The use of Electronic Information Resources for Course Assignment by Undergraduate Students in the Faculty of Humanities at the University of Limpopo

By

MOKGADI ANNAH LETSOALO

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Supervisor: Dr MJ MONYELA

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DECLARATION

I declare that "**The Use of Electronic Information Resources for Course Assignment by Undergraduate Students in the Faculty of Humanities at University of Limpopo"** hereby submitted to the University of Limpopo for the degree of Information Studies has not previously been submitted by me or anyone for the degree at this university or any other university; that it is my original effort, my work and all materials, citations, references and borrowed ideas have been duly acknowledged.

Mokgadi Annah Letsoalo Date: 17 April 2023

DEDICATION

This work is dedicated to my parents Marothi Letsoalo and Modikoa Letsoalo, for their endless sacrifices, prayers and support.

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Difficult roads often lead to beautiful destinations. The journey towards completion of this study was hard as a rock, but because of the presence of Your Majesty, His grace, forever I am changed by His love, I managed to reach the destination. God is an awesome God.

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ABSTRACT

The study examined the use of EIRs for course assignments by undergraduate students in the Faculty of Humanities at the University of Limpopo, South Africa. The researcher adopted the survey method and a quantitative research approach. The tool employed for data collection was an online questionnaire from a sample population of 364 respondents. Questionnaires were sent to undergraduate students emails and out of 364, 234 responses were received, representing 64% of the total sample to whom the questionnaire was distributed. Data were analysed using SPSS V26 Windows and It was evident from the analysis that 216 (92%) of the respondents were aware of EIRs and had a positive attitude towards EIRs as they considered it “comfortable”. About 216 (92%) respondents were aware of EIRs but were not using them. The barriers endured by respondents when using EIRs were attributed to poor internet connectivity and a lack of skills (no trainings). Therefore, the study suggested that the library should improve its services on the provision of EIRs to ensure that students are satisfied with the availability and usefulness of EIRs and to improve internet connectivity. Furthermore, it was recommended that the librarians should establish more trainings and orientations for use of EIRs and compulsory e-learning classes for undergraduate students.

Keywords: Electronic information resources (EIR), Information and communication technology (ICT), Technology acceptance model (TAM), Undergraduate students, University of Limpopo.

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LIST OF ABBREVIATIONS

ACI : Akrofi-Christaller Institute

ATUT : Attitude towards using technology

BBT : Born Before Technology

CD-ROM : Compact disc read-only memory

Covid-19 : Coronavirus disease

CPUT : Cape Peninsula University of Technology

EIRs : Electronic information resources

HEIs : Higher education institutions

ICTs : Information communications technologies

IoTs : Internet of Things

OPAC : Online public access catalogue

PEOU : Perceived ease of use

PU : Perceived usefulness

SPSS V26 : Statistical Package for the Social Sciences

TAM : Technology Acceptance Model

TRA : Theory of Reasoned Action

UJ : University of Johannesburg

UL : University of Limpopo

UNISA : University of South Africa

UNIVEN : University of Venda

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CHAPTER 1: INTRODUCTION AND BACKGROUND

1.1 Introduction

In order to fulfil their daily educational and informational needs, students access information online or in a print format (Tariq & Zia, 2014). The introduction of information and communication technology (ICT) to libraries led to improved access to information (Okon & Ogbodo, 2014). Academic libraries are adopting these developments to change the manner in which they operate and the mode of providing information to students for writing their assignments and other academic tasks. These developments gave rise to a new resource of information for library users, called electronic information resources (EIRs) (Adebayo, Ahmed & Adeniran, 2018).

The use of EIRs are moderately replacing the importance of print collections (Swaminathan & Raja, 2017). In higher education institutions (HEIs), students are often presented with challenging subjects and without access to relevant information, they might struggle to obtain a deeper and broader understanding of the courses or subjects and learning in general. The availability of information in electronic format that facilitates easier access to relevant information for students (Ali, Johns, Finlay, Salek & Piguet, 2017).

Academic libraries all over the world are making a significant effort to acquire, store, promote and provide access to electronic information resources to the academic community. The availability of EIRs in a library provides library users with a means to access information sources that would satisfy their information needs (Bachalapur& Manjunatha, 2022) and it increases users' perceptions towards the use of the resources (Issa, Ibrahim, Onojah & Onojah, 2020). However, the importance of providing EIRs in academic and research libraries cannot be overemphasised. It is central to the library fulfilling its mission and goals, especially in electronic environments in which EIR are dominating collections in most libraries.

1.2 Background of the study

Currently, the field of EIRs is the fastest growing field of online collections for most libraries (Vukeya, 2017). According to Madondo, Sithole and Chisita (2017), EIRs store information electronically and are accessed through electronic systems and networks. EIRs can be accessed in electronic format via computer. These resources include information on online public access catalogues (OPAC), compact disc read- only memory (CD-ROMs), online

databases, electronic journals (e-journals), electronic books (e-books), electronic theses (e-theses) and internet resources (Oak, 2016).

These EIRs created opportunities for global access to information, enhances the speed of services, increased the number of users being served and provides new opportunities for students to find information that will assist them in completing their assignments (Ankrah & Atuase, 2018). EIRs are needed for undergraduate students, especially because they make information available, and make it easier and faster to access information than printed media (Partap & Ranga, 2021). EIRs also serve as motivators for students, as they give them the opportunity to deliver, obtain, transfer and circulate information resources on any topic of interest.

EIRs help to develop access, increase usability and efficiency, and create new ways for students to use the available information in the university library. EIRs provide reliable and correct information to the correct user (Isibika & Kavishe, 2018). In addition, the use of EIRs helps students to be well informed and up to date in their respective thematic areas, unlike print information resources which are not updated regularly (Fabunmi, Paris & Fabunmi, 2016). Akuffo and Budu (2019) found that university libraries spent a substantial amount of money on subscriptions to EIRs such as databases. It is appropriate and economical that these EIRs are used optimally to contribute to the academic achievement of academics and students so that the libraries receive value for money (Kwadzo, 2015).

In spite of the value of EIRs in the provision of effective and efficient information for learning and research purposes, available literature shows that the use of EIRs is not up to the higher level of awareness, as expected. Studies conducted by Tlakula and Fombad (2017) and Madondo, Sithole and Chisita (2017) revealed low awareness of e-resources by library users. This contributed to limited access to relevant and reliable information by users in making decisions about their research.

The University of Limpopo (UL) is one of the 26 universities in South Africa categorised as an HEI that offers theory-oriented university degrees (Council of Higher Education, 2020). The UL is located in the suburban setting of the medium-sized town of Mankweng 31.5 km north of Polokwane, Limpopo, South Africa. The University of Limpopo's Turfloop Campus has four faculties, namely Faculty of Humanities, Science and Agriculture, Health Sciences and Management and Law (University of Limpopo, 2020). The library serves as a support

department, as it supports the students, lecturers, researchers and other library users with information for their academic purposes. The library offers standard tertiary library services, including circulation, reserve collection, subject/information librarians, information literacy, photocopying and document supply, e-books, databases, e-journals, etcetera (University of Limpopo, 2020).

1.3 Research problem

The devotion of this study was on the use of EIRs by undergraduate students of the University of Limpopo to write their assignments. The implementation of EIRs seems to be a great initiative for students, enabling them to access a wide range of current information resources that support their daily academic activities (Vukeya, 2017). Although there are many positive results for accessing and utilising EIRs by students, there are many concerns that still exist, especially those related to costs versus the usage of EIRs. Academic libraries invest many funds in EIRs; therefore, their use should justify their continuous purchasing (Makori, 2015).

An anecdotal study that was done in 2019 indicated that the University of Limpopo spent approximately R35 million to subscribe to EIRs for use, but undergraduate students prefer to use prescribed textbooks as their sources of information. The use of EIRs by students depends largely on students' awareness, knowledge and skills in information from EIRs, the purpose for their use, the students' attitudes and perceptions towards EIRs and availability of infrastructure to access these resources.

Several studies such as Tariq and Zia, 2014; Madondo, Sithole and Chisita, 2017; Lavanya and Thirunavukkarasu, 2019 focused on the use of EIRs by undergraduate students. However, only a few studies, if any, specifically investigated the experiences of undergraduate students when accessing and using EIRs in writing their course assignments (Balalola & Azubuike, 2018). Based on these concerns, this study aimed to examine the use of EIRs by undergraduate students for course assignments.

1.4 Purpose of the study

The purpose of this study was to explore the use of electronic information resources for writing assignments by undergraduate students in the Faculty of Humanities at the University of Limpopo.

1.4.1 Objectives of the study

The objectives of the study were as follows:

1. To measure the level of awareness of EIRs by undergraduate students in the Faculty of Humanities at UL
2. To identify types of EIRs available at the University of Limpopo library
3. To assess the use of EIRs by undergraduate students in the Faculty of Humanities at the University of Limpopo
4. To establish factors affecting the acceptance and non-acceptance of EIRs by undergraduate students in the Faculty of Humanities at the University of Limpopo
5. To determine the attitude towards the use of EIRs by undergraduate students
6. To identify the barriers that students face when accessing and using EIRs

1.4.2 Research questions

The following research questions were addressed:

1. What is the level of awareness of EIRs among undergraduate students in the faculty of humanities at the University of Limpopo?
2. What types of EIRs are available at the University of Limpopo library?
3. How do undergraduate students in the faculty of humanities at the University of Limpopo use EIRs?
4. What are the factors affecting the acceptance and non-acceptance of EIRs by undergraduate students in the faculty of humanities at the University of Limpopo?
5. What are the attitudes towards the use of EIRs by undergraduate students?
6. What are the barriers that students face when accessing and using EIRs?

1.5 Significance of the study

Legodi (2021) outlines that the significance of the study is meant to create and convey a clear rationale for the necessity of the study, usually by including several reasons for the study's contribution to scholarly research, practice and policy. The study added to the existing

knowledge and literature on the use of EIRs by undergraduate students and emphasised the importance and successes of using EIRs. Based on the challenges identified, the study aimed to inform policies to promote the use of EIRs that assisted both the University of Limpopo library and its users at large.

1.6 Definition of concepts

1.6.1 Electronic information resources

Electronic information resources (EIRs) have been defined as electronic versions of printed information media that are converted into digital format or generated electronically. EIRs store information electronically and are accessed through electronic systems and networks, such as a computer (Madondo et al., 2017). These resources include information on OPAC, CD-ROMs, online databases, electronic journals (e-journals), electronic books (e-books), electronic theses (e-theses) and internet resources (Oak, 2016).

1.6.2 Course assignment

Ezezika and Johnston (2022) refer to course assignments as tasks given to students by their teachers, instructors and tutors to be completed in a defined time. Course assignments can be in a form of activities given to students as a part of learning, which can be in the form of writing, practical work, art, fieldwork or online tasks. There are types of assignments such as reports, literature reviews, case studies, group work, group presentation skills and essays (Tasker, 2022).

1.6.3 Undergraduate students

Undergraduate students are defined as students at a college, university or higher education institution who working towards a bachelor's degree and who has not taken a first degree (Vukeya, 2017).

1.6.4 Information and communications technology

Information and communications technology (ICT) is a diverse set of technological tools and resources used to transmit, store, create, share or exchange information (Kahouli, Nafla, Trimeche & Kahouli, 2022). ICTs includes products that store, process, convert, duplicate or receive electronic information. De Oliveira, Guerino and Pimentel (2022) define ICT as a technology that is used to handle communications processes such as telecommunications, broadcast media, intelligent building management systems, audio-visual processing, transmission systems, network-based control and monitoring functions.

1.7 Chapter demarcation

The outline of chapters gives a general structure of the study and a brief explanation of each chapter.

Chapter 1: Background and motivation of the study

Chapter 1 presents the introduction and background of the study, research problem, purpose of the study, objectives and research questions, the significance of the study, definition of key concepts and summary of the chapters.

Chapter 2: A literature review

This chapter reviews the literature that is arranged according to the six objectives of the study, and the theory that was used in the study is Technology Acceptance Model (TAM).

Chapter 3: Research methodology

This chapter outlines the research methodology that was adopted in the study. It discusses the research methodology, research approach and design, sampling, population, pilot study, study area, data collection, data analysis and interpretation, quality criteria and ethical considerations of the study.

Chapter 4: Data analysis and discussion of the findings

This chapter presents data analysis and discussion of the findings. The presentation consists of analysis for quantitative data.

Chapter 5: Discussion of the findings.

This chapter presents the discussion of the findings. The chapter will show that the research questions and research sub-heading were answered by the literature review, data collection and the analysis of the results.

Chapter 6: Conclusions and recommendations.

This chapter concludes the study by presenting fundamental findings following objectives of the study. The chapter also gives the conclusion and recommendations to the findings of the study.

1.8 Summary

This chapter serves as an attempt to introduce the reader to the topic of the study, background information, statement of the problem, aim of the study, the objectives the study sought to discover as well as the significance of this study. The next chapter outlines the theoretical framework that was applied in this study as well as the literature review.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The previous chapter covered the introduction and background of the study. It also discussed the problem statement, the purpose of the research and the significance of the study. This chapter discusses the theoretical framework, whereby technology acceptance model was critiqued; and was used to anchor this study. It also reviews related literature according to the six objectives of the study. The literature reviews give supporting statements that have been found by other researchers who are experts in the field. The literature review helps the researcher to refine the research questions and embed them in guiding hypotheses that provide possible directions the researcher may follow (Mohamed-Shaffil, Samsuddin & Abu Samah, 2021).

2.2 Theoretical framework

The adopted theoretical framework for this study was Technology Acceptance Model (TAM) by Davis (1989). Davis developed TAM to explain and understand factors affecting the acceptance and use of technology or ICTs in general by individuals, organisations or academic institutions. The TAM has been reported as the most widely used and robust theoretical model in information science in the study of acceptance and use of ICT (Sheikhshoaei & Oloumi, 2011). Averweg (2008) used this model in a study titled *Information technology acceptance in South Africa: an investigation of perceived usefulness, perceived ease of use, and actual system use constructs.*

The TAM evolved from the Theory of Reasoned Action (TRA) with the goal “to provide an explanation of the determinates of computer acceptance that is general, capable of explaining user behaviour across a broad range of end-user computing technologies and user populations, while at the same time being both parsimonious and theoretically justified” (Bradley, 2009). Acceptance can be viewed as a function of user involvement in technology use and can be described as a critical factor determining the success or failure of any technology. Acceptance has been conceptualised as an outcome variable in a psychological process that users go through in making decisions about technology (Samaradiwakara, 2014). Figure 1 below illustrates the theory.

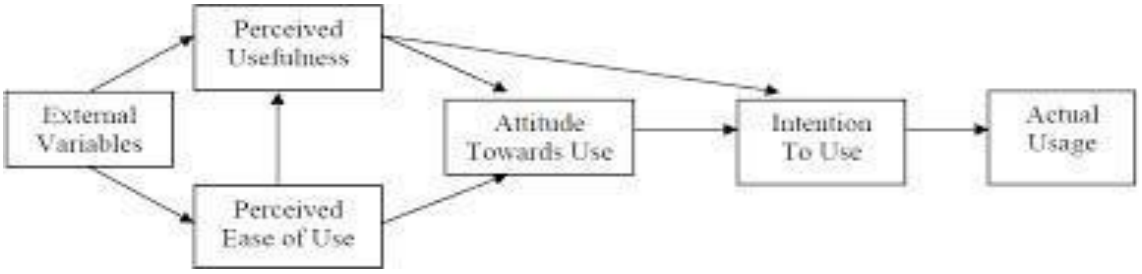


Figure 1: Technology Acceptance Model (Davis, 1989)

This model was used to evaluate the acceptance behaviour of undergraduate students towards the use of EIRs in doing their course assignments. The model has six stages, which are external variables, perceived usefulness (PU), perceived ease of use (PEOU), attitude towards use, intention or behavioural use and actual system use (Davis, 1989).

In the external variables stage, the investigation focused on what influences undergraduate students to use EIRs. Davis (1989) explains two major causes of why people accept or reject technology innovations. The two major causes are perceived usefulness (PU) and perceived ease of use (PEOU). Perceived usefulness is the way in which a person believes that using EIRs would improve their academic activities. For example, students need information for academic purposes to complete their assignments and develop theories. With the advent of EIRs, students do not have to visit the library to access the information they need but they can satisfy their information needs by using EIRs that are accessible online at any time.

The perceived ease of use refers to the degree to which a person believes that using a particular system would be free of effort (Davis, 1989). For instance, students can use EIRs because EIRs make information easily accessible and provide faster access to information than printed information. However, students perceive EIRS as being difficult to use. These two stages, PU and PEOU vary but both play a crucial role in the TAM in the sense that they are prompt advantageous roles. For example, in perceived usefulness, the student's academic performance improves. The beneficial role also overlaps with the perceived ease of use where the students find it easy to access information because it saves them time.

Thresher, Jones and Drake (2019) expanded the TAM to include a third construct, which is the fourth stage in Figure 1 shown above, named *Attitude towards using technology* (ATUT). That is, when users have new technologies such as the internet, decisions regarding the mode and time to use them are influenced by factors such as PU and PEOU (Kalusopa,

2011). One of the objectives of this study was to determine attitudes of undergraduate students towards the use of EIRs in the University of Limpopo. Therefore, the study investigated whether undergraduate students had a positive or negative attitude towards the use of EIRs. The fifth stage is *Behavioural intention*. Cao, Duan, Edwards and Dwivedi (2021) explain that behavioural intention is the measure of the probability of a person using the system. In this regard, this research assessed whether the use of EIRs was goal perpetuated or they were purely comfortable with the use of EIRs. Therefore, the theory was relevant and useful in answering the research problem.

Choice of the theory: Technology Acceptance Model

The best way to evaluate the behaviour undergraduate students towards the use of EIR is to incorporate TAM theory. This theory was used to anchor this research. The TAM theory was used in this study to note the attitudes of undergraduate students towards the use of EIRs, because it is the theory that captures most of the technological applications as well as digitalisation.

This theory was chosen as the model in this study as it covered both the attitudes and the processes involved in the evaluation of acceptance and non-acceptance of EIRs by undergraduate students. This model was used to assist the researcher to measure students' level of awareness, identify types of EIRs, assess the use of EIRs, establish factors affecting the acceptance and non-acceptance of EIRs, determine the attitude towards the use of EIRs and identify the barriers that students face when accessing and using EIRs.

The TAM is gaining popularity for understanding the relationship between humans and technology through PU and PEOU (Wicaksono & Maharani, 2020). There are several studies that used the TAM to discover the use of new information technology applications, systems and tools, like the studies by Mawere and Sai (2018), Akuffo and Budu (2019) and Khanya and Dikotla (2021). This model tested user acceptance of information technology. A study by Akuffo and Budu (2019) stipulated that the TAM is one of most relevant theories to investigate the level of use of technology, especially on the use of EIRs for research and learning activities among students.

Akuffo and Budu (2019) were guided by the TAM in the use of e-resources, and the model was relevant to investigate the level of use of e-resources for research and learning activities among students of the Akrofi-Christaller Institute (ACI). The present study applied the TAM

as a guide to explore, investigate and explain the level of the use of EIRs for course assignments and learning activities among undergraduate students at the University of Limpopo. The results showed that undergraduate students were in tune with technological awareness and acceptances of EIRs.

2.3 Literature Review

The literature review is a written, analytic summary of research findings on a topic of interest (Pati and Lorusso, 2018). Hossain, Akhter and Sultana (2022) expand that literature review is an integral part of the research process and make a valuable contribution in almost every operational step. These authors also state that the purpose of literature review is to provide a theoretical background to most important findings from previous research and what these studies suggest should still be researched.

2.3.1 Awareness of EIR by undergraduate students

Numerous studies focused on EIRs in the areas of awareness, usage, relevance, access, preference, orientations, training and evaluation, among others. Such literature proffers that there is sometimes a gap between awareness and usage of EIRs. Users might be aware of the EIRs and use them, they might be aware of EIRs and do not use them or might be unaware of EIRs and therefore do not use them (Baro, Benake-ebide & Ubogu, 2011).

In South Asia, the study by Akuffo and Budu (2019) indicated high awareness levels of the use of EIRs that students use for academic purposes. However, some students were aware of EIRs but did not use them because they lacked searching skills. The study conducted by Mwantimwa and Elia (2017) on the use made of EIRs in Tanzania higher education institutions (HEIs) showed that academic staff and researchers were aware of available EIRs and used them, and only few were not aware of the availability of EIRs.

In Nigeria, Alasa and Quadri (2022) revealed that the students from both polytechnics were aware of EIRs and that EIRs were mainly used for research. Another study conducted by Okite-Amughoro, Makgahlela and Bopape (2014) indicated that postgraduate students at Delta State University were aware of the existence of EIRs; however, the optimal use of these resources was hampered by limited access to some EIRs due to the dearth of information searching skills, limited space, low bandwidth and erratic power supply.

In South Africa, Olatoye, Nekhwevha and Muchaonyerwa (2021) conducted a study on selected Eastern Cape universities. The study revealed that ICT proficiency and experience of the undergraduate respondents in the use of EIRs were generally low, and this could limit their productive use of e-resources. The findings indicated that undergraduate students of the selected Eastern Cape universities were not aware of the availability of EIRs. A study by Vukeya (2017) at the University of Johannesburg (UJ) revealed that most of the undergraduate students used EIRs, meaning they were aware of EIRs, and only a few students were not aware of their existence. A similar study by Ndou and Chilimo (2021) revealed that academics at the University of Venda were aware of EIRs, found e-resources easy to use and believed that resources improve academic performance. However, most of the students had plagiarism concerns and were only moderately satisfied with available EIRs.

2.3.2 Types of EIR available in academic libraries

Today, the world is changing rapidly on the internet of things (IoT). The development of ICTs gave rise to a new source of information for library users. The development of EIRs improved library operations and their mode of providing information resources (Adebayo, Ahmed and Adeniran, 2018). In Europe and Asia, the most commonly used types of EIRs available in academic libraries were e-journals, e-books, e-databases, e-theses and dissertations, CD-ROMs, OPAC, newsgroups, subject gateways, Turnitin, RefWorks, internet and other computer-based electronic networks (Renz & Sullivan, 2013). This was supported by Dayakar (2018) as the same types of EIRs that were identified on the use of EIRs in higher education in India.

In Africa, the types of EIRs mostly available in academic libraries included e-journals, e-books, e-databases, e-theses and dissertations, e-patents and standards, e-reports- maps, e-pictures/photographs, e-manuscripts, e-newspapers, websites-listservs, newsgroups, subject gate ways, RefWorks and Turnitin. The same EIRs were available in Nigeria (Omeluzor, Molokwu, Dika and Anene, 2022). Kenchakkanavar (2014) indicates that in Kenya, the most common types of EIRs found in academic libraries were e-journals, e-books, e-databases, e-theses and dissertations (ETDs), e-patents and standards, e-reports-maps, e- pictures/photographs, e-manuscripts, e-newspapers, websites-listservs, newsgroups, subject gateways, Turnitin, RefWorks, Usenet and databases. In addition to the identified types of EIRs used in African higher education institutions, Sejane (2017) also identified types of EIRs, that were accessed and used by students in the Lesotho Library Consortium. EIRs

such as e-mails, search engines, websites, OPAC, e-journals, full-text databases, reference databases, institutional repositories (IRs) and CD-ROMs.

In South Africa, the type of EIRs available to students in the Unisa library were e- books, e-journals, e-thesis and dissertations, e-newspapers, e-zines, e-reference sources, e-bibliographic databases, e-reserves and OPACs (Moyo, 2017). Vukeya (2017) identifies various types of EIRs: e-journals, e-books, e-databases, OPAC, e- theses and e-dissertations, Turnitin and RefWorks, which are used by university staff and students at the UJ library. Another study by Tlakula and Fombad (2017) identified the same types of EIRs available at the University of Venda Library, with the most used EIRs being elementary and that are available through Sabinet and EbscoHost.

2.3.3 Usage of EIR in academic libraries

Academic libraries are catching up with new technological trends, and with relentless efforts, they provide electronic information to promote modern teaching, learning and research among the university community and beyond (Lavanya & Santharoonban, 2018). The study by Ankrah and Atuase (2018) identified different purposes for which online resources were used and found that these purposes were more common among the respondents from different academic years. They revealed that undergraduate students used EIRs to prepare notes and literature reviews more than other students do.

In Asia, a study by Hwang, Kim, Lee and Hwan (2014) revealed that the South Korean university had been experiencing a positive change in perceptions and development in the use of e-books. However, not all the available functions of e-books were used as only the higher-level education students but had sufficient experience with e- books to fully use these functions. In the United Kingdom, it was found that many undergraduate students had never taken out a book or requested a book, logged on to EIRs or even crossed the threshold of a library at all (Goodall & Pattern, 2011).

In Pakistan, the study done by Bhatti, Akram and Khan (2016) found that a large number (79.8%) of the researchers at Bahauddin Zakariah University, Multan, used EIRs to acquire the information they needed for academic purposes. In a separate study in Ghana, Akuffo and Budu (2019) and Ankrah and Acheampong (2017) revealed that students used electronic resources for research and assignments. However, Daramola (2016) reported low use of

electronic resources among undergraduates in the Federal University of Technology, Akure, Nigeria.

A study by Bhukuvhani, Chiparausha and Zuvalinyenga (2012) in Zimbabwe at the Bindura University of Science Education revealed that the use of EIRs by lecturers had a positive effect on their academic work. In South Africa, a study by Dolo-Nndlwana (2013) found that most postgraduate students of the Cape Peninsula University of Technology (CPUT) used EIRs, while some students lacked awareness of its existence. Unisa established that most students use EIRs for study and research purposes and that, although they have basic ICTs skills, the majority of students lack advanced information search and retrieval skills (Moyo, 2017). Vukeya (2017) found that in the UJ, a variety of library EIRs were available and used by undergraduates.

2.3.4 Factors affecting the acceptance and non-acceptance of EIR by undergraduate students.

Factors that affect the acceptance and non-acceptance of EIR usage among users vary. The acceptance of EIR usage depends on factors such as perceptions, ability of the users and facilitating conditions (Mollel & Mwantimwa, 2019). The introduction and use of EIRs in HEIs faced and continue to face challenges in terms of users' acceptance, but there have been some positive results (Ngo & Eichelberger, 2019). This indicates that library users' acceptance of EIRs is increasing (Bwalya & Sebbale, 2017).

A study by Hindagolla (2014) revealed that the acceptance and use of e-resources were influenced by users' perceived ease of use, usefulness and abilities. Similarly, in Eastern countries, Alajmi (2019) associates the acceptance of these resources with performance expectancy, habit, hedonic motivation and facilitating conditions. EIRs are believed to enable users to improve not only their academic performance, but also their general effectiveness and productivity. Because of that, perceived usefulness is found to predict the use of EIRs (Samuel, Onasanya & Olumorin, 2018). In East Africa, factors that influence acceptance and use of e-resources include speed of access to needed resources, ability to search, using multiple files at the same time and the ability to access documents from outside the library (Okello-Obura, 2010).

In Tanzania, the limited factors are associated with limited information literacy skills, users' poor attitudes, low internet bandwidth, unreliable power and shortage of funds to subscribe to EIRs (Lwoga & Sukums, 2018). Similarly, the study by Chimwaza (2017) revealed that postgraduate students of the University of Zimbabwe agreed that slow internet connection, limited users' skills and unawareness of EIRs available in the library affected the acceptance of use of EIRs. In addition, a lack of time to search EIRs, unavailability of some databases, use of login or long passwords and a lack of access to computers have also been found to limit the use of EIRs by faculty members and students of universities in Uganda (Kinengyere, Kiyingi & Baziraake, 2012).

Furthermore, a lack of user orientation or training in the use of e-resources and the shortage of librarians are among the factors influencing non-acceptance of the use of e-resources in higher education institutions (Nazir & Wani, 2015). In addition, factors such as individual and institutional differences lead to other constraints associated with a lack of interest to use e-resources (Ahmed, 2013).

2.3.5 Attitudes of users towards the use of EIRs

Attitudes represent the conceptual value of these technologies in the minds of students and not the values of the technologies themselves. Positive attitudes are fundamental in the implementation of new technologies. Students constitute one part of society that is fortunate to have access to a variety of EIRs (Mansur, 2020). Age and education level proved to be the biggest determinants of attitudes among users of academic libraries' EIRs. For instance, some older users in universities had a negative attitude towards EIRs, as they believed that being born before technology (BBT) makes it difficult for them to use EIRs. They called themselves BBTs (Monyela, 2013; Vukeya, 2017).

In America, Mansur (2020) conducted a study on attitudes towards the use of EIRs by students at Afghan International University. The study revealed that most students taught themselves how to use technology. This is an important personal attribute to have for those from non-conducive environments to succeed, and it was important that superiors' influences were either encouraging or had no effect. Teo, Milutinović and Zhou (2016) state that the availability of infrastructure support had minimal effect on users' attitudes towards technology use.

A study by Ankrah and Atuase (2018) revealed that postgraduate students of the University of Cape Coast had a positive perception towards electronic resources, while awareness of open access resources and the satisfaction with facilities available in the university to access online resources depicted negative perceptions. In Africa, Adeniran (2013) found that the use of EIRs had a significant effect on the academic performances of the undergraduate students of Redeemer's University. Nnadi (2016) also states that in South-East Nigeria universities, undergraduate students are motivated to use EIRs such as the internet because it provides quick access to information, which provides a positive impact in using EIRs.

A study by Okiki (2012) on students' attitudes towards EIRs indicated that EIRs were under-utilised in general because of the negative attitude of the students towards the use of library EIRs in the University of Lagos. Olatoye (2020) revealed that undergraduate students of the University of Fort Hare encountered difficulties, which negatively influenced their attitudes and behaviour in the use of EIRs.

2.3.6 Barriers experienced by undergraduate students in accessing and using EIRs.

The literature indicated that students encounter several barriers when accessing EIRs. Studies from other developing countries also pointed out that unreliable or slow internet connectivity as a challenge when it comes to accessing EIRs and that this may be a common barrier in developing countries (Daramola, 2016). The study by Oyewo and Bello (2014) indicated that students found it difficult to access EIRs, as they did not have computer skills, lacked guidance in how to use the resources and experienced slow internet connectivity.

In South Asia, Lavanya and Santharoonban (2018) identified the barriers students of the Eastern University of Sri Lanka, Faculty of Agriculture Science, faced in terms of access to EIRs. Barriers such as slow internet connectivity, unavailability of time, lack of awareness, viruses and other malware pop-ups were identified as recurring problems. Thus, the study identified slow internet connectivity as the biggest barrier to accessing EIRs. In Pakistan, Tariq and Zia (2014) indicated that the main barriers that were found in the University of Karachi were slow network connection, power failure, viruses and subscription issues. Students also felt insecure because they thought using EIRs would infect their computers with viruses. Some students had bad experiences with unnecessary advertisements and licensing and subscription issues, because some EIRs were not available free of charge.

Oluwakemi and Folasade (2018) state that, in Africa, challenges faced by the faculty members in the use of available EIRs in the universities were internet problems, insufficient databases and some faulty system units that prevent them from using EIRs. The study by Kumari, Pandey and Choudhary (2022) revealed that some common problem students who could not use EIRs faced was a lack of user education and awareness campaigns, language difficulties, and IT skills and understanding.

The study by Ukonu, Wogu and Obayi (2012) affirmed that undergraduate students in the Faculty of Humanities and Social Science at the University of Nigeria faced challenges such as poor ICT infrastructure, inadequate skills and connectivity issues that were related to financial problems. This implies that students did not have the skills to operate computers, thus making it difficult for them to access EIRs.

In South Africa, Moyo (2017) discovered that the majority of the third-year students at the University of South Africa in the School of Arts used EIRs for study and research purposes. Although they had basic ICT skills, most students lacked advanced information searching and retrieval skills, which are required to utilise EIRs properly. Moyo (2017) gives four main barriers preventing students from using and accessing electronic resources. Those barriers are the cost of access to the internet, unavailability of relevant literature for studies, lack of time to do online searches and preference for information freely available on the internet. Similarly, Tlakula and Fombad (2017) found the barriers hindering undergraduate students at the University of Venda from using EIRs were a lack of knowledge and skills to effectively use EIRs.

2.4 Summary

This chapter discussed the literature reviews based on the objectives of the study. The chapter discussed the theoretical framework related to the study, which is the Technology Acceptance Model (TAM). The literature above showed that the issues surrounding the use of EIRs in academic libraries have been the focus of many studies done internationally, nationally, regionally and locally. The major issues identified in the reviewed literature were slow internet connectivity, lack of user education and awareness campaigns; lack of knowledge and skills to effectively use EIRs. The following chapter is about the research methodology, and it covers the research design, research approach, population and sampling, study area and the data collection tools that were used in this research.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

The previous chapter discussed the literature review and theoretical framework. This chapter focuses on the research methodology that was applied to accomplish the goal of the study. The main purpose of this chapter is to discuss in detail the chosen research method and how it was developed and implemented in this study. This also includes the reasons for choosing the data collection method. The chapter also covers the description of the research area in which the study was conducted as well as the characteristics of the population around which this study was based and gives the ethical considerations the researchers followed when collecting data.

3.2 Research methodology

Research methodology is described as approaches, methods or techniques that guide a study and explains the reason behind the research methods and techniques (Cleland, 2022). Research methodology in this study provided information on aspects such as the research design, population and sampling, data collection method and sampling techniques that were used in the study. The research methodology section outlines the procedures and methods that were used in this research, and they are classified in the subsections. The subsequent sections outline the research design used in this study, population and sampling as well as the data collection methods used.

3.3 Research Approach

There are different research approaches that have been used in scientific research, namely qualitative, quantitative and mixed research designs (Adams & McGuire, 2022). The main differences between these research methods were that quantitative research is statistical while qualitative research is non-statistical. A mixed methods approach is an approach to inquiry that combines or associates both qualitative and quantitative forms that involve philosophical assumptions (Creswell & Hirose, 2019).

This study used the quantitative research approach, as this approach was suitable for this study because it tested the objective theories by examining the relationship among variables. The importance of quantitative methods in this study led to a better understanding of the research problem and gave a comprehensive view of EIRs and their use.

In addition, this research sought to count the opinions of the respondents rather than exploring the range of opinions and different presentations of the matters. According to Punch (2006), quantitative research as empirical research is research in which data are collected in the form of numerical description. A quantitative method entails the processes of gathering, analysing, interpreting and writing the results of a study. According to this approach, the behavioural intentions to use the EIRs are the consequences of the way in which patrons recognise their way of doing things. To get answers to behavioural intent, quantitative research was perceived to be a suitable methodological choice.

3.4 Research Design

A research design focuses on the end product and all the steps in the process to achieve that outcome. In this sense, a research design is viewed as the functional plan in which certain research methods and procedures are linked together to acquire a reliable and valid body of data for empirically grounded analyses, conclusions and theory formulation (Vosloo, 2014). Silver, Stevens, Wrenn and Loudon (2012) outline three categories of research designs, which are exploratory, descriptive and survey. A descriptive survey research design was used in this study.

According to Bista (2018), a descriptive research design is used to describe the characteristics of a population or phenomenon that is studied. It does not answer questions about how, when and why things occurred. A descriptive survey research design aims to explain exactly how certain variables are related, without explaining the connection, and they describe the frequency or possible determinants of a condition (Moyo, 2017).

In line with Babbie's (2010) of descriptive survey research designs, the present descriptive survey research enabled the researcher to collect original data for describing a population too large to observe directly. This research design helped the researcher to determine scientific methods for analysing and examining the source of the materials, as well as analysing and deducing data and by arriving at a generalisation and forecast (Salaria, 2012).

3.5 Population and sampling

The entire group of subjects or objects studied represents the population, whereas sampling is a smaller group of subjects or objects taken from the population (Khanya & Dikotla, 2021). The following paragraph outlines the size of the sample and population used in this research.

3.5.1 Population

Neuman (2014) defines a population as a group of people from which the researcher draws a sample from which results are obtained. Similarly, Mutungi, Minishi-Majanja and Mnkeni-Saurombe (2012) and Adler and Clark (2010) describe the population of a study as a group of people, elements or a set of objects and events the researcher is interested in studying. The population of this study was the group of registered undergraduate students, specifically in the School of Education, the School of Languages and Communications and the School of Social Sciences under the Faculty of Humanities in the University of Limpopo.

The random sample was drawn from a population of 6 598 registered undergraduate students in the Faculty of Humanities at the University of Limpopo. According to the University of Limpopo registrar, unlike other faculties, the Faculty of Humanities has a high number of students who are required to use the library for their academic work (University of Limpopo, 2022). The statistics shows that each year, the number of undergraduate students in the Faculty of Humanities increases, while the numbers in other faculties do not (University of Limpopo, 2022). Therefore, in line with Jugenheimer, Bradley, Kelley & Hudson' (2010) view, studying the entire population was not feasible, as it would be costly and likely impossible to source information from the entire population. For this reason, the researcher sampled the undergraduate students.

3.5.2 Sampling size

The sample size is the actual number of participants of the population that are in the sample. The sample size helps significantly to determine the accuracy of the results. It has been postulated by scholars that the larger the sample size, the better the accuracy or precision of the results of the study. However, sample size tends to decrease with a relatively large population (Ani, 2013).

To arrive at the sample size, the study applied Slovin's formula (n=N/(1+Ne2)). According to this formula, the recommended sample size for a population of 6 598 is a sample of 364 with a confidence level of 95% and margin of error of 5%. This formula was chosen to eliminate biasness in the sample size selection. The formula is presented as follows: n=N/ (1+ Ne2)

n= sample size

N= number of population

e= margin of error

Confidence level = 95%

Margin of error = 5%

n= 6598/ (1 + 6598 × 0.052) = 364

3.5.3 Sampling techniques

Different sampling techniques can be used to make inference about a population or to make generalisations in relation to existing theory (Adler & Clark, 2010). According to Galluzzi et al. (2018), sampling techniques can be probability and non-probability sampling. In addition, Galluzzi et al. (2018) also state that probability sampling refers to any method of sampling that uses random selection. Objects or subjects are grouped so that the probability of them being chosen is equal. On the other hand, non-probability sampling objects or subjects have a lower possibility of being chosen.

Various methods are used for both probability and non-probability sampling. The “probability sampling methods include simple random sampling, systematic sampling, stratified random sampling and cluster sampling while non-probability sampling include convenience sampling; quota sampling; snowball sampling and purposive sampling” (Galluzzi et al., 2018).

The study adopted the non-probability sampling method called stratified random sampling. In this method, the population is divided into strata. The undergraduate students in the Faculty of Humanities were divided according to schools to which they are attached, namely School of Education, School of Social Sciences and School of Languages and Communication Studies. The number of undergraduate students in each school was established.

Since the number of students differs in each school, the researcher used 5.5% of the population in each strata to reach the sample size. Waples and Feutry (2022) opine that a sample size should be calculated at 5% to 10% of the population. There are three strata (School of Education, School of Social Sciences and School of Languages and communication) as depicted in table 1 below:

Table 1: Population and sample size

School	Number of students	Sample size
School of Education	3 079	169
School of Social Science	2 232	123
School of Languages and Communication studies	1 287	72
Total	**6 598**	**364**

3.6 Study area

The study was conducted at the University of Limpopo in the Faculty of Humanities. The researcher chose the University of Limpopo, Faculty of Humanities, as its focus area because of its proximity to the researcher and the fact that generally, students studying Humanities engage more in texts assignments and narrative writing and would need more EIRs for reference than students studying hard sciences such as mathematics, physical science etcetera (Monyela, 2013)

3.7 Pilot study

Before gathering data, questionnaires were distributed in a pilot test to undergraduate students at the Faculty of Humanities at the University of Venda. A pilot test is a process where one carries out a preliminary study through all research procedures with a small sample or part of the preliminary stage where the instrument to be used in the study is tested or trialled with the people who share common characteristics with the intended or actual study participants (Khanya & Dikotla, 2021). A pilot study is undertaken without formulating any hypothesis about the problem and is conducted on a small sample with respondents that are representatives of the entire population (Daniel & Sam, 2011).

The main purpose of a pilot study is to test the research approach to identify potential problems that may affect the quality and validity of the results (Shakir & Ur Rahman, 2022). Additionally, a pilot test enables the researcher to check the errors in the questionnaires, including repetitive and vague questions (Ahmed, Saada, Jones & Al- Hamid, 2019). The

researcher distributed 10 questionnaires online to undergraduate students' email addresses to assess the accuracy and relevance, and to identify mistakes that might be included. The following issues were identified through the pilot test:

- Abbreviations such as EIRs – the respondents did not understand the abbreviations. The researcher then provided the meaning of the abbreviations in the main study questionnaire.

- Consistency in the use of the words and abbreviations such as "EIRs" instead of "Electronic Information Resources".

- Arrangement of options in a questionnaire starting from strongly disagree to strongly agree so that they are presented.

- Numbering errors – the suggestions were to correct and check if there were any mistakes.

- Another suggestion was that the researcher should give an explanation of EIRs on the informed consent form to ensure that the respondents have an understanding of what the study was about.

Therefore, the results of a pilot test assisted the researcher to identify the possible weaknesses in the research instruments and were not included in the main study.

3.8 Data collection

Data collection tools include questionnaires, interviews, observations, case studies, and focus groups, which are the most used methods (Neuman, 2014). A questionnaire is a data collection instrument consisting of a set of questions recorded on paper or electronically that is used to gather information in a survey (Adler & Clark, 2010). For this study, the preferred means of gathering data from the undergraduate students of the University of Limpopo was online questionnaires using students' e-mail addresses. This study chose online questionnaire, because technology transformed the way in which online questionnaires or online surveys are done. The online data collection was convenient since respondents could complete the questionnaire in their own time and space. Another reason for choosing this method of data collection was Covid-19 regulations which restricted movement and face to face interaction. The questionnaire consisted of closed-ended questions.

3.8.1 Data collection instrument

Questionnaires are very easy to distribute, they encourage frank answers, they give respondents a greater sense of anonymity and they facilitate the collection of large amounts of data in a relatively short period from sampled procedures (Bertram & Christiansen, 2015). In modern days, they can be distributed through online platforms, such as email, blackboard, social media and other electronic communications. The use of this tool was influenced by the fact that all the students in the population and therefore the sample for this study could access students' emails. The other reason for the selection or choosing an online questionnaire as a data collection tool was that compared to the other survey types such as face-to-face surveys, telephonic survey and focus groups, questionnaires are the least expensive. It provides a greater confidentiality and anonymity as there is no face-to-face interaction between respondents and the researcher and it is easy to administer (Kumar, 2014).

3.8.2 Questionnaire design and layout

Questionnaire layout is very important to enhance the response rate. Its appearance plays a key and decisive role in the pattern of answering (Bajpai, 2011). As advised by Anastas (2000), the questions in a questionnaire are not clustered but are not too isolated either. In this study, there was a reasonable space between questions in the questionnaire, which made it look attractive. Different font sizes were used to set off the questionnaire and to indicate which parts of the text are questions and which are section headings (Anastas, 2000).

The questionnaire was divided into sections according to the six research objectives highlighted in Chapter 1 (1.4.1). The sections were in bold type and visible so that the recipients could easily distinguish them (refer to Appendix B). There is a general tendency among some people to answer positively and others to answer negatively (Ekinci, 2015). In this instance, the researcher included both positive and negative questions in the questionnaire to avoid bias.

3.8.3 Data collection procedure

The researcher received approval from the University of Limpopo (Turfloop Research and Ethics Committee) to collect data under Faculty of Humanities of University of Limpopo. Online data collection was convenient since respondents could complete the questionnaire in their own time and space, as the internet eliminates any distance and geographical barriers (Neuman, 2014). The questionnaires were sent to the students' email addresses.

This method was best to guide the study in accumulating data from the users' perception. The questionnaire comprised various closed-ended questions in the following categories: demographics information, awareness of EIRs, types of EIRs, use of EIRs, the factors affecting acceptance and non-acceptance of EIRs, the attitudes towards the use of EIRs and the barriers experienced when accessing and using EIRs.

3.9 Data analysis and interpretation

This was a study on the use of EIRs by undergraduate students at the University of Limpopo. A survey was used to provide a quantitative or numeric description of tends, opinions, ideas and attitudes of a population by studying a sample of that population (Nardi, 2018). A quantitative data analysis was done on the data gathered via an online questionnaire. The data collected were analysed by using Statistical Package for the Social Sciences (SPSS V26 for Windows) Software to calculate data. The results were summarised and represented in bar graphs, pie charts and tables. Neuman (2014) supports the use of charts and graphs in presenting quantitative findings. The conclusion in this study was drawn from the data and results of the study.

3.10 Quality criteria of the study

Quality criteria are a guiding framework used to assess the validity, reliability and objectivity of the quantitative data (Ozor & Toner 2022). The quality criteria related to quantitative approach in this study comprise elements such as validity, reliability and objectivity.

3.10.1 Validity

Validity is defined as a measure of truth or falsity of the data obtained through using the research instrument (Sürücü & Maslakci, 2020). In this study, the content validity was used. A pilot study was conducted to ensure that the questions were clear, easy to understand, unambiguous and easy to respond to. In this regard, the researcher ensured that the questions asked in the questionnaire were correct, appropriate and linked to the research objectives. This means that the collected data were in line with the research methods used in this research. Validity is also about the way the research is conducted, including recruitment and assignment of subjects (participants).

3.10.2 Reliability

Reliability is the degree of consistency with which the instrument measures an attribute (Sürücü & Maslakci, 2020). In this study, the questionnaires were distributed to registered undergraduate students of the University of Limpopo at the Faculty of Humanities. The Faculty of Humanities has three schools to which the questionnaires were distributed. Data were collected and analysed in line with the literature review to check whether the study concurred with previous studies.

Reliability measures the accuracy of an instrument over time and is linked to the findings of the research (Mishra, Singh & Govindan, 2022). This means that the same instrument must be able to produce the same data at a later stage under similar conditions, for instance by means of a test-retest technique (Mudau, Mukonza & Ntshangase, 2019). Therefore, the researcher had pre-tested the questionnaire by conducting a pilot study, the results of which did not form part of the study. Reliability was achieved by sticking to the design of the study when collecting data.

3.10.3 Objectivity

Objectivity in social research is the principle drawn from positivism that, as far as is possible, researchers should remain distanced from what they study so that the findings depend on the nature of what is studied rather than on the personality, beliefs and values of the researcher (Harding, 2015). Objectivity involves a focus on ensuring accurate, reliable and unbiased information (Percival & Schroeder, 2017). In this study, the researcher was not biased or influenced by anything, from the distribution of the questionnaire to the analysis and interpretation of the data.

3.11 Ethical Considerations

Ethics are the code of conduct that prevents people from harming others because of the research being done. Ethics guide the researcher in conducting the study in a good manner. According to Harriss, MacSween and Atkinson (2019), researchers need to protect their participants by developing trust with them, guiding against misconduct and supporting the integrity of research and impropriety that may reflect on their institution. All the information that was obtained during this study involving the participants remained confidential. The participants were made aware of their right to refuse to participate at any time, including withdrawal from the research project at any stage, and were given the impression that they are required to participate. Participants were endangered and their information was not revealed.

3.11.1 Permission to conduct the study.

Researchers must seek permission first to do research with the subjects, but also to present any data obtained from the subjects (Rayner & Bell, 2017). The permission to conduct the study was sought from and granted by the University of Limpopo Turfloop Research Ethics Committee (TREC) and the university registrar (attached as Ethical Clearance Letter, Appendix E).

3.11.2 Informed consent

Informed consent refers to making a voluntary and informed decision to participate in research (Lomelino, 2015). Informed consent implies that subjects are adequately made aware of the type of information the researcher wants from them, why the information is sought, what purpose it would be used for and how they are expected to participate in the study. For this study, the researcher formulated an official informed consent form that was read and signed by all the participants of the study (Pickard, 2013). The researcher made participants aware of the ethical considerations and the respondents participated in the study voluntarily, as the informed consent form stipulated (see attached Appendix A).

3.11.3 Anonymity and confidentiality

Anonymity refers to the lack of identity among a set of objects or subjects (Obuchowski et al., 2015). According to Creswell and Creswell (2018), researchers need to protect their participants by developing trust with them, guarding against misconduct and supporting the integrity of research and impropriety that might reflect on their institution. Participants should be kept anonymous and private information such as personal Information should not be requested. The researcher refrained from including private information seeking questions in the questionnaire.

Confidentiality means that no person other than specified members of the research team can have access to the respondent's information unless those who have access to the data are identified to the participants before their participation. The information provided by the respondent cannot also be linked to a person's identity (DePoy & Gitlin, 2013). The researcher used the data obtained strictly for research purposes, and participants were informed in the consent form. All the information that was obtained during this study involving the participants remained confidential and was limited to the researcher, the supervisor and the statistician.

3.11.4 Plagiarism

Plagiarism refers to “an act copying or using studies prepared by other researchers without acknowledging them authors of the material” (Khanya & Dikotla, 2021). Plagiarism is a major form of academic dishonesty practiced by students’ at all educational levels (Fadlalmola et. al, 2022). To avoid plagiarism, all sources used in this research that are not owned by the researcher were cited and a bibliography is added at the end of this research. Anti-plagiarism software called Turnitin was used to detect any form of plagiarism in the study.

3.12 Summary

The selected appropriate research methods applied to conduct the research were discussed in this chapter. The researcher also accounted for the sampling techniques used and discussed the procedure followed in the selection of the sample for the study. The researcher discussed the advantages and disadvantages of the most suitable tools used in the collection of data for this study, which was the survey questionnaire. The next chapter focuses on the analysis and interpretation of the data obtained from the results of the online questionnaire.

CHAPTER 4: DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter analyses and interprets the data collected. The moment data are collected in research, it needs to be analysed so that factual conclusions can be drawn. Data analysis refers to the accurate examination of data collected, which are raw or unorganised to determine the useful results (Somani & Deka, 2017). Mertens (2017) explains that data analysis is an interactive process of manipulating and interpreting numbers to extract meaning from the data. The data analysis must answer research questions, test a hypothesis or explore meanings that can be derived inductively from the data. The researcher used SPSS V26 Windows to analyse data.

The data were presented in the form of pie charts, graphs and tables. Data were collected, analysed and presented according to six objectives of the study, which were:

- To measure the level of awareness of EIRs by undergraduate students in the Faculty of Humanities at the University of Limpopo
- To describe types of EIRs available at the University of Limpopo library
- To assess the use of EIRs by undergraduate students in the Faculty of Humanities at the University of Limpopo
- To establish factors affecting the acceptance and non-acceptance of EIRs by undergraduate students in the Faculty of Humanities at the University of Limpopo
- To determine the attitude towards the use of EIRs by undergraduate students
- To identify the barriers that students face when accessing and using EIRs

4.2 Response rate

In survey research, response rate (also known as completion rate or return rate) is the percentage of respondents that answered the survey, divided by the total number of participants in the sample (Lau, Cronberg, Marks & Amaya, 2019). This means response rate is the number of people who completed the survey, divided by the number of people who make up the total sample group. According to Stedman, Connelly, Heberlein, Decker and Allred (2019), a response rate of 50% or higher should be considered excellent in most circumstances as a high response is likely driven by high levels of motivation to complete

the survey. Holtom, Baruch, Aguinis and Ballinger (2022) support this by stating that a 50% response rate on questionnaires is sufficient for data analysis or reporting. An online response rate of 60% is considered good and 70% is considered very good. Out of 364 questionnaires, 234 questionnaires were completed. Thus, giving the study a total response rate of 64%. The response rate obtained for this study was considered extensive enough to attain its aims and objectives.

4.3 Gender

The respondents were asked to indicate their gender to obtain a better understanding of whether the use of EIRs was related to the respondents' gender. Out of 234 respondents, 145 were female and 88 were male. According to the findings of this analysis, the study had 61% females and 39% males. From this, it could be inferred that there are more female than male undergraduate students in the Faculty of Humanities. The results are summarised in Figure 2 below.

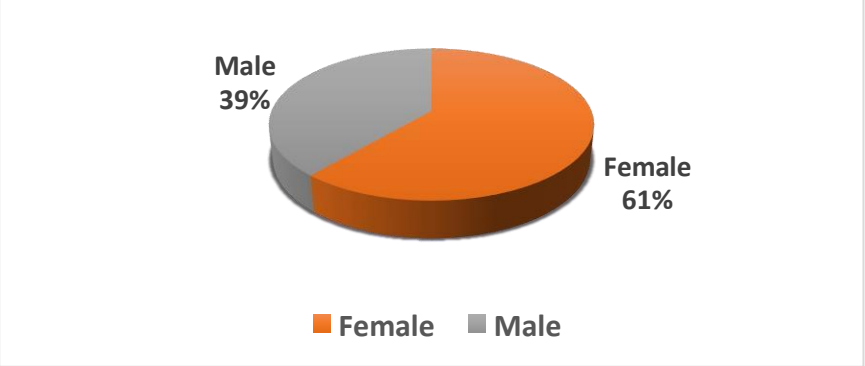


Figure 2: Gender of respondents

4.4 Age group

The respondents were asked to specify their age bracket. The ages of the respondents showed that 188 (80%) were in the age range of 18-24 years, 34(15%) were in the range 25-30 years, 6 (3%) were in the range 31-35 years, 5 (2%) were in the range 36-40 years and only 1 (1%) respondent was 40 years and above. This clearly showed that there were more young undergraduate students in the faculty, as depicted in Table 2 below.

Table 2: Age Group

Age Group	Freq	Percentage%
18- 24	188	80%
25- 30	34	15%
31- 35	6	3%
36- 40	5	2%
41 and Above	1	1%
Total	**234**	**100%**

4.5 Distribution by school affiliation

In order to establish which school used EIRs more, the respondents were asked to indicate the schools they were registered in. The findings indicated that 125 (54%) respondents were from the School of Education, 59 (25%) were from the School of Social Science and 50 (21%) were from the School of Languages and Communications. The findings indicated that the School of Education had more students than other schools. The findings are illustrated in Figure 3 below.

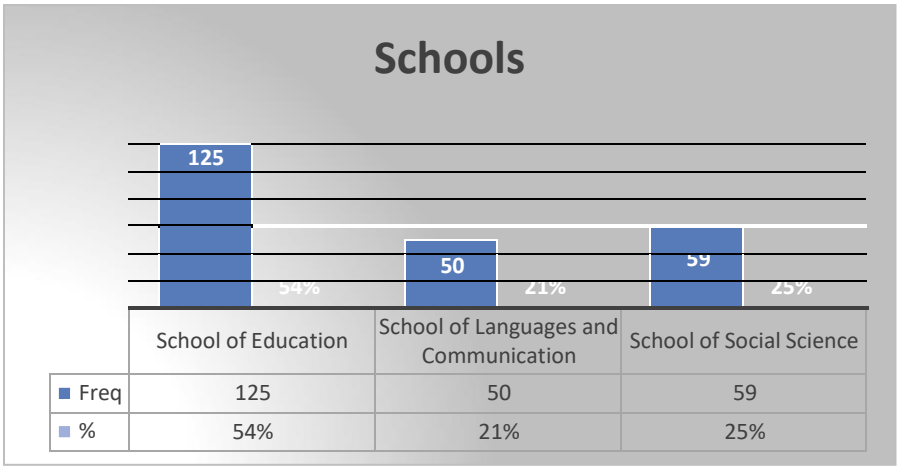


Figure 3: School affiliation

4.6 Awareness of EIRs

The respondents were asked if they were aware of the EIRs the library offered. According to the results, 216 (92%) respondents indicated that they were aware of EIRs and only 18 (8%) indicated that they were not aware of EIRs. The results showed that the majority of undergraduate students were aware of the EIRs, as illustrated in Figure 4 below.

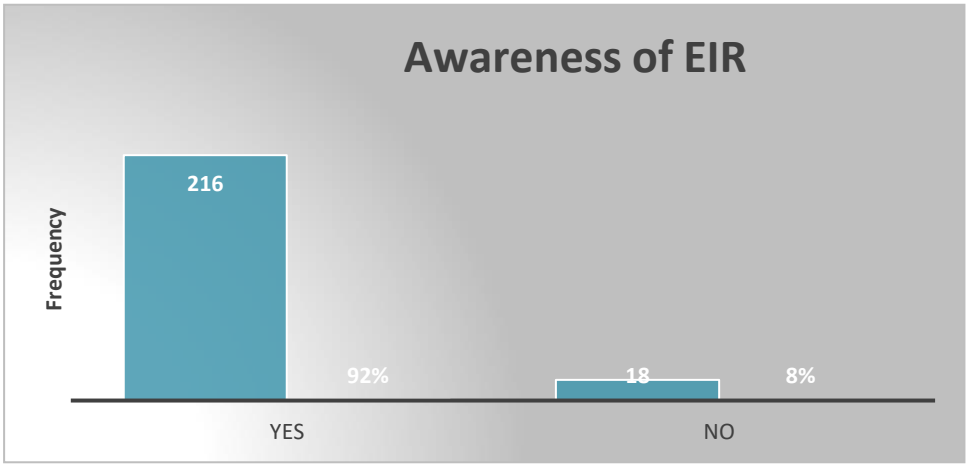


Figure 4: Awareness of EIRs

4.7 Factors contributed to EIR awareness.

The respondents were asked to show how they became aware of the EIRs. The results indicated that 104 (44%) respondents became aware of EIRs through lecturers, 45 (19%) respondents were informed by librarians, 27 (12%) were informed by classmates, 25 (11%) were informed by friends, 24 (10%) were informed by others and 9 (4%) were informed by colleagues. The findings revealed that majority of respondents were made aware of EIRs through their lecturers. The findings are shown in Table 3 below.

Table 3: Awareness of EIRs

Statement	Frequency	Percentage %
Lecturers	104	44%
Librarians	47	20%
Classmates	29	13%
Friends	27	11%
Colleagues	9	4%
Other	18	8%
Total	**234**	**100%**

4.8 Types of EIRs used.

There are types of EIRs available in the university library that students used for academic purposes. The respondents had the option to indicate the types of EIRs they preferred to use, and they could select multiple answers as it applied to them. The study revealed that the most used EIRs were e-books (155: 18%), e-journals were the second used most (153: 17%), followed by OPAC with 144 (16%) respondents, online databases (139: 16%), Turnitin and RefWorks (108: 12%), e-theses anddissertations (81: 9%), e-newspapers and magazines (63: 7%) and CD-ROMS (42: 5%). The high usage of e-books and e-journals could be attribute to the high demands from lectures who required recent scholarly published information for their course assignments. The findings are shown in Table 4 below.

Table 4: Types of EIR

Types of EIR	Frequency	Percentage %
E-books	155	18%
E-journals	153	17%
OPAC	144	16%
Online databases	139	16%
Turnitin and RefWorks	108	12%
E-thesis and dissertation	81	9%
E-newspapers and e-magazines	63	7%
CD-ROMs	42	5%

4.9 Use of EIRs

EIRs can be used for more reasons than completing course assignments. Respondents were asked to indicate their reasons for using EIRs other than for course assignments. The respondents were asked to choose multiple answers as it applied to them. As indicated in the table below, 161 (31%) respondents indicated that they used EIRs for information retrieval, 113 (21%) preferred to use EIRs for preparations of tests and exams, 110 (21%) respondents used EIRs for research, 74 (14%) used EIRs for class preparations and 64 (12%) used EIRs for instructional preparations. However, no additional reasons were specified on the questionnaires by the 4 (1%) respondents who indicated that they used EIRs for other reasons. This indicated that these respondents had no purpose or intention for using EIRs.

The results showed that the majority of the respondents used EIRs for their information needs. The findings are depicted in Table 5 below.

Table 5: Use of EIRs

Purpose	Frequency	Percentage %
Information need	161	31%
Tests/Exams	113	21%
Research	110	21%
Class preparations	74	14%
Instructional preparation	64	12%
Other	4	1%

4.10 Frequency of EIR use.

The respondents were asked how frequently they used EIRs. The findings revealed that 108 (46%) used EIRs weekly, 82 (35%) respondents used EIRs daily, 19 (8%) respondents used EIRs monthly, 18 (8%) respondents used EIRs seasonally and only (7: 3%) have never used EIRs before. A higher proportion was found to access the EIRs weekly. The findings are illustrated in Figure 5 below.

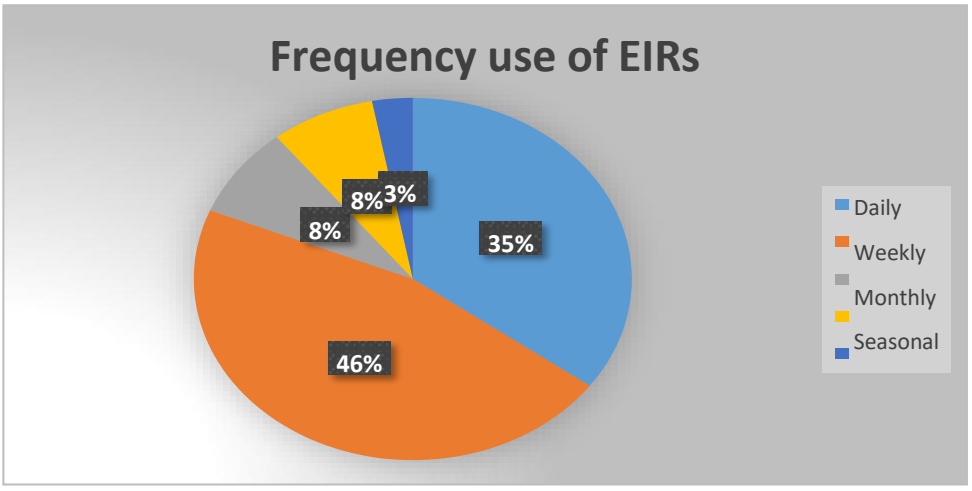


Figure 5: Frequency of EIR use.

4.11 Users' satisfaction with EIRs.

Respondents were asked to indicate their level of satisfaction in using EIRs. This was done to determine how satisfied they were with the information they retrieved from EIRs. The findings indicated that 42 (19%) respondents were very satisfied, 52 (22%) were satisfied, 22 (9%) were neither satisfied nor dissatisfied, 80 (34%) were dissatisfied and 38 (16%) were very dissatisfied. The findings revealed that most of the respondents were dissatisfied with the use of EIRs, which might be because they did not have the skills to access and use EIRs and experienced challenges when accessing EIRs. The findings are illustrated in Figure 6 below.

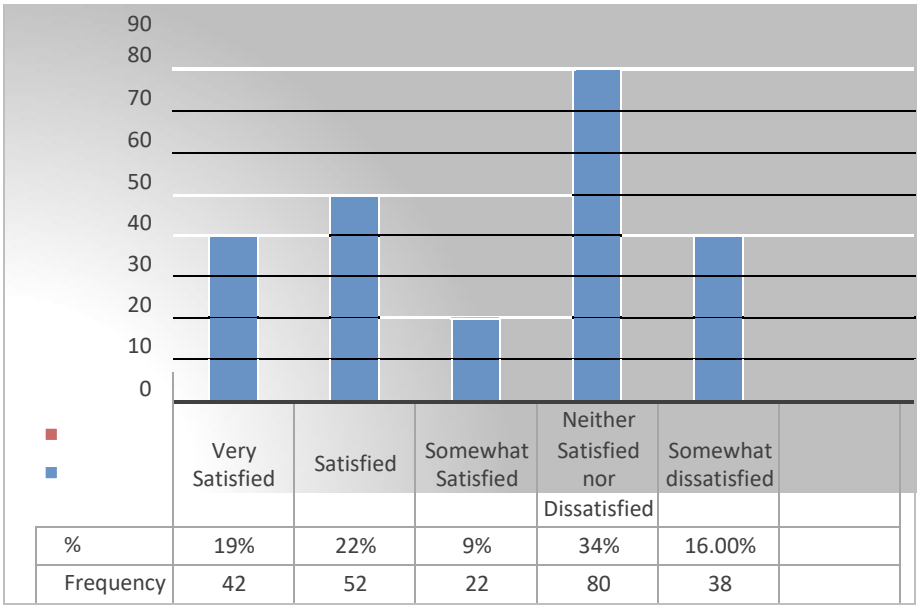


Figure 6: Users' satisfaction with EIRs

4.12 Factors affecting acceptance of EIRs.

Respondents were asked to indicate factors affecting their acceptance of EIRs. The findings indicated that 105 (23%) respondents accepted the EIRs because it offered good technical support when they encountered problems with it, 86 (19%) respondents accepted EIRs due to the availability of full-text articles, 62 (14%) respondents accepted EIRs due to the low cost of internet access, 60 (13%) respondents accepted EIRs because of ease of use of EIRs (for example, user-friendly interfaces), 53 (12%) respondents accepted EIR training they received in how to use EIRs, 42 (9%) respondents accepted EIRs due to a high quality of internet access providing a fast connection, 25 (6%) respondents accepted EIRs due to their experience in using EIRs and 22 (4%) respondents accepted EIRs due their good searching skills. The findings showed that the University of Limpopo offered good technical support to students. These findings showed that users' acceptance was positive. The results are shown

on Table 6 below.

Table 6: Acceptance of EIRs

Statement	Frequency	Percentage %
Good technical support when one encounters problems with the EIRs	105	23%
Availability of full-text articles	86	19%
Low cost of internet access	62	14%
Ease of use of EIRs, e.g., user-friendly interfaces	60	13%
Training on use of EIRs	53	12%
High quality of internet access providing a fast connection	42	9%
Experience in using EIRs	25	6%
Good search skills	22	4%

4.13 Factors affecting non-acceptance of EIRs.

Respondents were asked to indicate factors contributing to their non-acceptance of EIRs. The findings indicated that 126 (27%) respondents did not accept EIRs due to a lack of training in the use of EIRs, 69 (15%) respondents did not accept EIRs due to a lack of skills to use the EIRs, 62 (14%) respondents did not accept EIRs because of the high cost of internet access, 61 (13%) respondents did not accept EIRs due to too many steps required before retrieving full-text articles, 45 (10%) respondents did not accept EIRs due to unavailability of full-text articles, 31 (7%) respondents did not accept EIRs due to the lack of technical support to solve access problems with available EIRs, 29 (6%) respondents did not accept EIRs because of poor quality internet connection and download speed, 23 (5%) respondents did not accept EIRs due to a lack of time to access EIRs and 14 (3%) respondents did not accept EIRs due to the language of publication, for example, English. These findings revealed that most of the respondents did not accept EIRs due to a lack of training in the use of EIRs and a lack of skills to use the EIRs.

These findings showed that users' acceptance was negative. Although most of the participants indicated that they received training in the use of EIRs, the majority of these study participants still needed training in the use of EIRs. These discrepancies may be due to the fact that there was no formal training in the use of EIRs. The results are shown in Table 7 below.

Table 7: Non-acceptance of EIRs

Statement	Frequency	Percentage %
Lack of training on the use of EIRs	126	27%
Lack of skills to use the EIRs	89	15%
High cost of internet access	62	14%
Too many steps required before getting a full-text articles	61	13%
Unavailability of full-text articles	45	10%
Lack of technical support to solve access problems with available EIRs	31	7%
Poor quality internet connection and download speed	29	6%
Lack of time to access EIRs	23	5%
Language of publication, i.e., mostly English	14	3%

4.14 Usefulness of EIRs

In order to determine the respondents' attitude towards the use of EIRs, they were asked to rate the usefulness of EIRs. This was done to determine whether EIRs were useful for their information needs. The findings indicated that 67 (29%) respondents found EIRs very useful, 55 (23%) respondents confirmed that EIRs are useful and 28 (12%) indicated they were moderately useful. Furthermore, 81 (35%) respondents confirmed that EIRs were not useful, and 3 (1%) respondents specified no option. These results showed that most of the respondents found EIRs not useful for their information needs and the reason might be the lack of training in the use of EIRs. This is shown in Figure 7 below.

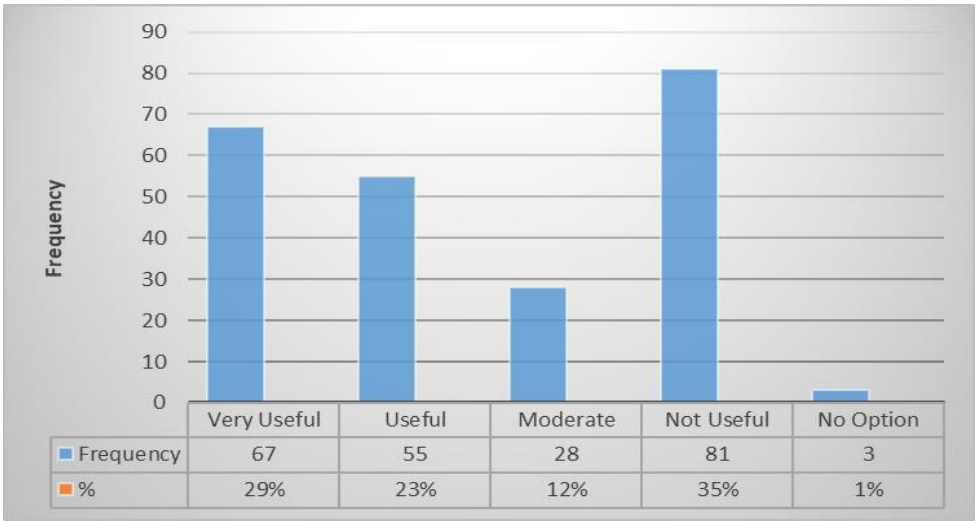


Figure 7: Usefulness of EIRs

4.15 Comfortability and non-comfortability of using EIRs.

Respondents were requested to indicate their comfortability and non-comfortability with the use of EIRs for meeting their information needs. This was done to assess whether participants were comfortable with EIRs. The options for replies were posed on a Likert scale ranging from strongly disagree (SD), disagree (D), neither disagree nor agreed (N), agree (A) and strongly agree (SA). The results are shown below.

4.15.1 Comfortability of using EIRs

On a Likert scale, the respondents were asked to indicate their comfortability with using EIRs. The findings indicated that 28 (12%) respondents strongly disagreed, 79 (34%) respondents disagreed, 37 (16%) respondents indicated neither disagreed nor agreed, 48 (12%) respondents agreed, and 42 (18%) respondents strongly agreed they were comfortable with using EIRs. These findings indicated that the majority of respondents were not comfortable with the use of EIRs, and this could be the reason why they found EIRs not useful. The results are shown in Figure 8 below.

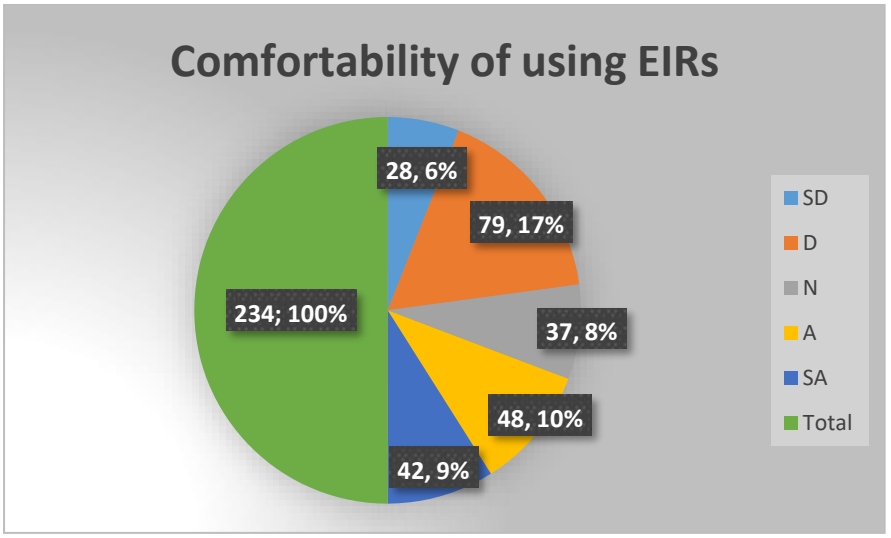


Figure 8: I feel comfortable when using EIR.

4.15.2 Not comfortable in using EIRs.

The findings indicated that 39 (16%) respondents strongly disagreed, 58 (25%) disagreed, 30 (13%) neither disagreed nor agreed, 72 (31%) agreed and 35 (15%) strongly agreed that they were not comfortable with using EIRs. These findings revealed that the majority of the respondents agreed that they were not comfortable using EIRs. These findings link to the previous findings, as most of the respondents were not comfortable using EIRs. It is possible that the respondents who agreed that they were not comfortable using EIRs were among the 89 respondents who did not accept EIRs due to a lack of skills in using EIRs. It is implicit that if someone does not have skills to use technology, it cannot be expected of them to have experience and be comfortable with using EIRs. The results are depicted in Figure 9 below.

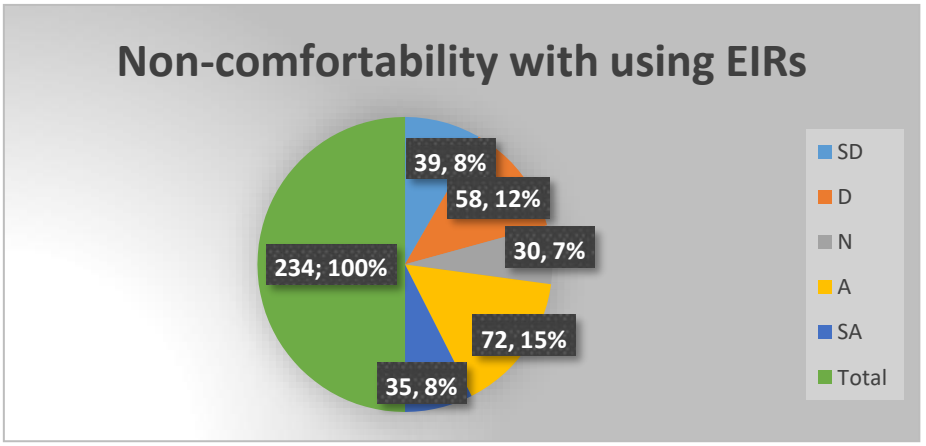


Figure 9: I do not feel comfortable when using EIRs.

4.16 EIR use being challenging.

Respondents were asked if using EIRs is challenging. Of the 234 respondents, 155 (66%) indicated that they experienced challenges when using EIRs, whereas 79 (34%) respondents indicated that they did not experience challenges in using EIRs. These findings linked with the results from the usefulness of EIRs. As the results revealed that most of the respondents indicated that EIRs were not useful for their information needs, which might be because of the challenges they encountered when accessing EIRs. The results are shown in Figure 10 below.

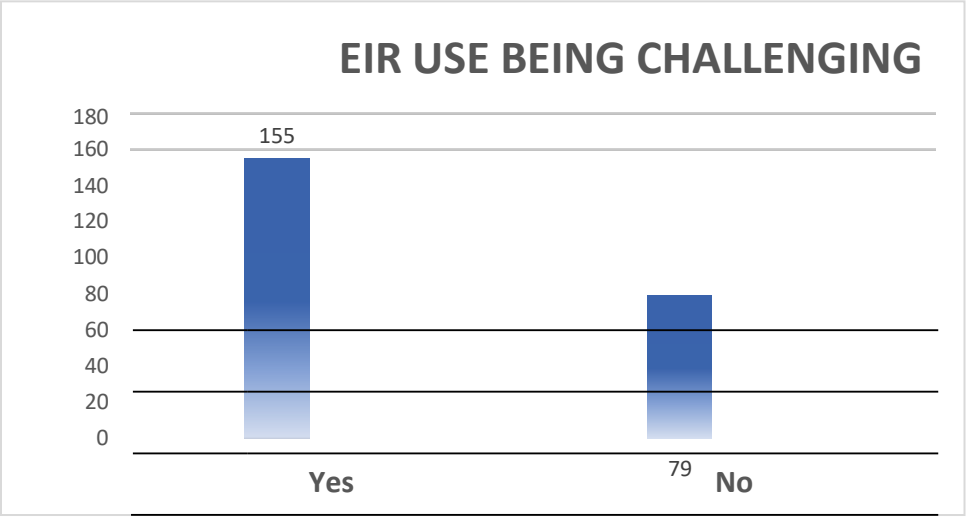


Figure 10: EIR use being challenging.

4.17 Challenges experienced when using EIRs.

In order to identify the barriers to EIR access, the respondents were asked to indicate the challenges they experienced when accessing EIRs. The questions were presented on a Likert scale (Strongly disagree, Disagree, Neither disagree nor agree, Agree, Strongly agree). Respondents were required to indicate their level of agreement and disagreement. The statements were as follows: technical issues (e.g., mouse or keyboard or other devices not working), lack of skills to use EIRs, lack of computers, poor internet connectivity (network), lack of data, lack of EIR orientation and I hardly find what I am looking for. The results are depicted in Table 8 below:

Table 8: Barrier's students experienced when accessing EIRs

Statement	Responses									
	Strongly Disagree (SD)		Disagree (D)		Neither disagreed nor agreed (N)		Agree (A)		Strongly Agree (SA)	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Technical issues experienced when using EIRs (e.g., mouse or keyboard or other devices not working)	52	21%	70	30%	46	20%	40	18%	26	11%
Lack of skills to use EIRs	37	16%	22	9%	30	13%	82	35%	63	27%
Lack of computers	49	21%	60	26%	-	-	54	23%	31	13%
Experience poor internet connectivity (network)	34	14%	58	25%	2	1%	87	37%	53	23%
Experience a lack of data	17	7%	21	9%	40	17%	97	42%	59	25%
Experience a lack of EIR orientation	26	11%	58	25%	10	4%	93	40%	47	20%
Hardly find what I am looking for	13	6%	33	14%	29	12%	105	45%	54	23%

4.17.1 Technical issues experienced when using EIRs.

Respondents were asked if they had technical issues that prevented them from accessing and using EIRs. The findings indicated that 26 (11%) respondents strongly agreed that they experienced technical issues, 40 (18%) respondents agreed, 46 (20%) respondents neither agreed nor disagreed with the statement, 70 (30%) respondents disagreed, and 52 (21%) respondents strongly disagreed. The findings indicated that most of the respondents disagreed with the statement.

4.17.2 Lack of skills to use EIRs.

The findings indicated that 37 (16%) respondents strongly disagreed, 22 (9%) disagreed, 30 (13%) neither disagreed nor agreed with the statement, 82 (35%) agreed and 63 (27%) strongly agreed. The majority of respondents agreed with the fact that they did not have the necessary digital skills to interact with EIRs.

4.17.3 Lack of computers

The findings indicated that 49 (21%) respondents strongly disagreed, 60 (27%) respondents disagreed, 40 (17%) respondents did not respond to this statement (which was noted as non-response in the analysis), 54 (23%) respondents agreed, and 31 (13%) respondents strongly agreed. The findings indicated that most of the respondents disagreed that there was shortage of computers, as the university gave all students personal computers.

4.17.4 Experience poor internet connectivity (network)

The findings indicated that 34 (14%) respondents strongly disagreed, 58 (25%) respondents disagreed, 2 (1%) respondents neither disagreed nor agreed, 87 (37%) respondents agreed, and 53 (23%) respondents strongly agreed that poor internet connection affected their use of EIRs and this could be one of the challenges that prevented them from using EIRs. The findings revealed that the majority of respondents agreed that poor internet connection affected their usage of EIRs.

4.17.5 Experience a lack of data.

The findings revealed that 17 (7%) respondents strongly disagreed, 21 (9%) respondents disagreed, 40 (17%) respondents neither disagreed nor agreed with the statement, 97 (42%) respondents agreed, and 59 (25%) respondents strongly agreed. The findings revealed that the majority of respondents agreed that there was a lack of data and that prevented them from using EIRs; therefore, it was possible that the data the university provided to students was not enough.

4.17.6 Experience a lack of EIR orientation.

The findings revealed that 26 (11%) respondents strongly disagreed with the statement, 58 (25%) strongly disagreed, 10 (4%) neither disagreed nor agreed, 93 (40%) agreed and 47 (20%) strongly agreed that there was a lack of orientation from library staff. The findings indicated that the majority of the users lacked orientation in how to use EIRs and this proved that the librarians did not provide users with orientation or assistance in how to interact with EIRs. It is possible that respondents were more comfortable with using print resources than EIRs.

4.17.7 Hardly find what I am looking for.

The results indicated that 13 (6%) respondents strongly disagreed, 33 (14%) respondents disagreed, 29 (12%) respondents neither disagreed nor agreed, 105(45%) respondents agreed, and 54 (23%) respondents strongly agreed to not being able to find the necessary information on EIRs. The findings revealed that most of the respondents (105: 45%) agreed that they hardly found what they were looking for in EIRs.

4.18 Improvement of access and use of EIRs

Respondents were asked to give suggestions on what could be done to improve access and use of EIRs. Respondents suggested the following as ways of alleviating the challenges:

Table 9: Suggestions

Suggestions	Frequency	Percentage %
The library must offer more training and e-learning classes more often to students, particularly first-year students.	96	42%
Improve high quality of internet access for fast connection.	62	26%
Hold awareness campaigns and increase the level of marketing of EIRs among students; for example, hosting e-literacy events fortnightly.	31	13%
Advance search strategies and the u s e of controlled vocabulary to make electronic search processes much easier.	26	11%
The library should provide a link to EIR orientation (self-service) to new users, as this would increase number of EIR users.	10	4%
The university should consider creating a virtual private network link to enable students to have access to all EIRs from outside the university network.	8	3%
It was suggested that the university should partner with the government and provide adequate power supply, build robust IT infrastructure and prevail on network providers to provide cheap data subscriptions so that students can full access to the internet for effective learning even while at home.	1	1%

From the solutions listed above, it could be seen that most of the respondents suggested that the library should offer more training and e-learning classes to improve the use of EIRs. Secondly, respondents suggested that the university should improve internet speed, as it would allow easy access to EIRs.

4.19 Summary

In this chapter, the results were analysed and interpreted. The results showed that most of the respondents were aware of EIRs and had a positive attitude towards it, as they considered it “comfortable”, but they did not use them. It was also found that most undergraduate students were aware of the EIRs but were not using them as frequently as they were expected to. It was found that EIRs were used for different purposes, which included tests/exams, class preparations, research and information needs. The barriers experienced by respondents when using the EIRs were also discussed. These barriers were attributed to poor internet connectivity and a lack of skills (no training offered). To improve access and use of EIRs, respondents were asked to suggest what could be done to improve the use of EIRs. It was found that respondents suggested more training sessions, orientation for new users and improvement of the internet speed. The next chapter presents the discussion of the findings.

CHAPTER 5: DISCUSSION OF THE FINDINGS.

5.1 Introduction

This chapter presents the discussion of the findings. The chapter shows that the research questions and research sub-heading were answered. The results can be used to give a broader overview on the use of EIRs and recommendations are made such that they could be employed by academic libraries.

5.2 Research Questions

This section discusses the research questions of the study. Each of the sub-questions are answered individually.

5.2.1 **Research Question**: *What is the level of awareness of EIRs among undergraduate students in the faculty of humanities at the University of Limpopo?*

Sub-question: Are you aware of EIRs?

This research has shown the awareness of EIRs among undergraduate students. Question 4 of the questionnaire presented the level of awareness by students. Figure 4 showed that majority of the undergraduate students of the University of Limpopo in the Faculty of Humanities were aware of the EIRs and only a few were unaware of the EIRs. These findings are in line with the findings of Partap and Ranga (2021) which revealed that most of the respondents were aware about the use of electronic resources and were currently using them in their academic and research work. In western Asia, Saudi Arabia, majority of students were unaware of the EIRs offered by the Majmaah University, meaning EIRs were not in use (Alabdulwahhab et al., 2021).

Sub-question: How did you become aware of these EIRs?

This study has shown that most of undergraduate students of Faculty of Humanities were aware of EIRs, however, there are factors that contributed to the EIRs awareness. Question 5 of the questionnaire dealt with factors contributed to EIRs awareness. Table 3 shows that majority of students became aware of EIRs through lecturers, few students became aware through librarians and through classmates. In addition, other students indicated that they became aware through friends, and through colleagues. The findings revealed that most of the students were made aware of EIRs through their lecturers. This does not concur with the study by Aktar (2019) that found that university library training was predominantly chosen as

the avenue for familiarising themselves with accessing EIRs. The second highest avenue of finding out about EIRs was through self-study. From the replies of students, it appeared that lecturers were the poorest way of discovering EIRs. The study by Mathope-Dasilva (2021) showed that the minority learnt about EIRs through lecturers, friends/peers and self-study.

Moreover, the study by Mwantimwa and Elia (2017) on HEIs in Tanzania reported that 98.3% of the academic staff and researchers from the University of Dar es Salaam (UDSM), IFM, Muhimbili University of Health and Allied Sciences (MUHAS) and Sokoine University of Agriculture (SUA) were aware of the availability of information EIRs and online databases to which their universities subscribed, whereas 1.7% of academic staff and researchers from ARU and Mzumbe were not aware. In South Africa, a study by Dolo-Nndlwana (2013) found that most postgraduate students of the Cape Peninsula University of Technology (CPUT) used EIRs, while some students lacked awareness of its existence. Moyo (2017) revealed that slightly more than half (50.3%: 81) of the 161 students indicated that they were not aware of the resources, whereas 49.7% (80) indicated that they were aware of Unisa's electronic library resources. On the other hand, University of Venda students were asked if they used the EIRs provided on the library website. The study revealed that the majority (84%) have accessed and used e-databases from the library website and 16% of students were not aware (Tlakula & Fombad, 2017).

5.2.2 **Research Question:** *What types of EIRs are available at the University of Limpopo library?*

Sub-question: Which of the following types of EIRs have you used or accessed when writing your course assignment before?

The research has shown the EIRs available at University of Limpopo library for use by undergraduate students. Question 6 of the questionnaire presented the different types of EIRs that are available for students. Table 4 showed that the types of EIRs that are available in University of Limpopo library and that students prefer to use were mostly e-books and e-journals, followed by OPAC and online databases, Turnitin and RefWorks, e-theses and dissertations, e-newspapers and magazines and CD-ROMS with 5%. E-books and e-journals embraced recent scientific literature. These findings corroborated the findings of several authors on the types of EIRs used in academic libraries (Kumar & Anjaiah, 2017; Sejane, 2017).

A similar study conducted in Europe and Asia revealed that most commonly used types of EIRs available in academic libraries were e-journals, e-books, e-databases, e-theses and dissertations, CD-ROMs, OPAC, newsgroups, subject gateways, Turnitin, RefWorks, internet and other computer-based electronic networks (Renz & Sullivan, 2013). In India, Kenchakkanavar (2014) and Dayakar (2018) discovered that the most common types of EIRs found in academic libraries were e-journals, e-books, e-databases, e-theses and dissertations (ETDs), e-patents and standards, e-reports- maps, e-pictures/photographs, e-manuscripts, e-newspapers, websites-listservs, newsgroups, subject gateways, Turnitin, RefWorks, Usenets and databases.

In Africa, most of the types of EIRs were available in academic libraries. In Nigeria, the types of EIR found useful were e-journals, e-books, e-magazines, e-theses, the World Wide Web (WWW), e-newspapers, emails, e-research reports and bibliographic databases. In the University of Lagos, most research scholars preferred to use e- journals (80%), the second most preferred to use the WWW (74.57%) and the rest of the EIRs were comparatively less used (Egberongbe, 2011). This study concurred with the findings of Kumar and Anjaiah (2017) who also found that e-journals, the internet, e-databases and e-books were the e-resources that were used the most by students. In Lesotho, it was established that the type of e-resources accessed and used by academic libraries of LELICO included e-mail, search engines, websites, OPAC, e- journals, full-text databases, reference databases, IRs and CD-ROMs. The study revealed that most of the respondents had full-text databases and CD-ROMs (Sejane, 2017).

In South Africa, Moyo (2017) reported that Unisa students were asked to rank the usefulness of different types of EIRs and e-theses and dissertations that emerged as being perceived as the most useful e-resources, with an average rating of 3.31%; followed by e-newspapers and e-magazines, which each received average ratings of 3.26%; then bibliographic databases, with an average rating of 3.06%. Publisher journal archives were rated 2.99% and full-text abstracting and indexing databases were rated 2.90%. The resources that were perceived to be less useful were publishers' journal collections, e-reference sources and e-book collections, which each received respective average ratings of 2.83%, 2.80% and 2.78%.

5.2.3 **Research Question**: *How do undergraduate students in the faculty of humanities at the University of Limpopo use EIRs?*

Research Sub-question: Except for course assignment, what are your reasons for using the EIRs?

The findings revealed the reasons for using EIRs by undergraduate students. Question 7 of the questionnaire dealt with the reasons for using the EIRs. Table 5 shows that majority of students used EIRs to retrieve information needed and for preparations of tests and exams. Other students indicated that they use EIRs for research, class preparations and for instructional preparations. On the other hand, no additional reasons were specified on the questionnaires by the 1% respondents who indicated that they used EIRs for other reasons. A significant proportion of the undergraduate medical students used online educational resources for learning (Alabdulwahhab et al., 2021). In Ghana, Akuffo (2019) and Ankrah, and Acheampong (2017) revealed that students used EIRs for research and assignments. This agreed with study done by Bhatti et al. (2016) who found that users preferred to use EIRs for their research work. However, in Nigeria, EIRs were mainly used for class assignments and to update knowledge and research (Alasa & Quadri, 2022).

In South Africa, the University of South Africa established that the majority of students used EIRs for study purposes and others used it for research. Only a few users indicated that they used EIRs for current awareness and general browsing (Moyo, 2017). Similar results were obtained from a study conducted by Vukeya (2017) in 2017 at the UJ wherein most undergraduate students mostly used EIRs to support research assignments, more than 90% for each academic year. Another reason for using EIRs was to find answers to specific academic questions, with 49.5% to 55.4% students indicating this reason. However, the use of EIRs for non-academic purposes was indicated by 13.9% third-year students and 33.1% third-year students indicated the use of EIRs to support teaching and learning.

Sub-question: How often do you use EIRs?

The findings revealed the frequency of using EIRs. Question 8 of the questionnaire dealt with the use of EIRs as an integrated part of the respondent's work. Figure 5 shows that majority of students used and accessed EIRs weekly, second majority used EIRs daily, others used EIRs monthly, seasonally and only 3% of respondents revealed as have never used EIRs before. A higher proportion was found to access the EIRs weekly. These findings were similar to those of the recent study by Kona (2020) who revealed that 36.73% of the library users

used EIRs on a daily basis, 20% of library users used EIRs every fortnight, 13.61% of library users used EIRs once a week, 9.78% of library users used EIRs monthly, 9.21% of library users used EIRs twice a week, 7.65% of library users used EIRs three times a week and 2.97% of library users accesses EIRs occasionally. Kona (2020) examined the use of electronic resources and the findings revealed that the faculties accessed EIRs on a daily basis and mostly used the internet and CD-ROM. Moyo (2017) states that most of the students at Unisa used EIRs daily, weekly and monthly, and only a few students used EIRs annually.

5.2.4 Research Question: *What are the factors affecting the acceptance and non-acceptance of EIRs by undergraduate students in the faculty of humanities at the University of Limpopo?*

Sub-question: How satisfied are with the information you get from EIRs?

The findings indicated the student's satisfaction with EIRs. Question 9 of the questionnaire distributed users' satisfaction with the information retrieval from EIRs. Figure 6 revealed that majority of the respondents were dissatisfied with the use of EIRs, which might be because the challenges experienced when accessing and using EIRS, challenges such as lack of skills and knowledge of using EIRs. These findings were contrary to the findings by Shah, Nguyen, Gupta, Matalon and Gaviola, (2021) discovered that students appreciated that they found EIRs more useful and more user-friendly than traditional textbooks. These findings were similar to a study conducted in Sydney, Australia, in 2018, as more than 95% undergraduate students in a clinical block found the local and other online resources were more helpful and convenient than traditional textbooks (Scott, Morris & Marais, 2018).

The study conducted at Banaras Hindu University, the majority of the students were moderately satisfied with the available e-resources (Sonkar, Singh & Kumar, 2014). However, Shoaib, Abdullah and Ali (2020) found that research-intensive students are satisfied with EIRs available in libraries. In India, Gupta and Sharma (2014) examined the use of online information resources by the students of Indian Institute of Technology. The study exposed that 59.7% of students preferred to use print resources as well as EIRs. Therefore, 51.5% of students were satisfied with the available EIRs and services. This was similar to the study by Duraisekar and Palaniappan (2019) who found that most students were highly satisfied with using EIRs. In additions, Shoaib, Abdullah and Ali (2020) found that research-intensive students are satisfied with EIRs available in libraries. In South Africa, more than half of

undergraduate students of the University of Venda (UNIVEN) were moderately satisfied with the EIR that were available (Ndou & Chilimo, 2021).

Sub-question: What are the factors affecting your acceptance of EIRs?

The findings on the factors affecting the acceptance of EIRs. Question 10 of the questionnaire dealt with the acceptance of EIRs. Table 6 revealed that majority of respondents accepted the use of EIRs due to good technical support when students encountered problems with the EIRs, and few respondents accepted EIRs due their good searching skills. The findings showed that the University of Limpopo offered good technical support to students. These findings showed that users' acceptance was positive. A similar study conducted in Asia by Eltouny, Nasser, Hefny and Hosny (2020) indicated that the vast majority of undergraduate students used online resources because these were more user-friendly than the traditional textbooks, and the users' acceptance was positive. Similarly, Mansur (2020) conducted a study on attitudes towards the use of EIRs by students found that students had a positive attitude towards e-learning where computer exposure played a statistically significant role in their attitudes. The findings of the study revealed that Unisa's third- year students in the School of Arts had a positive attitude towards e-resources, as most of them felt that accessing EIRs was important (Vukeya, 2017).

Sub-heading: What are the factors affecting your non-acceptance of EIR?

The findings on the factors affecting the non-acceptance of EIRs. Question 11 of the questionnaire dealt with the non-acceptance of EIRs. Table 7 revealed that majority of respondents did not accept EIRs due to a lack of training in the use of EIRs and a lack of skills to use the EIRs. These findings showed that users' non-acceptance was negative. Although there were participants who indicated that they received training in the use of EIRs, the majority of these study participants still needed training in the use of EIRs. These discrepancies might be due to the fact that no formal training in the use of EIRs existed. The issue of internet connectivity and cost of the internet were of the major barriers affecting students in accessing and utilising information resources. These findings substantiated the findings of the studies conducted by Buchholz (2011) in the University of Namibia. The factors affecting students in South Africa for non- acceptance were rated in the following sequence: lack of time, preference for information freely available on the internet, speed of the internet, poor information searching skills, nobody available to assist with access, preference for print resources and a lack of computers. Information overload and problems with usernames and

passwords were the least ranked barriers, with respective ratings of 10.2% and 8.2%. The other factors that 23 students cited includes no electronic versions of some publications; no library accounts; poor internet connectivity; comfortable with using print resources and study guides and not comfortable with reading on the screen (Moyo, 2017). The lack of skills and knowledge to search for the EIR and deciding which database to choose, affect their attitude towards EIR (Mathope-Dasilva, 2021).

5.2.5 Research Question: *What are the attitudes towards the use of EIRs by undergraduate students?*

Sub-question: How would you rate the usefulness of the EIRs available in the UL Library? The findings on the usefulness of EIRs. Question 12 on the questionnaire distributed the rate of the usefulness of the EIRs by students. Figure 7 showed that most respondents found EIRs not useful for their information needs possibly because of the lack of training in the use of EIRs. These findings were different from the findings obtained by Alabdulwahhab et al. (2021) that most undergraduate students in Asia believed that the online resources were more useful than the traditional textbooks. In a study conducted in Nkumba University, Uganda, it was found that third-year students found EIRs very useful. The majority of students agreed that EIRs supported them to perform better in their academic work (Bwalya and Sebbale, 2017). The Central University of Technology in the Western Cape, the majority responded positively selecting ‘useful’ that EIRs provided access to a wider range of information (Mathope-Dasilva, 2021).

Sub-question: Are you comfortable with the information you retrieve from EIRs?
The findings on the comfortable with the information retrieved from EIRs. In this study, respondents were requested to indicate their comfortability with the use of EIRs to meet their information needs. Given the options ranging from strongly disagree to strongly agree on the Likert scale. Question 13 on the questionnaire distributed comfortability of using EIRs by students. Figure 8 revealed that most of the respondents are not comfortable with the use of EIRs, which could be the reason why they were not useful. These findings did not agree with the findings of the study conducted in 2018, which concluded that the use of EIRs significantly improved the grades achieved by the students at the end of the course (Colvard, Watson & Park, 2018). The third-year students in Uganda were comfortable with using EIRs as the analysis of the responses and it was revealed that users agreed that EIRs have

benefits in terms of a wide range, quality current information and relevance to studies (Bwalya & Sebbale, 2017).

In Saudi Arabia, medical undergraduate students considered EIRs more important to secure better grades in the examination, and this reflected the attitude of the high-performing students (Alabdulwahhab et al., 2021). In South Africa, at the Central University of Technology in the Western cape, it was found that regarding EIRs providing fast access to information, two (2.2%) respondents stated that EIRs were not useful, while 17 (18.9%) indicated that they were not sure. The majority (47: 52.2%) chose 'useful'; 24 (26.7%) chose 'very useful', indicating that fast access to information provided by e-resources contributed to the success of their studies (Mathope-Dasilva, 2021). UNIVEN undergraduate students had a positive perception of the use of EIRs, and they were actively using EIRs and encouraging postgraduate students to do the same (Ndou & Chilimo, 2021).

Sub-question: Are you not comfortable with the information you retrieve from EIRs?
The findings on the non-comfortable with the information retrieved from EIRs. Question 13 on the questionnaire dealt with non-comfortability of using EIRs, therefore, respondents were given options ranging from strongly disagree to strongly agree on the Likert scale to assess non-comfortability of using EIRs. Figure 9 revealed that majority agreed that they were not comfortable with using EIRs. The findings of this study were supported by the study by done Akbar, Jabbar, Saleem and Ashiq (2022) who revealed that undergraduate students had challenges in accessing EIRs, as they did not have enough computer skills. However, a large number of undergraduate students found it easier to access printed resources than EIRs; therefore, they use printed resources. This was consistent with the variable 'perceived ease of use' in TAM which states that an individual would use a system that is free of effort (Davis, 1989). At the University of the Western Cape, the majority of students stated that EIRs could be useful, but they may not have used them because they perceived them as difficult. They did not find it easy to locate EIRs and experienced difficulty in navigating EIRs, which might influence their attitude towards and intention to use the EIR (Mathope-Dasilva, 2021). In South Africa, UJ students had a positive attitude towards the library EIRs, as they considered it very important and accessible (Vukeya, 2017).

5.2.6 **Research Question:** *What are the barriers that students face when accessing and using EIRs?*

Sub-question: Is the use EIRs challenging?

The findings for EIRs use being challenged. Question 14 on the questionnaire dealt with if the use of EIRs is challenging. Figure 10 revealed that majority of respondents have experienced challenges when using EIRs, whereas few respondents indicated that they did not experience challenges when using EIRs. These findings linked with the findings from the usefulness of EIRs. The results revealed that most respondents indicated that EIRs were not useful for their information needs, possible because the challenges they encountered when access EIRs. These findings were supported by the study conducted in India by Shastri and Chudasma (2022) which indicated that most of the respondents strongly agreed that they experienced challenges because of a lack of infrastructure. In Africa, Egielewa, Idogho, Iyalomhe and Cirella; (2022) and Igbo, Ibegbulam, Asogwa and Imo, (2022) revealed that students agreed that using EIRs is challenging. Mojapelo and Durodolu (2022) state that in South Africa, digital infrastructure is very difficult to navigate and is negatively affecting library users' access to online information sources, and this has been cited as a challenge affecting the users.

Sub-question: Which of the following challenges have you experienced with accessing EIRs?

The findings revealed the barriers that were experienced by students to accessing EIRs. Question 15 of the questionnaire distributed the barriers students experienced those findings in Table 8 revealed barriers such as technical issues, a lack of digital literacy skills, a lack of computers, poor internet connectivity, a lack of data, a lack of EIR orientation and students hardly found relevant information. From the results of Likert scale of strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, barriers experienced by students to accessing EIRs pointed out that majority of students disagreed with fact that they experience technical issues (e.g., mouse or keyboard or other devices not working).

A similar study conducted in Nigeria by Popoola and Olajide (2022) revealed barriers as a lack of proper maintenance, high cost of internet access, power outages, information overload, funding of library services and others. This result concurred with the studies done by Adeleke and Nwalo (2017) who found that postgraduates experienced problems to search for information because of technical issues. The recent study conducted in University of the Western Cape revealed that most students had knowledge of computers; however, most had inadequate skills in the use of computers to search for EIRs on the OPAC, but technical issues was the main challenge (Mathope-Dasilva, 2021).

The lack of skills and knowledge is one of the biggest challenges that students faced. Table 8 revealed that majority of respondents agreed that they did not have the digital skills necessary to interact with EIRs. On the other hand, libraries in the African region seemed to have experienced similar challenges with the use of EIRs. Gana, Ajibili and Abel (2019) reported that respondents experienced challenges of poor orientation, no user-friendly interface, non-accessibility through mobile phones, training and user education. Libraries in South Africa face similar constraints when it comes to using EIRs. In the University of Zululand, most of the postgraduate students encountered many challenges that hindered their effective use of and access to EIRs such as e-books. Postgraduate students faced challenges such as a lack of information technology skills and a lack of training in the use of EIRs (Ngema & Masenya, 2020)

Lack of computers, Table 8 also revealed that most of the respondents disagreed that there was a shortage of computers as the university gave all students personal computers. In Chennai, contrary to the current study, Kasimani and Rajentran (2019) discovered that the respondents experienced a shortage of computer terminals. This is similar to the findings of the study by Bwalya and Sebbale (2017) and many other studies related to ICT challenges in libraries. The study by Vukeya (2017) found that there was a shortage of personal computers in UJ libraries.

Poor internet connectivity (network), Table 8 revealed that most respondents agreed that poor internet connection affected their use of EIRs. This could be one of the challenges that vetoed them from using EIRs. These findings agreed with the findings of the study by Ogunbodede et al. (2021) that indicated that some of the challenges faced by students in accessing EIRs included poor power supply, high cost of data subscription and slow internet connectivity. Additionally, In Chennai, Kasimani and Rajentran (2019) found that the respondents experienced poor internet speed and that prevented them from accessing EIRs. Popoola and Olajide (2022) state that in Africa, undergraduate students in private universities in Southwest Nigeria did not have enough library facilities and had poor internet facilities, which were at the top of the list of challenges. In South Africa, Vukeya (2017) and Ngema and Masenya (2020) discovered that at UJ and the University of Zululand students had limited access to the internet.

Lack of data, Table 8 revealed that majority of the respondents agreed that there was a lack of data and that prevented them from using EIRs; therefore, it was possible that the data

that the university provided to students was not enough. This finding agreed with the findings of the study of Ogunbodede (2021) which indicated that library and information science students at the University of Benin, Nigeria, felt that the high cost of data subscription, erratic power supply and slow internet access were the three major challenges to the effective use of e- resources during the Covid-19 lockdown. Mathope-Dasilva (2021) indicated that students were asked to show how often they encountered challenges when using EIRs because of a lack of data for searching sources at home. More than 50% of students indicated that they sometimes experienced a lack of data when using EIRs at home.

In terms of lack of EIR orientation, Table 8 revealed most users lacked orientation in how to use EIRs and this proved that librarians did not provide users with orientation or assistance in how to interact with EIRs. It is possible that respondents were more comfortable with using print resources than EIRs. On the other hand, libraries in the African region seemed to experience similar challenges with the use of EIRs. Rout and Panigrahi (2018) state that respondents experienced challenges of poor orientation and training in the use of EIRs. These findings were supported by the study by Vukeya (2017) which indicated the following barriers: students lacked personal knowledge of how to use the EIRs, unfavourable library operation hours, no support for printing, downloading speed and poor connection.

Students hardly find what I am looking for, Table 8 revealed that most of the respondents agreed that they hardly found what they were looking for on EIRs. This was supported by a study by Mamafha, Ngulube and Ndwandwe (2016) who also recognised this as a big challenge for EIRs users. This was similar to the findings of the study done by Mathope-Dasilva (2021) which revealed this to be a challenge for EIRs users. At the UJ, access and usage time was strictly limited under normal circumstances, which made it difficult for users to find the necessary information (Vukeya, 2017).

Sub-question: What can be done to improve access and use of EIRs?

Having identified the most important barriers to access and the use of EIRs, undergraduate students were asked to give suggestions on what could be done to improve access and use of EIRs. Suggestions were made from question 16 of the questionnaire on what can be done to improve access and use of EIRs. The suggestions from Table 9 for improvement of access and use of EIRs noted as majority indicated that the library must offer more trainings and e-learning classes more often to students, particularly first-year students. Students also

suggested that there is a need for improvement of the quality of internet access for fast connection will improve their access to EIRs. it was also suggested that proposed awareness campaigns and an increased level of marketing of EIRs among the students such as hosting e-literacy events fortnightly. Other students felt that advanced search strategies and the use of controlled vocabulary to make the electronic search process easier should receive attention. It was also proposed that the library should provide a link for students to access EIR orientation (self-service), especially for new users, as it would increase the number of EIR users. Few students felt that the university should consider creating a virtual private network link in order to enable students to have access to all EIRs from outside the university network. Out of 234 undergraduate students, one student felt that the university should partner with the government and provide adequate power supply, build robust IT infrastructure and prevail on network providers to provide cheap data subscriptions so that students can have full access to the internet for effective learning even while at home so that they would be able to access and use EIRs globally.

In a similar study conducted in Unisa, students put suggestions forward, as most students suggested that they needed to find more information to inform them how to access EIRs. Some of the students felt that they needed to practice better time management skills to utilise the resources fully. The other ways to overcome barriers to the use EIRs suggested by students included: investing in technology, changing student attitude, sourcing financial support, attending information literacy training, setting up library user accounts and doing better planning (Moyo, 2017).

The findings of this study indicated that the external variables that were measured and guided by the TAM theory, were technical issues, a lack of computers, a lack of data, poor internet connectivity, a lack of digital literacy skills, a lack of EIR orientation and students hardly finding information on EIRs, indicated that these challenges might influence undergraduate students' use of EIRs, because they might not regard or believe that EIRs were user-friendly. Students' attitude may change and they may look for systems that work better for them.

5.3 Summary

This chapter covered the discussion of research findings as guided by the five research objectives. The discussions were linked with the literature review and the theory used in the

study. The current study investigated the use of EIRs by undergraduate students at the University of Limpopo. It was found that most undergraduate students were aware of the EIRs, or they were not using them as frequently as they were expected to. It was also found that the EIRs were used for different reasons, which included information needs, preparations of exams and tests, and for research. The next chapter which is the last chapter presents the conclusions and recommendations.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS.

6.1 Introduction

The previous chapter covered the discussion of the findings. The purpose of this study was to investigate the use of EIRs for writing assignments by undergraduate students in the Faculty of Humanities at the University of Limpopo. This chapter is arranged to present the major findings in order to demonstrate that the research objectives stated in (Cf.1.4.1) have been addressed. The chapter focuses mainly on the summary, conclusions and recommendations.

6.2 Conclusions

These conclusions are presented in order according to the six objectives of this study.

6.2.1 *Conclusion about level of awareness of EIRs by undergraduate students in the Faculty of Humanities at UL.* The findings indicated that 92% of undergraduate students of UL are aware of the EIRs and one of the reasons of awareness was through lecturers. The high rates of these results were surprising, as this finding contrasted with a study conducted in 2015 and 2016 on 75.5% of the medical undergraduate students were aware of and utilising the EIRs offered by the college administration (Ahmed & Al-Reyaee, 2017).

6.2.2 *Conclusion about the types of EIRs available at the University of Limpopo library.* The findings indicated that the types of EIRs that students preferred to use were mostly e-books and e-journals. The types of EIRs available in academic libraries were e-journals, e-books, e-databases, e-theses and dissertations, CD-ROMs, OPAC, newsgroups, subject gateways, Turnitin, RefWorks, internet and other computer-based electronic networks (Renz & Sullivan, 2013).

6.2.3 *Conclusion about the use of EIRs by undergraduate students in the Faculty of Humanities at the UL*. The findings indicated that most of undergraduate students used EIRs to retrieve information needed and preparations of tests and exams; and majority of students also indicated that they access EIRs weekly. Similar results were obtained from a study conducted by Vukeya (2017) wherein most undergraduate students mostly used EIRs to support research assignments.

6.2.4 *Conclusion about the factors affecting the acceptance and non-acceptance of EIRs by undergraduate students in the Faculty of Humanities at the UL.* The findings indicated

that most of the students were dissatisfied with the use of EIRs and found EIRs not useful; and which might be because they did not have the skills of accessing and using EIRs and experienced challenges when accessing EIRs. These results also indicates that students did not accept EIRs due to a lack of training in the use of EIRs and a lack of skills to use the EIRs. These findings showed that factors that affects the acceptance use of EIRs are lack of trainings and skills of using EIRs. perceived usefulness (PU), perceived ease of use (PEOU)

6.2.5 *Conclusion about the attitude towards the use of EIRs by undergraduate students.* The findings indicated that majority agreed that they are not comfortable with using EIRs, which could be the reason why they find them not useful. attitude towards use, intention or behavioural use and actual system use

6.2.6 *Conclusion about the barriers that students face when accessing and using EIRs*. The findings indicated that challenges that students faced were poor internet connectivity, a lack of digital literacy skills, a lack of EIR orientation and students hardly finding information on EIRs. These challenges might influence undergraduate students' use of EIRs, because they might not regard or believe that EIRs were user-friendly. Students' attitude may change, and they may look for systems that work better for them.

6.3 Recommendations

Based on the findings and conclusions thereof, the study recommends the following:

One of the key findings of the study was that the undergraduate students were aware of EIRs, but they did not have the skills to use them. Challenges have been identified and most of the students found EIRs very difficult to use. Ensuring satisfaction for the users of EIRs is an important step towards improving the utilisation of the resources. The library should strive to ensure that the EIRs they provide satisfy the needs of their users. After a clear review of the findings, discussions and conclusions in the study, the researcher makes the following recommendations:

- The library should improve its service in the provision of EIRs to ensure academics are satisfied with the availability and usefulness of the available EIRs. In addition, the library should adopt innovative ways of improving their EIR services, such as providing an EIR with advanced and federated search capabilities to meet the

academic needs of students. This is very bad considering that the world is in the 4th industrial revolution where almost everything is computerised. The librarians should train towards that phase in the library by establishing more training sessions in the use of EIRs and e- learning classes for students. These classes should be compulsory for all students.

- Training, re-orientation or peer learning of information librarians in how to access the EIRs should be taken into consideration so that they would be able to help users when needed. As some of the courses or modules would only be available online, librarians need to be able to provide online instructions, training and information resources to students.

- Trainings and library orientations should be made compulsory for all first-year students. Training should be provided to library users to further increase the number of effective users. This will also decrease the number of people who rely on other sources for information. Students should be taught effective research strategies to alleviate the electronic search process.

- The EIR user interfaces should be made easier (more user friendly) for students to access and use.

- The library should introduce a range of outreach programmes in order to ensure that EIRs are well marketed. This will increase the number of users who are aware of the existence of the EIRs in the library. Library social media platforms should be used to advertise these EIRs.

- Academic lectures should work together with the librarians to encourage students to attend library orientations and trainings. Librarians should include in the students' research assignments the instructions to use at least 12 references sourced via EIRs. They should award marks for using formal academic information resources. This will increase the number of students who use the EIRs as well as usage frequency.

- It is recommended that the university library ensure that all academics are knowledgeable about plagiarism and trained in how to detect it. In addition, students should be trained in academic writing as a strategy to tackle concerns about plagiarism.

6.4 Limitation of the study

All research projects have limitations that need to be acknowledged in the design and in writing about the results of the study (Prochner, and Godin, 2022). This study was limited to 364 registered undergraduate students for Faculty of Humanities under University of Limpopo. Therefore, the results of the research cannot be generalized to the entire country, but they can be used to support findings from similar studies elsewhere.

6.5 Future research

The use of EIRs at the University of Limpopo was revealed in this study. Out of four faculties of University of Limpopo, only one faculty was studied. Future research should be extended to investigate all University of Limpopo faculties to determine how EIRs are used. Larger samples allow a researcher to test more variables and more interaction effects among variables, and they allow analyses to be conducted within more subcategories of types of cases (Li, 2022). The second suggestion for future research is to investigate the reasons behind the lack of training and orientation on how to use EIRs at University of Limpopo library.

6.6 Value of the study

The study's findings and recommendations are expected to have an important impact on the use of EIRs. It will also contribute to the existing body of knowledge about the technology acceptance. Based on the challenges identified, the study aimed to inform policies to promote the use of EIRs that assists both the University of Limpopo library and its users at large. In addition, the findings and recommendations may be used to assist with implementation of the EIRs in the library, which will improve the efficiency and effectiveness of the library's operations and services.

6.7 Summary

The development of the IoT gave rise to EIRs as a new source of information for library users. The many advantages of EIRs include providing information regardless of time and place, providing access to restricted information due to geographical location or finances, providing links to additional resource-related contents, ease of use (citation, upholding and updating, storage and dissemination, archiving) speed, ability to search multiple files at the same time, ability to access materials from outside of the library and ability to download, save and print scholarly journals. Despite the geographical location of the university and its

historical categorisation as a black university, undergraduate students of the University of Limpopo had a positive perception of the use of EIRs; they were aware of the EIRs but found them not useful because of a lack of training in how to use these EIRs. Based on the findings, the study concluded that consultation with undergraduate students before purchasing or subscribing to EIRs could go a long way towards improving the perceptions of undergraduate students about the available resources.

REFERENCES

Adams, K.A. and McGuire, E.K. 2022. *Research methods, statistics, and applications*. Sage Publications.

Adebayo, O.A., Ahmed, Y.O. and Adeniran, R.T. 2018. The role of ICT in provision of library services: A panacea for sustainable development in Nigeria. *Library Philosophy and Practice,* 1(1): 13.

Adeleke, D.S. and Nwalo, K.I.N. 2017. Availability, use and constraints to use of electronic information resources by postgraduates' students at the University of Ibadan. *International Journal of Knowledge Content Development & Technology*, *7*(4): 51-69.

Adeniran, P. 2013. Usage of electronic resources by undergraduate at the Redeemer's University, Nigeria. *International Journal of Library and Information Science*, 5(10): 319-324.

Adler, E.S. and Clark, R. 2010. *An invitation to social research: how it's done.*

Belmont: Cengage Learning.

Ahmed, S. 2013. Use of electronic resources by the faculty members in diverse public universities in Bangladesh. *The Electronic Library*, 31(3): 290-312.

Ahmed, A. and Al-Reyaee, S. 2017. Knowledge and use of electronic information resources by medical students at Al-Jouf University in Saudi Arabia. *Library Philosophy & Practice*.

Ahmed, Z., Saada, M., Jones, A.M. and Al-Hamid, A.M. 2019. Medical errors: healthcare professionals' perspective at a tertiary hospital in Kuwait. *PloS One*, 14(5): e0217023.

Akbar, A., Jabbar, A., Saleem, Q.U.A. and Ashiq, M., 2022. Access and use of digital information resources by students with vision impairment: challenges, prospects and expected role of libraries. *International Journal of Disability, Development and Education*, 1-19.

Aktar, S. 2019. *Impact assessment of e-journal usage in university libraries of Bangladesh* (Doctoral dissertation, University of Dhaka).

Akuffo, M.N. and Budu, S. 2019. Use of electronic resources by students in a premier postgraduate theological university in Ghana. South African *Journal of Information Management*, 21(1): 1-9.

Alabdulwahhab, K.M., Kazmi, S.Y., Sami, W., Almujel, K.N., Alanazi, M.H., Alanazi, K.F., Moyana, A.M., Ahmad, M.S., Alasbali, T.A. and Al Alwadani, F. 2021. Use of online resources by undergraduate medical students at College of Medicine, Majmaah University, Kingdom of Saudi Arabia. *PloS One*, 16(8): e0255635.

Alajmi, M.A. 2019. The acceptance and use of electronic information resources among faculty of selected Gulf Cooperation Council States universities. *Information Development*, 35(3): 447-466.

Alasa, S.A. and Quadri, G.O. 2022. E-resources usage among polytechnic students in Southwest Nigeria: evidence from Federal Polytechnic, Ede and The Polytechnic, Ibadan Nigeria. *International Journal of Knowledge Content Development & Technology*, 12(1): 49-65.

Ali, F.M, Johns, N., Finlay, A.Y., Salek, M.S. and Piguet, V. 2017. Comparison of the paper-based and electronic versions of the Dermatology Life Quality Index: evidence of equivalence. *British Journal of Dermatology,* 177(5): 1306-1315.

Anastas, J.W. 2000. *Research design for social work and human services.* 2nd ed. New York: Columbia University Press.

Ani, O.E. 2013. *Accessibility and utilization of electronic information resources for research and its effect on productivity of academic staff in selected Nigerian universities between 2005 and 2012.* (Doctoral dissertation, University of South Africa).

Ankrah, E. and Acheampong, E.K. 2017. Students' use of electronic resources in University of professional studies, Accra. *Journal of Information Science, Systems and Technology* 1(2): 11-26.

Ankrah, E. and Atuase, D. 2018. The use of electronic resources by postgraduate students of the University of Cape Coast. *Library Philosophy and Practice*, 40(2): 16-32.

Averweg, U.R., 2008. Information technology acceptance in South Africa: An investigation of perceived usefulness, perceived ease of use, and actual system use constructs. *The African Journal of Information Systems,* 1(1): 4.

Babbie, E. 2010. Research design. *The Practice of Social Research*, 12.

Bachalapur, M.M. and Manjunatha, S. 2022. ICT Competence and attitude among faculty members related review of literature from the period 2012-

2021. *Library Philosophy and Practice*, 1-15.

Bajpai, N. 2011. *Business research methods.* New Delhi: Pearson Education India.

Balalola, Y.T. and Azubuike, C. 2018. Antecedents of the use of electronic information resources by lawyers in selected law firms in Lagos State, Nigeria. *Information Impact: Journal of Information and Knowledge Management,* 9(4): 1-13.

Baro, E.E., Benake-ebide, C.E. and Ubogu, J.O. 2011. Awareness and use of online information resources by medical students at Delta State University in Nigeria. *Library Hi Tech News*, 3(4): 6.

Bertram, C. and Christiansen, I. 2015. *Understanding research: an introduction to reading research*. Pretoria: Van Schaik.

Bhatti, R., Akram, M. and Khan, S.A. 2016. Shifting from print to e-resources of information by research scholars at Bahauddin Zakariah University Multan. *Pakistan Library & Information Science Journal*, 47(2).

Bhukuvhani, C., Chiparausha, B. and Zuvalinyenga, D. 2012. Effects of electronic information resources skills training for lecturers on pedagogical practices and research productivity. *International Journal of Education and Development Using ICT*, 8(1): 16-28.

Bista, K. 2018. A quarterly publication on international education. *Journal of International Students,* 8(2): 686.

Bradley, J. 2009. The technology acceptance model and other user acceptance theories. *In Handbook of research on contemporary theoretical models in information systems* (pp. 277-294). IGI Global.

Buchholz, I. 2011. *Provision of access to information in academic libraries in Southern Africa: two case studies* (Doctoral dissertation, University of South Africa).

Bwalya, K. and Sebbale, F. 2017. Factors influencing access to and usage of e-resources at Nkumba University, Uganda. *Mousaion*, 35(4): 1-21.

Cao, G., Duan, Y., Edwards, J.S. and Dwivedi, Y.K. 2021. Understanding managers' attitudes and behavioral intentions towards using artificial intelligence for organizational decision-making. *Technovation*, 106: 102-312.

Council of Higher Education. 2020. *Education Innovation, University of South Africa*. Available at: www.che.ac.za. [Accessed: 2 July 2020]

Chimwaza, G. 2017. *Factors affecting the use and non-use of electronic information resources in scientific technological and medical disciplines at universities in Zimbabwe.* (Doctoral dissertation, University of Pretoria).

Cleland, J., 2022. 1 Exploring, measuring or both: considering the differences between qualitative, quantitative and mixed methods research. *Researching Medical Education*, 1.

Colvard, N.B., Watson, C.E. and Park, H. 2018. The impact of open educational resources on various student success metrics. *International Journal of Teaching and Learning in Higher Education*, 30(2): 262-276.

Creswell, J.W. and Creswell, J.D. 2018. *Research design: qualitative, quantitative and mixed methods approaches*. 5th ed. Thousand Oaks, California: Sage Publications.

Creswell, J.W. and Hirose, M. 2019. Mixed methods and survey research in family medicine and community health. *Family Medicine and Community Health*, 7(2): 10-15.

Daniel, P. and Sam, A. 2011. *Research methodology.* Delhi: Gyan Publishing House.

Daramola, C.F. 2016. Perception and utilization of electronic resources by undergraduate students: the case of the Federal University of Technology Library, Akure. American *Journal of Educational Research,* 4(5): 366-370. Available at: https://doi.org/10.12691/education-4-5-1 [Accessed: 24 April 2020].

Davis, F.D. 1989. Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly,* 13(3): 319-340. Available at: https://doi.org/10.2307/249008 [Assessed: 24 April 2020].

Dayakar, G. 2018. Use of e-resources in higher education: advantages and concerns. *Journal of Applied and Advanced Research*, 3(1): 17-19.

Defazio, J., Jones, J., Tennant, F. and Hook, S.A. 2010. Academic literacy: The importance and impact of writing across the curriculum – A case study. *Journal of the Scholarship of Teaching and Learning*, 10(2): 34-47.

De Oliveira, L.C., Guerino, G.C. and Pimentel, A.R. 2022. Information and communication technologies in Education 4.0 paradigm: a systematic mapping study. *Informatics in Education*,

DePoy, E. and Gitlin, L. 2013. *Introduction to research- e-book: understanding and applying multiple strategies.* 4th ed. New York: Elsevier.

Dolo-Nndlwana, N. 2013. *Use and value of library's electronic resources by academics and postgraduate students at Cape Peninsula University of Technology (CPUT).* (Doctoral dissertation, University of Cape Town).

Duraisekar, S. and Palaniappan, M. 2019. Information sources and services for using research scholars and faculty members in the School of Life Sciences in Periyar University, Salam, Tamilnadu: a case study. *Library Philosophy and Practice (e-journal)*.

Egberongbe, H.S. 2011. The use and impact of electronic resources at the University of Lagos. *Library Philosophy and Practice*, 47(2): 91-122.

Egielewa, P., Idogho, P.O., Iyalomhe, F.O. and Cirella, G.T. 2022. COVID-19 and digitized education: analysis of online learning in Nigerian higher education. *E-Learning and Digital Media*, 19(1): 19-35.

Ekinci, Y. 2015. *Designing research questionnaires for business and management students.* London: Sage.

Eltouny, S., Nasser, A.A., Hefny, M. and Hosny, S. 2020. Development, implementation and evaluation of a smartphone-based study guide for undergraduate medical students. *Asian Journal of Education and Social Studies*, 1-15.

Ezezika, O. and Johnston, N. 2022. Development and implementation of a reflective writing assignment for undergraduate students in a large public health biology course. *Pedagogy in Health Promotion*, 23(3): 21-56.

Fabunmi, B.A., Paris, M. and Fabunmi, M. 2016. Digitization of library resources: challenges and implications for policy and planning. *International Journal of African & African-American Studies*, 5(2): 25-55.

Fadlalmola, H.A., Elhusein, A.M., Swamy, D.V., Hussein, M.K., Mamanao, D.M. and Mohamedsalih, W.E., 2022. Plagiarism among nursing students: a systematic review and meta-analysis. *International Nursing Review,* 69(4): 492-502.

Galluzzi, L., Vitale, I., Aaronson, S.A., Abrams, J.M., Adam, D., Agostinis, P., Alnemri, E.S., Altucci, L., Amelio, I., Andrews, D.W. and Annicchiarico- Petruzzelli, M. 2018. Molecular mechanisms of cell death: recommendations of the Nomenclature Committee on Cell Death 2018. *Cell Death & Differentiation*, 25(3): 486-541.

Gana, M., Ajibili, D. and Abel, D. 2019. Awareness and use of OPAC by patrons of Bingham University Library, Karu, Nasarawa State, Nigeria. *Journal of ICT Development, Applications and Research*, 1(1): 61-69.

Goodall, D. and Pattern, D. 2011. Academic library non-/low use and undergraduate student achievement: a preliminary report of research in progress. *Library Management*, 12(1): 52.

Gupta, P. and Sharma, A.M. 2014. A study of the impact of corporate governance practices on firm performance in Indian and South Korean companies. *Procedia-Social and Behavioural Sciences*, 133: 4-11.

Harding, S. 2015. *Objectivity and diversity*. University of Chicago Press.

Harriss, D.J., MacSween, A. and Atkinson, G. 2019. Ethical standard in sport and exercise science research: 2020 Update. *International Journal of Sports Medicine,* 40(13): 813-817.

Hindagolla, M. 2014. Understanding user acceptance of e-information resources: effects of content relevance and perceived abilities. *Modern Society and Culture,* 59(12): 239-255.

Holtom, B., Baruch, Y., Aguinis, H. and A Ballinger, G. 2022. Survey response rates: trends and a validity assessment framework. *Human Relations*, 00187267211070769.

Hossain, M.R., Akhter, F. and Sultana, M.M. 2022. SMEs in covid-19 crisis and combating strategies: a systematic literature review (SLR) and a case from emerging economy. *Operations Research Perspectives*, 100222.

Hwang, J.Y., Kim, J., Lee, B. and Kim, J.H. 2014. Usage patterns and perception toward e-books: experiences from academic libraries in South Korea. *The Electronic Library*, 48(10): 121-136.

Igbo, H.U., Ibegbulam, I.J., Asogwa, B.E. and Imo, N.T. 2022. Provision of digital information resources in Nigerian university libraries. *Information Research: An International Electronic Journal, 27(3).*

Isibika, I.S. and Kavishe, G.F. 2018. *Utilisation of subscribed electronic resources* by library users in Mzumbe University library, Tanzania. *Global Knowledge, Memory and Communication,* 67(1/3): 109-125*.*

Issa, A.I., Ibrahim, M.A., Onojah, A.O. and Onojah, A.A. 2020. Undergraduates' attitude towards the utilization of open educational resources for

learning. *International Journal of Technology in Education and Science*, *4*(3): 227-234.

Jugenheimer, D.W., Bradley, S.D., Kelley, L.D. and Hudson, J.C. 2010. *Advertising and public relations research.* New York: M.E. Sharpe.

Kahouli, B., Nafla, A., Trimeche, H. and Kahouli, O. 2022. Understanding how information and communication technologies enhance electric power consumption and break environmental damage to reach sustainable development. *Energy and Buildings*, 255: 111662.

Kalusopa, T. 2011. Developing an e-records readiness framework for labour organisations in Botswana. (PhD thesis, University of South Africa).

Kasimani, C. and Rajendran, N. 2019. Use of Online Public Access Catalogue (OPAC) services in District Central Library, Chennai, (Tamilnadu). *Library Philosophy and Practice (e-Journal)*.

Kenchakkanavar, A.Y. 2014. Types of e-resources and its utilities in library. *International Journal of Information Sources and services,* 1(2): 97-104

Khanya, I.A. and Dikotla, M. 2021. Digitalisation of library services as a magnifying factor in improving public library services in Limpopo. *Library Philosophy and Practice*, 1-14.

Kinengyere, A., Kiyingi, G.W. and Baziraake, B.B. 2012. Factors affecting utilisation of electronic health information resources in universities in Uganda. *Annals of Library and Information Studies*, 59(2): 90-96.

Kona, R. 2020. Use of Electronic Information Resources in Engineering College Libraries.

Kumar, R. 2014. *Research methodology: a step-by-step guide for beginners*. 4th ed. London: Sage.

Kumar, M.A. and Anjaiah, M. 2017. Knowledge, access and effective use of e- resources by the students of Kakatiya Institute of Technology and Science (KITS),

Warangal, Telangana State – a case study. *International Journal of Digital Library Services*, *7*(3): 51-61.

Kumari, D., Pandey, S. and Choudhary, R.K. 2022. Usability of e-resources among library & information science students in Patna University, Bihar: a study. *Library Philosophy & Practice*.

Kwadzo, G. 2015, Awareness and usage of electronic databases by geography and resource development information studies graduate students in the country of Ghana, University of Nebraska. *Library Philosophy and Practice*, 94(6): 88- 145.

Lau, C.Q., Cronberg, A., Marks, L. and Amaya, A. 2019. In search of the optimal mode for mobile phone surveys in developing countries. A comparison of IVR, SMS, and CATI in Nigeria. *Survey Research Methods*, 13(3): 305-318.

Lavanya, J. and Santharooban, S. 2018. Usage of online resources by the undergraduates attached to the Faculty of Agriculture, Eastern University, Sri Lanka. *Journal of the University Librarians Association of Sri Lanka*, 21: 89-105. Available at: https://doi.org/10.4038/jula.v21i2.7919 [Accessed: 24 April 2020].

Lavanya, A. and Thirunavukkarasu, A. 2019. Use of electronic information resources among research scholars in Alagappa University, Karaikudi: a case study. *Library Philosophy and Practices,* 24: 1-12.

Legodi, A.L. 2021. *Electronic records management for effective administration of justice in Limpopo Province police stations* (Doctoral dissertation, University of Limpopo).

Li, S., 2022. Quantitative research methods in ISLA. *Instructed Second Language Acquisition Research Methods*, *3*: 31.

Lomelino, P. 2015. *Community, autonomy and informed consent: revisiting the philosophical foundation for informed consent in international research.* London: Cambridge Scholars Publishing.

Lwoga, E.T. and Sukums, F. 2018. Health science faculty usage behaviour of electronic resources and their information literacy practices. *Global Knowledge, Memory and Communication,* 67(1/2): 2-18.

Madondo, T., Sithole, N. and Chisita, C.T. 2017. Use of electronic information resources by undergraduate students in the Faculty of Management and Administration at Africa University, Mutare, Zimbabwe. *Asian Research Journal of Arts & Social Sciences*, 36(1): 1-12.

Makori, E.O. 2015. Micro factors influencing use of electronic information resources among postgraduate students in institutions of higher learning in Kenya. *Library Hi Tech News*, 32(1): 18-21.

Mamafha, T.M.M., Ngulube, P. and Ndwandwe, S.C. 2016. Utilization of information and communication technologies in public libraries at Ekurhuleni Metropolitan Municipality in South Africa. *Information Development*, 32(3): 313-326.

Mansur, H. 2020. *Plagiat checker: electronic information resources usage of Afghan International University students in Malaysia.* University of Lamburg Mangkurat.

Mathope-Dasilva, C. 2021. *An investigation into the use of electronic resources by postgraduate students in the department of postgraduate studies in education at the Central University of Technology*. (Master's dissertation, University of the Western Cape).

Mawere, T. and Sai, K.O.S. 2018. An investigation on e-resource utilisation among university students in a developing country: a case of Great Zimbabwe University. *South African Journal of Information Management*, 20(1): 50-78.

Mertens, W. 2017. *Quantitative data analysis*. Springer.

Mishra, R., Singh, R.K. and Govindan, K. 2022. Barriers to the adoption of circular economy practices in micro, small and medium enterprises: instrument development, measurement and validation. *Journal of Cleaner Production*, 351: 131-389.

Mohamed-Shaffril, H.A, Samsuddin, S.F. and Abu Samah, A. 2021. The ABC of systematic literature review: the basic methodological guidance for beginners. *Quality & Quantity,* 55(4): 1319-1346.

Mojapelo, S.M. and Durodolu, O.O. 2022. Information and communications technologies in library facilities in disadvantaged rural schools in South Africa: lessons from Limpopo province. *Education for Information*, 38(2): 113-131.

Mollel, M.M. and Mwantimwa, K. 2019. Users' acceptance of e-resources usage at the Institute of Finance Management, Tanzania. *International Journal of Education and Development using Information and Communication Technology*, 15(4): 5-21.

Monyela, M.J. 2013. *Information seeking behaviour of postgraduate students: a study of Rhodes University and the University of Fort Hare.* (MIS Thesis, University of Fort Hare).

Moyo, M. 2017*. 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* (Doctoral dissertation, University of South Africa, Pretoria).

Mudau, J., Mukonza, R.M. and Ntshangase, B.A. 2019. South African land restitution: unpacking the backlog problem. *African Renaissance,* 16(4): 1744-2532.

Mutungi, B.K., Minishi-Majanja, M. and Mnkeni-Saurombe, N. 2014. *The status of school libraries in Kenya: the case of public secondary schools in Nairobi County*. *Mousaion*, 32(2): 150-172.

Mwantimwa, K. and Elia, E. 2017. Utilisation of e-resources to support teaching and research in higher learning institutions, Tanzania. *University of Dares Salaam Library Journal*, 12(2): 98-123.

Nardi, P.M. 2018. *Doing survey research: a guide to quantitative methods*.

Routledge.

Nazir, T. and Wani, Z.A. 2015. Complexities faced by the users of academic libraries to access and use the electronic resources: a review. *Journal of Knowledge & Communication Management*, 5(1): 61-71.

Ndou, A.S. and Chilimo, W.L. 2021. Academics' perceptions of electronic resources at the University of Venda, South Africa. *DESIDOC Journal of Library & Information Technology.*

Neuman, W.L. 2014. *Social research methods: qualitative and quantitative approaches*. Boston: Pearson.

Ngema, N.S. and Masenya, T.M. 2020. Use of electronic books among postgraduate students in the Department of Information Studies at the University of Zululand, South Africa. *Mousaion*, 38(2).

Ngo, H. and Eichelberger, A. 2019. College students' attitudes toward ICT use for English learning. *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, 15(1): 231-244.

Nnadi. C.U., 2016. *Attitude of undergraduate students towards the academic use of electronic information resources in two federal universities in South- East Nigeria.* (Doctoral dissertation, University of Nigeria, Nsukka and Nnamdi Azikiwe University).

Nsizwana, S.C., Ige, K.D. and Tshabalala, N.G. 2017. Social media use and academic performance of undergraduate students in South African higher institutions: the case of the University of Zululand. *Journal of Social Sciences*, 50(1-3): 141-152.

Oak, M. 2016. Assessing the library users expectations: a select study of management institutions in Savitribai Phule Pune University. *International Journal of Library & Information Science*, 5(3): 149-158. Available at: http://www.iaeme.com/IJLIS/issues.asp [Accessed 24 April 2020].

Obuchowski, N.A., Reeves, A.P., Huang, E.P., Wang, X.F., Buckler, A.J., Kim, H.J., Barnhart, H.X., Jackson, E.F., Giger, M.L., Pennello, G. and Toledano, A.Y. 2015. Quantitative imaging biomarkers: a review of statistical methods for computer algorithm comparisons. *Statistical Methods in Medical Research*, 24(1): 68-106.

Ogunbodede, K., Smart, E. and Imade, I. 2021. Undergraduate students use of electronic resources amid the Covid-19 pandemic lockdown. *Library and Philosophy Practice (e-journal)*.

Okello-Obura, C. 2010. Assessment of the problems LIS postgraduate students face in accessing e-resources in Makerere University, Uganda. *Collection Building*, 29(3): 98-105.

Okiki, O.C. 2012. Electronic information resources awareness, attitude and use by academic staff members of University of Lagos, Nigeria. *Library Philosophy and Practice (e-journal)*, 834.

Okite-Amughoro, F.A., Makgahlela, L. and Bopape, S. 2014. The use of electronic information resources for academic research by postgraduate students at Delta State University, Abraka, Nigeria. *South African Journal of Libraries and Information Science*, 80(2): 77-121.

Okon, M.E and Ogbodo, C.I. 2014. Information and communication technology (ICT) as a necessity for libraries and libraries of Nigerian Universities in the 21st century. *Review of Information Engineering and Applications,* 1(1): 39-54.

Olatoye, O.I.O. 2020. Determinants of undergraduate students' attitudes and perception towards the use of Electronic Information Resources (EIR) among undergraduate students in selected universities in Eastern Cape, South Africa. *Open Access Library Journal,* 7(02): 1.

Olatoye, O.I., Nekhwevha, F. and Muchaonyerwa, N. 2021. ICT literacy skills proficiency and experience on the use of electronic resources amongst undergraduate students in selected Eastern Cape Universities, South Africa. *Library Management*.

Oluwakemi, O.O. and Folasade, A.O. 2018. Awareness and use of electronic information resources by the faculty members of Afe Babalola University, Ado Ekiti (Abuad): A Survey. *Library Philosophy and Practice*, 20(2): 1-13.

Omeluzor, S.U., Molokwu, U.E., Dika, S.I. and Anene, O.E. 2022. Factors affecting the development of E-Library in Universities in Nigeria. *Information Impact: Journal of Information and Knowledge Management*, *13*(2): 26-46.

Oyewo, R.O. and Bello, G.R. 2014. Students' accessibility and utilization of electronic information resources in the library: a case study of selected mono- technics in Oyo State. *The Information Technologist*, 11(2): 227-232.

Ozor, A. and Toner, J. 2022. Information literacy behavior and practice: an assessment of undergraduate students at Ada College of Education, Ghana. *Journal of Library Administration*, 62(1): 132-151.

Partap, B. and Ranga, M. 2021. Awareness and use of e-resources at Chandigarh College of Architecture, Chandigarh, India: a study. *Library Philosophy and Practice (e-journal),* 8(2): 5564.

Pati, D. and Lorusso, L.N., 2018. How to write a systematic review of the literature. *HERD: Health Environments Research & Design Journal*, *11*(1): 15-30.

Percival, R.V. and Schroeder, C.H. 2017. *Environmental law: statutory and case supplement, 2017-2018.* New York: Wolters Kluwer.

Pickard, A.J. 2013. *Research methods in information*. London: Facet Publishing.

Popoola, S.O. and Olajide, O.O. 2022. Influence of library anxiety and computer literacy skills on use of library information resources by undergraduates in private universities in southwest Nigeria. *International Information & Library Review*, 54(1): 53-67.

Prochner, I. and Godin, D., 2022. Quality in research through design projects: Recommendations for evaluation and enhancement. *Design Studies*, *78*:101061.

Punch, K.F. 2006*. Developing effective research proposals*. 2nd ed. London: Sage Publications.

Rayner, K. and Bell, K. 2017. *Cambridge checkpoints HSC community and family studies.* New York: Cambridge University Press.

Renz, B. and Sullivan, J. 2013. Electronic resources and the study of political elites in Russia. *Europe-Asia studies,* 65(10): 1898-911.

Rout, R and Panigrahi, P., 2018. Online Public Access Catalogue (OPAC) usage patterns among the library users of Odisha: a study. *International Journal of Library & Information Science (IJLIS),* 7(1): 28-34.

Malarvizhi, S.R. and Sarangapani, R., 2016. Usage of electronic information resources in research and engineering environment: a case study. *Asian Journal of Information Science and Technology*, *6*(2): 32-36.

Salaria, N. 2012. Meaning of the term descriptive survey research method. *International Journal of Transformations in Business Management*, 1(6), 1-7.

Samaradiwakara, G.D.M.N. 2014. Comparison of existing technologies acceptance theories and models to suggest a well improved theory/model. *International Technical Sciences Journal,* 1(1): 21-36.

Samuel, N., Onasanya, S.A. and Olumorin, C.O. 2018. Perceived usefulness, ease of use and adequacy of use of mobile technologies by Nigerian university lecturers. *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, 14(3): 5-16.

Scott, K., Morris, A. and Marais, B. 2018. Medical student use of digital learning resources. *The Clinical Teacher*, 15(1): 29-33.

Sejane, L. 2017. *Access to and use of electronic information resources in the academic libraries of the Lesotho Library Consortium* (Doctoral dissertation, University of KwaZulu-Natal).

Shah, N., Nguyen, J.K., Gupta, Y., Matalon, S.A. and Gaviola, G.C. 2021. Engaging medical students in the virtual, socially distant era of the covid-19 pandemic: online radiology resources worth exploring. *Academic Radiology*, *28*(5): 733-736.

Shakir, M. and Ur Rahman, A. 2022. Conducting pilot study in a qualitative inquiry: learning some useful lessons. *Journal of Positive School Psychology*, 6(10): 1620-1624.

Shastri, D.K. and Chudasma, P. 2022. The perception of ICT skills and challenges of usage of technologies among the library professionals of the Gujarat State during the COVID 19: a comprehensive study. *Quality & Quantity*, 56(3): 1093-1120.

Sheikhshoaei, F. and Oloumi, T. 2011. Applying the technology acceptance model to Iranian Engineering Faculty libraries. *The Electronic Library,* 29(3): 367-378.

Shoaib, M., Abdullah, F. and Ali, N. 2020. Library resources and research environment in higher education institutions: students' satisfaction. *Library Philosophy and Practice,* 118.

Silver, L., Stevens, R.E., Wrenn, B. and Loudon, D.L. 2012. *The essentials of marketing research*. Routledge.

Somani, A.K. and Deka, G.C. (Eds.) 2017. *Big data analytics: tools and technology for effective planning*. CRC Press.

Songsirisak, P. and Jitpranee, J. 2019. Impact of homework assignment on students' learning. *Journal of Education Naresuan University,* 21(2): 1-19.

Sonkar, S.K., Singh, M.P. and Kumar, J. 2014. Use of electronic resources by postgraduate students and research scholars of the Banaras Hindu University: a study. *Journal of Information Management*, 1(2), 87-97.

Stedman, R.C., Connelly, N.A., Heberlein, T.A., Decker, D.J. and Allred, S.B. 2019. The end of the (research) world as we know it? Understanding and coping with declining response rates to mail surveys. *Society & Natural Resources*, *32*(10): 1139-1154.

Sürücü, L. and Maslakçi, A. 2020. Validity and reliability in quantitative research. *Business & Management Studies: An International Journal*, 8(3): 2694-2726.

Swaminathan, K. and Raja, T. 2017. Utilization of resources by faculty and students of engineering colleges in Combatore Tamil Nadu: A case study. *International Journal of Research in Library Science,* 1(3): 184-192.

Tasker, D.G. 2022. A case study of the variety of writing assignments in an undergraduate English department. *English for Specific Purposes*, 66: 33-62.

Tariq, H. and Zia, M.W. 2014. Use of electronic information resources by the students of faculty of science, University of Karachi. *International Journal of Digital Library Services,* 4(3): 80-91.

Teo, T., Milutinović, V. and Zhou, M. 2016. Modelling Serbian pre-service teachers' attitudes towards computer use: a SEM and MIMIC approach. *Computers & Education,* 9(4): 77-88.

Thresher, R.E., Jones, M. and Drake, D.A.R., 2019. Stakeholder attitudes towards the use of recombinant technology to manage the impact of an invasive species: Sea Lamprey in the North American Great Lakes. *Biological Invasions*, 21(2): 575-586.

Tlakula, P.T. and Fombad, M. 2017. The use of electronic resources by undergraduate students at the University of Venda, South Africa. *The Electronic Library*, 35(4/5/6). Available at: http://doi.org/10.1108/EL-06-2016- 0110 [Accessed: 24 April 2020]

Ukonu, M., Wogu, J. and Obayi, P. 2012. Problems and challenges facing the University of Nigeria undergraduate students in the use of the Unn digital library. *IOSR Journal of Humanities and Social Science*, *3*(2): 4-12.

University of Limpopo. 2020. *UL Maps.* Available at: http://www.ul.ac.za>entity=UL Maps [Accessed: 30 May 2020].

University of Limpopo. 2022. *UL Faculties*. Available at: http://www.ul.ac.za [Accessed: 28 March 2022].

Vosloo, J.J. 2014. *Chapter 5: Research design and methodology*. Chapter 5, page

299. Norh-West University Noordwes-Universiteit Yunibesii Ya Bakone-Bophirima. Dspace. Nwu.ac.za.

Vukeya, T.M. 2017. *Use of library electronic information resources by university undergraduate students*. (Doctoral dissertation, University of Johannesburg). http://hdl.handle.net/10210/262521 [Accessed: 24 April 2020]

Waples, R.S. and Feutry, P. 2022. Close-kin methods to estimate census size and effective population size. *Fish and Fisheries*, 23(2), 273-293.

Wicaksono, A. and Maharani, A. 2020. The effect of perceived usefulness and perceived ease of use on the technology acceptance model to use online travel agency. *Journal of Business and Management Review*, 1(5): 313-328.

Appendix A: INFORMED CONSENT

Appendix A: INFORMED CONSENT

Dear participant

My name is Letsoalo Mokgadi; I am registered student of University of Limpopo. I am studying Master of Information Studies under the supervision of Dr. M.J. Monyela. The title of my research is **The use of electronic information resources for course assignment by undergraduate students in the Faculty of Humanities, University of Limpopo**. The aim of the study is to determine the use of electronic information resources by undergraduate students in University of Limpopo. I would like you to participate in the study 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. You will NOT be penalised for taking such an action.
- Your views in this questionnaire will be presented anonymously. Neither your name nor identity will be disclosed in any form in the study.
- The questionnaire will take about 20 minutes to complete.
- The records as well as other items associated with the questionnaire will be held in a password-protected file accessible only to myself. After a period of five years, in line with the rules of the university, they will be disposed by shredding and burning.
- There will not be any monetary gain for those who chose to participate in the study

Thank you for your contribution to this research.

Yours Sincerely

.....

If you would like to be informed of the final research findings, I can be contacted at: letsoaloannah@yahoo.com/ 201323666@keyaka.ul.ac.za 079 456 4631. Should you have concerns about the manner in which the research has been conducted, you may contact the supervisor **Dr. Jane Monyela** jane.monyela@ul.ac.za.

CONSENT TO PARTICIPATE IN THIS STUDY

I,_____(your name), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understand the study as explained in the information sheet.

I have had sufficient opportunity to ask questions and am prepared to participate in the study.

I understand that my participation is voluntary and that I am free to withdraw at any time without penalty.

I am aware that the findings of this study will be processed into a research report, journal publications, and/or conference proceedings, but that my participation will be kept confidential.

I have received a signed copy of the informed consent agreement.

Participant Name and Surname (please print)

Participant Signature…….. Date……

Researcher's Name and Surname (please print)

Researcher's signature…….. Date……

Appendix B: QUESTIONNAIRES

TOPIC: THE USE OF ELECTRONIC INFORMATION RESOURCES (EIRs) FOR COURSE ASSIGNMENT BY UNDERGRADUATE STUDENTS IN THE FACULTY OF HUMANITIES, UNIVERSITY OF LIMPOPO.

INSTRUCTIONS: Please use a tick (✓) to show your choice.

SECTION A: DEMOGRAPHIC PROFILE									
1. Gender			Male			Female			
2. Please tick your age bracket									
18-24		25-30		31-35		36-40		40+	
3. Please indicate below the School you are registered in.									

Statement		**Answer**
1.	School of Education	
2.	School of Languages and Communication Studies	
3.	School of Social Sciences	

SECTION B: AWARENESS OF EIRs			
4. Are you aware of EIRs?			
Yes		No	

5. How did you become aware of these EIRs?

Choose the most applicable answer

Statement		**Answer**
1	Lecturers	
2	Librarians	
3	Colleagues	

4	Friends	
5	Classmates	
6	Other	

SECTION C: TYPES OF EIRs USED.

6. Which of the following types of EIRs have you used or accessed when writing your course assignment before?

Please select as many answers as may apply

Statement		Answer
1	Online Public Access Catalogues (OPAC)	
2	Online-Databases (e.g. Sabinet, EbscoHost, Emerald etc.)	
3	E-journals	
4	E-Books	
5	E-theses and dissertation	
6	E-Newspapers and E-Magazines	
7	CD-ROMs	
8	Turnitin and RefWorks	

SECTION C: USAGE OF EIRs

7. Except for course assignment, what are your reasons for using the EIRs?

Choose the most applicable answer

Statement		Answer
1	Research	
2	Class preparations	
3	Instructional preparation	

4	Information need	
5	Tests/ exams	
6	Other	

8. How often do you use EIRs?

Choose the most applicable answer

Statement		Answer
1	Daily	
2	Weekly	
3	Monthly	
4	Seasonal	
5	Never	

SECTION D: FACTORS AFFECTING ACCEPTANCE AND NON-ACCEPTANCE OF EIRs

9. How satisfied are with the information you get from EIRs?

Choose the most applicable answer

Statement		Answer
1	Very Satisfied	
2	Satisfied	
3	Neither satisfied nor dissatisfied	
3	Dissatisfied	
4	Very Dissatisfied	

10. What are the factors affecting your acceptance of EIRs?

Please select as many answers as may apply

Statement	Answer

1	High quality of internet access providing a fast connection	
2	Ease of use of EIRs, e.g. userfriendly interfaces	
3	Low cost of internet access	
4	Training on use of EIRs	
5	Availability of full-text article	
6	Good search skills	
7	Experience in using EIRs	
8	Good technical support when one encounters problems with the EIRs	

11. What are the factors affecting your non-acceptance of EIRs?

Please select as many answers as may apply

Statement		Answer
1	Poor quality of internet connection that slows down speed	
2	Lack of skills to use the EIRs	
3	Unavailability of full text articles	
4	Too many steps required before getting a full-text articles	

5	Lack of technical support to solve access problems with available EIR	
6	High cost of internet access	
7	Language of publication, i.e. mostly English	
8	Lack of time to access EIR	

SECTION E: ATTITUDE TOWARDS THE USE OF EIRs

12. How would you rate the usefulness of the EIRs available in the UL Library?

Choose the most applicable answer

Statement		Answer
1	Very useful	
2	Useful	
3	Moderate	
4	Not Useful	
5	No opinion	

13. Are you comfortable or non-comfortable with the information you retrieve from EIRs?

Choose the most applicable answer by ticking your answer following the statements using the Likert Scale below = Strongly Disagree (SD), Disagree (D), Neither disagree nor agree (N), Agree (A), Strongly agree (SA).

	Answer				
Statement	**Strongly Disagree (SD)**	**Disagree (D)**	**Neither agree nor disagree (N)**	**Agree (A)**	**Strongly agree (SA)**
I feel comfortable when using EIRs					

I do not feel comfortable when using EIRs					

SECTION F: THE BARRIERS THAT STUDENTS FACE WHEN ACCESSING AND USING EIRs.

14. Is the use EIRs challenging?

Choose the most applicable answer

Yes		No	

15. Which of the following challenges have you experienced with accessing EIRs?

Choose the most applicable answer by ticking your answer following the statements using the Likert Scale below = Strongly Disagree (SD), Disagree (D), Neither disagree nor agree (N), Agree (A), Strongly agree (SA).

		Answer				
Statement		Strongly Disagree (SD)	Disagree (D)	Neither disagree nor agree (N)	Agree (A)	Strongly Agree (SA)
1	I experience technical issues (e.g. Mouse not working or other devices)					
2	I experience lack of Skills (e.g. No training offered)					
3	I experience lack of computers					
4	I experience poor internet connectivity (network)					
5	I experience lack of data					

6	I experience lack of EIRs orientation					
7	I hardly find what I am looking for					
16. What can be done to improve access and use of EIRs? (Your suggestion)						
Thank you for completing the questionnaire						

Appendix C: GATEKEEPER PERMISSION LETTER

UNIVERSITY OF LIMPOPO

05/07/2021

The University Registrar University of Limpopo

Dear: Prof. Masha

RE: REQUEST FOR SCHOLARLY RESEARCH DATA COLLECTION

(Letsoalo M.A. 201323666)

I am writing to you to request permission for the above-mentioned student to collect research data from undergraduate students at the Faculty of Humanities. The researcher wishes to study **"The use of electronic information resources for course assignment by undergraduate students in the Faculty of Humanities at the University of Limpopo".**

The study will adhere to the general principles of research ethics as set by the University of Limpopo and also comply with principles relating to access, power, harm, deception, and confidentiality.

Your assistance will be highly appreciated.

Yours Sincerely

Dr. M.J Monyela, Senior Lecturer

Department of Information Studies University of Limpopo

Contacts: 0152683098/ 0681983444/ jane.monyela@ul.ac.za/madirengm@gmail.com

Appendix D: APPROVAL LETTER

University of Limpopo
Faculty of Humanities
Executive Dean
Private Bag X1106, Sovenga, 0727, South Africa
Tel: (015) 268 4895, Fax: (015) 268 3425, Email:Satsope.maoto@ul.ac.za

DATE: 15 December 2021

NAME OF STUDENT: **LETSOALO, MA**
STUDENT NUMBER: **[201323666]**
DEPARTMENT: **MINF – Information Studies**
SCHOOL: **LANGCOM**

Dear Student

FACULTY APPROVAL OF PROPOSAL (PROPOSAL NO. FHDC2021/10/04)

I have pleasure in informing you that your MINF proposal served at the Faculty Higher Degrees Meeting on 21 October 2021 and your title was approved as follows:

TITLE: *The use of Electronic Information Sources for course assignments by undergraduate Students in the Faculty of Humanities, University of Limpopo*

Note the following:

Ethical Clearance	Tick One
In principle the study requires no ethical clearance, but will need a TREC permission letter before proceeding with the study	
Requires ethical clearance (Human) (TREC) (apply online) Proceed with the study only after receipt of ethical clearance certificate	√
Requires ethical clearance (Animal) (AREC) Proceed with the study only after receipt of ethical clearance certificate	

Yours faithfully

TO Maoto RS

Prof RS Maoto,
Executive Dean: Faculty of Humanities
Director: Dr JR Rammala
Supervisor: Dr MJ Monyela

University of Limpopo
Department of Research Administration and Development
Private Bag X1106, Sovenga, 0727, South Africa
Tel: (015) 268 3935, Fax: (015) 268 2306, Email: anastasia.ngobe@ul.ac.za

TURFLOOP RESEARCH ETHICS COMMITTEE

ETHICS CLEARANCE CERTIFICATE

MEETING: 23 February 2022

PROJECT NUMBER: TREC/11/2022: PG

PROJECT:

Title:	The Use of Electronic Information Resources for Course Assignments by Undergraduate Students in the Faculty of Humanities at University of Limpopo.
Researcher:	MA Letsoalo
Supervisor:	Dr. M Monyela
Co-Supervisor/s:	N/A
School:	Language and Communication Studies
Degree:	Master of Information Studies in Library and Information Services

PROF P MASOKO
CHAIRPERSON: TURFLOOP RESEARCH ETHICS COMMITTEE

The Turfloop Research Ethics Committee (TREC) is registered with the National Health Research Ethics Council, Registration Number: **REC-0310111-031**

Note:

i) **This Ethics Clearance Certificate will be valid for one (1) year, as from the abovementioned date. Application for annual renewal (or annual review) need to be received by TREC one month before lapse of this period.**

ii) **Should any departure be contemplated from the research procedure as approved, the researcher(s) must re-submit the protocol to the committee, together with the Application for Amendment form.**

iii) **PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES.**

Appendix E: Ethical Clearance Certificate

Appendix F: EDITOR'S REPORT

LETITIA GREENBERG

LANGUAGE SPECIALIST

Cellphone: 084 077 1580
Email: lgletitia@gmail.com

31 Aland Road
Valhalla
0185

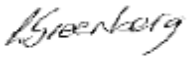
16 February 2023

To whom it may concern

With this letter, I confirm that I have language edited the dissertation titled *The Use of Electronic Information Resources for Course Assignment by Undergraduate Students in the Faculty of Humanities at University of Limpopo* by Mokgadi Annah Letsoalo.

With a relevant degree and honours degree, I am fully qualified to undertake such editing.

Yours faithfully



Letitia Greenberg