
- i) Other please specify _____

SECTION C: IDENTIFICATION OF DEVICES, FORMAT, USEFULNESS AND TECHNIQUES USED WHEN ACCESSING LIBRARY'S E-RESOURCES

7. (a) What devices do you usually use to access library e-resources remotely?

Please $\{\sqrt{\}$ tick all that apply.

- a) Desktop { }
- b) Laptop { }
- c) Palmtop { }
- d) Tablet { }
- e) Smartphone { }
- f) Ipad { }

(b)How often do you use them to access library e-resources remotely?

Please Note: Daily =1, Weekly =2, Monthly=3, Less than once in a month =4, Never =5

Please $\{\sqrt{\}$ tick all that apply.

DEVICE	1	2	3	4	5
Desktop					
Laptop					
Palmtop					
Tablet					
Smartphone					
Ipad					

(c)Where do you access library e-resources?

ACCESS POINT	YES	NO
Home		
Office		
On transit		
Internet café		

Other (Specify).....		
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8. Indicate the format you prefer to access e-resources.

Please Note: Most Preferred=1, More Preferred =2, Preferred =3, Not Preferred =4, Never Preferred =5

Please {√} tick as appropriate.

E-resource format	1	2	3	4	5
Pdf					
Power point					
Ms-word					
Html					

9. Indicate the degree of usefulness of the following e-resources.

Please Note: {Most Useful =1, Quite Useful =2, Useful =3, Not Useful =4, Never Useful =5}

Please {√} tick as appropriate.

Source of e-resources	1	2	3	4	5
E-journals					
E-books					
E-research report					
E-newspaper					
E-data archives					
E-manuscripts					
E-maps					
E- bibliographies					
E-thesis and dissertation					
Online database					
Digital repository					

Books-in-Print Database (BIPD)					
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10. (a)What kind of search techniques do you use when accessing e-resource remotely?

Please {√} tick all that apply.

- a) One keyword search { }
- b) More than one keyword { }
- c) Directly to URL { }
- d) Boolean operators (OR, AND,NOT) { }
- e) Truncation such as * { }
- f) Hyperlinks { }
- g) Subject searching { }
- h) Author/Title search { }
- i) Other please specify.....

(b)How often do you apply the search techniques mentioned above?

Please Note: Never apply=1, Rarely apply=2, Often apply=3, Quite often apply=4, Very often apply=5

Please {√} tick all that apply.

SEARCH TECHNIQUES	1	2	3	4	5
One keyword					
More than one keyword					
Directly to URL					
Boolean operators (OR,AND,NOT)					
Truncation e.g *					
Hyperlinks					
Subject searching					
Author/Title search					

11. If your techniques above do not return satisfactory results, how do you modify your search?

Please note: - Tick all that apply

- (a) I choose a different keyword(s). { }
- (b) I choose different information sources (Search engine, database, journal etc). { }
- (c) I change the initial search technique, for example, use Boolean operators, truncations, search phrase instead of keywords etc. { }
- (d) I suppose there are no satisfactory results and use what I find. { }
- (e) I suppose that there no satisfactory results and stop the search process. { }
- (f) Other please specify.....

12. Which of the following skills do you adopt when remotely searching for e-resources?

Please {√} tick all that apply.

- (a) Navigational Skills { }
- (b) Filtering Skills { }
- (c) Advanced Search Skills { }
- (d) None of the above, please specify.....

13. Do you evaluate the quality of information you retrieve?

- (a) Yes { }
- (b) No { }

14. What aspects of the information do you evaluate?

Please {√} tick all that apply.

- a) Accuracy { }
- b) Reliability { }
- c) Convenience { }
- d) Accessibility { }

- e) Timeliness { }
- f) Relevance { }
- g) Accessibility { }
- h) Other Please Specify.....

15. Are the remote networks effective to enable remote access to library e-resources?

Please note: Strongly Disagree=1, Disagree=2, Neutral=3, Agree=4, 5-Strongly Agree

Please {√} tick as appropriate

Effectiveness of Remote networks	1	2	3	4	5
Ease of use					
Usefulness					
Response Time					
Endurability					
Result satisfaction					
Availability					
Accuracy					
User satisfaction					
Reliability					

SECTION D: BARRIERS ENCOUNTERED WHEN ACCESSING AND USING LIBRARY E-RESOURCES REMOTELY.

16. What challenges do you encounter while accessing and using library e-resources and services?

Please {√} tick all that apply.

- a) Information overload { }
- b) The need to filter the results from the search { }
- c) Download delay { }
- d) Problem with credibility of information { }
- e) Failure to find information { }
- f) Broken links { }
- g) Lack of search skills/knowledge { }
- h) High cost of access { }

- i) Power outages {}
- j) Access to limited information {}
- k) Difficulties in the navigation of some webpages {}
- l) Poor internet {}
- m) Difficulties in downloading {}
- n) Lack of knowledge of terminologies {}
- o) Some interfaces are not user friendly {}
- p) Limited subscribed titles

THANK YOU FOR PARTICIPATING.

Appendix 5: Gatekeeper's permission letter



3 March 2022

Ms Lindah Wawire (SN 220023424)
School of Social Sciences
College of Health Science
Pietermaritzburg Campus
UKZN
Email: 220023424@stu.ukzn.ac.za

Dear Ms Wawire

RE: PERMISSION TO CONDUCT RESEARCH

Gatekeeper's permission is hereby granted for you to conduct research at the University of KwaZulu-Natal (UKZN) towards your postgraduate studies, provided Ethical clearance has been obtained. We note the title of your research project is:

"Remote access, use and management of library resources by Select School of Social Sciences postgraduate students and librarians in the University of KwaZulu-Natal, Pietermaritzburg campus."

It is noted that you will be constituting your sample by use of e-resources remotely in the UKZN academic library.

Please ensure that the following appears on your notice/questionnaire:

- Ethical clearance number;
- Research title and details of the research, the researcher and the supervisor;
- Consent form is attached to the notice/questionnaire and to be signed by user before he/she fills in questionnaire;
- gatekeepers approval by the Registrar.

You are not authorized to contact staff and students using the 'Microsoft Outlook' address book. Identity numbers and email addresses of individuals are not a matter of public record and are protected according to Section 14 of the South African Constitution, as well as the PAIA and POPI Act. For the release of such information over to yourself for research purposes, the University of KwaZulu-Natal will need express consent from the relevant data subjects. Data collected must be treated with due confidentiality and anonymity.

Yours sincerely

Dr KE Cleland
Registrar

Office of the Registrar

Postal Address: Private Bag X54001, Durban, 4000, South Africa

Telephone: +27 (0)31 260 7971 Email: registrar@ukzn.ac.za Website: www.ukzn.ac.za

Founding Campuses: Edgewood Howard College Medical School Pietermaritzburg Westville

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Appendix 6: Ethical clearance letter



05 November 2022

Lindah Namulanda Wawire (220023424)
School Of Social Sciences
Pietermaritzburg Campus

Dear LN Wawire,

Protocol reference number: HSSREC/00004854/2022

Project title: Remote access, use, and management of library resources by Select School of Social Sciences postgraduate students and librarians in the University of KwaZulu-Natal, Pietermaritzburg campus.

Degree: Masters

Approval Notification – Expedited Application

This letter serves to notify you that your application received on 05 October 2022 in connection with the above, was reviewed by the Humanities and Social Sciences Research Ethics Committee (HSSREC) and the protocol has been granted **FULL APPROVAL**.

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

This approval is valid until 05 November 2023.

To ensure uninterrupted approval of this study beyond the approval expiry date, a progress report must be submitted to the Research Office on the appropriate form 2 - 3 months before the expiry date. A close-out report to be submitted when study is finished.

HSSREC is registered with the South African National Research Ethics Council (REC-040414-040).

Yours sincerely,



Professor Dipane Hlalele (Chair)

/dd

Humanities and Social Sciences Research Ethics Committee

Postal Address: Private Bag X54001, Durban, 4000, South Africa

Telephone: +27 (0)31 260 8350/4557/3587 Email: hssrec@ukzn.ac.za Website: <http://research.ukzn.ac.za/Research-Ethics>

Founding Campuses: ■ Edgewood ■ Howard College ■ Medical School ■ Pietermaritzburg ■ Westville

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Appendix 7: Certificate of Editing

