



The use of electronic databases (EDs) during the COVID-19 pandemic by Information Studies postgraduate students at the University of KwaZulu-Natal (UKZN) Pietermaritzburg Campus

Lethabo Mohlago Rogator Letsoalo

B. Inf (University of Limpopo)

Student number: 220100890

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Supervisor: Dr Siyanda Kheswa

DECLARATION

I, Lethabo Mohlago Rogator Letsoalo, declare that:

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ABSTRACT

This ethnographic study investigates the use of electronic databases (EDs) during the COVID-19 pandemic by Information Studies postgraduate students at the University of KwaZulu-Natal (UKZN) Pietermaritzburg Campus. The motivation for this study stemmed from the researcher's experience of the majority of students did not know how to use library's electronic resources to retrieve information for their work. A few years later, with the COVID-19 pandemic involved, the researcher wanted to understand how the pandemic has affected postgraduate students. Cognitive Learning Theory (CLT) and the Technology Acceptance Model (TAM) theory underpinned the study. The main objectives of the study are to determine whether students are aware of the EDs offered by UKZN, if they received user education during the COVID-19 as well as the challenges experienced with regards to using and accessing EDs during the pandemic. The study used the post-positivism paradigm.

The study population consisted of 51 registered postgraduate students. The data collection instrument used was a questionnaire, and it was distributed to students via email with the assistance of the supervisor and school administrator. The questionnaire sought to establish if postgraduate students used and accessed EDs during COVID-19, which EDs they used most, to identify challenges they encountered, the training they received and if they were aware of the available EDs. Of 52 registered students, 32 responded, yielding a response rate of 63%. The results were analysed and graphically presented in tables and graphs. The study found that postgraduate students were aware of the available EDs, but few students did not use them because of a lack of training. The UKZN e-journals A-Z list was the most used EDs. The study also found that students want to receive more training because EDs are based on the use of technology, and technology evolves over time. Several problems were experienced when using the databases remotely, such as a need for training on using the databases and improving access for off-campus users. Based on the study's conclusions, liaising with lecturers for a class visit to increase awareness of EDs and training that includes different techniques to accommodate all students were presented as recommendations.

Keywords: Electronic Databases, COVID-19, COVID-19 pandemic, University of KwaZulu-Natal, Pietermaritzburg, Postgraduate student, Information Studies.

DEDICATION

I dedicate this thesis to God Almighty, who preserved and strengthened me through my studies. To my loving parents, this study would not have been possible without your support. To you, mom, your prayers keep me going. To myself for pushing hard against all obstacles, and lastly to my siblings Katlego, Lerato, and Tebogo for being a big sister to you, it is a motivation and inspiration for me to wake up every day and do better.

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LIST OF ABBREVIATIONS AND ACRONYMS

4IR	Fourth Industrial Revolution
AI	Artificial Intelligence
COVID-19	Coronavirus Disease
CUCK	China University of Hong Kong
CLT	Cognitive Learning Theory
DD	Document Delivery
EDs	Electronic Databases
HEIs	Higher Education Institutions
HLEs	Higher Learning Institutions
HONS	Honours
ICTs	Information Communication Technologies
ILL	Inter-Library Loans
ISPA	Internet Service Providers Association of South Africa
ISP	Internet Service Providers
IT	Information Technology
IoT	Internet of Things
LAN	Local Area Network
LIS	Library and Information Services
LSU	Louisiana State University

OCLC	Online Computer Library Centre
OPAC	Online Public Access Catalogue
PhD	Doctor of Philosophy
PMB	Pietermaritzburg
PPE	Personal Protective Equipment
PU	Perceived Usefulness
SA	South Africa
SDL	Self-Directed Learning
TAM	Technology Acceptance Model
UKZN	University of KwaZulu-Natal
USA	United State of America
UL	University of Limpopo
UWI	University of West Indies
VPN	Virtual Private Network
WIFI	Wireless fidelity
WFH	Work-From-Home
WWW	World Wide Web

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Chapter one

Introduction to the study

1.1 Introduction

Universities are primary contributors to research and studies conducted around the world. Published and unpublished theses and dissertations are then shared amongst scholars and libraries worldwide using electronic databases (EDs) (Verma 2016). Students need to use the EDs to which their institutions are subscribed to produce reliable and valid information. EDs are flexible because they can be accessed remotely by users, and one copy can be accessed simultaneously (Miller 2014). Technology is widely regarded as a tool used to make things easier in all aspects, from health, communication, and marketing to life in general (Raska, Zysk, Bower, and Bitzinger 2021). This is no different from the education aspect, which has also been adapting to Information and Communication Technologies (ICTs) to adapt and prepare for the Fourth Industrial Revolution (4IR). According to Raska et al. (2021), some of the things that Higher Education Institutions (HEIs) have introduced include blackboard learning, Online Public Access Catalogue (OPAC), and user education.

When the COVID-19 pandemic hit, all communication, teaching, and learning platforms' effectiveness was tested worldwide. Students and librarians are expected to practically showcase their ICT skills in rendering and accessing library services online. An electronic database (ED) is a computer-based set or listing of information (Raska et al. 2021). The information shared and accessed through the electronic database includes professional, academic, conference papers, and peer-reviewed journal articles systematically prearranged with accessible search queries (Cabarrus College of Health Sciences 2021). Meaning, information from EDs can assist scholars in producing quality and reliable research, reviews, studies, and other academic work. In this regard, universities invest time and money into subscribing to electronic databases and training their staff members and students.

This chapter focuses on the background of the study, statement of the research problem, reasons for choosing the topic and the key research questions. The discussion goes on to identify the broader issues that were investigated, definitions of important terms and the

model upon which the research project was constructed. To conclude, the delimitations and overview of the study are discussed.

1.2 Contextual background of the study

The University of KwaZulu-Natal (UKZN) was formed on 1 January 2004 because of the merger between the University of Durban-Westville and the University of Natal (UKZN, N.d). The five campuses include Edgewood, Howard College, Medical School, Westville and Pietermaritzburg (PMB) (UKZN, N.d). The focus of this study was on the Pietermaritzburg Campus. According to the UKZN (N.d), the Pietermaritzburg Campus was founded in 1950 as a “black faculty” in a “white institution”. Pietermaritzburg is in the centre of the scenic Natal Midlands, close to numerous nature reserves and parks, only one hour’s drive from Durban and two hours’ drive from the Drakensberg. It opened its doors to 57 students in 1910. Two years later, the Old Main Building was completed, and the hub of the present-day PMB Campus was established.

According to Kuhn (2021), all five campuses of the UKZN have their own library where users can access the library resources both manually and electronically. Furthermore, Kuhn (2021) states that the UKZN is subscribed to 26 electronic databases for the 2021 academic year, and additional individual journal titles are subscribed. The subscriptions cost approximately R57 million. However, it is difficult to be exact as some invoices are still being paid, and there are exchange rate fluctuations.

1.3 Background of the study and research problem

Hung and Fung (2021) state that the use of the World Wide Web (WWW) and ICTs has radically emerged over time in higher learning institutions. This has affected teaching and learning and the dissemination of information to library users. One major platform where information was shared amongst library users during the COVID-19 pandemic was through electronic databases. The online platform allows easy and effective way of searching for information as opposed to searching for information using the manual way of going to the physical library and browse through the shelves (Urhiweh and Emojorho, 2015). The use and access of information is changing enormously with the impact of the ICTs used within various organisation including the academic libraries (Hung and Fung, 2021) this study will

help to understand how the UKZN academic library has maneuvered its way in terms of teaching, learning and access of the information during the COVID-19. The UKZN is one of the universities that has subscribed to the EDs to ensure that their users gain access to the information online and remotely. Furthermore, Oluwatimilehin, Evans, Singh, and Leung (2021) note that the UKZN has sent out a regular survey to academics and students to get feedback on their technical infrastructure, technical competence, training, and what assistance would they need from the institution with regards to studying online.

1.4 Use of electronic resources in academic libraries

Soyizwapi (2005) states that electronic databases offer good opportunities such as concurrent user access, easier full-text searching options, hypertext links that provide access to other related resources, and displaying multimedia facilities that draw the users' attention and that EDs can be accessed anytime, without geographical barriers. Ndou and Mojapelo (2019) further state that academic libraries in developed countries such as the United Kingdom depend on e-resources for their students to access library resources. This is because they have invested time in user education by training their students to access EDs. Contrary to that, there is low utilisation of e-resources in African universities, especially in disadvantaged rural communities of South Africa, which presents challenges and difficulties for students to access e-resources. Ndou and Mojapelo (2019) point out that more 'black historically' universities, such as the University of Venda and the University of Zululand, which are situated in the former homelands, were disregarded during the apartheid era in South Africa. Some universities had challenges adapting to the introduction of ICTs to offer library services.

Oluwatimilehin et al. (2021) explain that students and lecturers were not ready to change to the new teaching and learning space due to a lack of digital information literacies, inadequate online teaching infrastructure, lecturer's inexperience, the information gap, the complex environment at home and the digital divide in South Africa. Information and the digital divide seem to be the most important factors to transitioning from contact to the online space during the COVID-19 pandemic. This was after students had to go back home due to COVID-19 and resort to home-schooling. During this time, students had to ensure that they could access the learning materials online. They had to have an Internet connection and the required devices for online learning and accessing the library materials. Van Dijk and Hacker

(2003) define the digital divide as a breach between demographics and areas with access to modern Information and Communication Technologies (ICTs) such as smartphones, laptops, personal computers, and internet connectivity from those with limited access.

According to the report by Horrigan (2019) titled “analysis: the digital divide isn't just a rural problem,” an estimated 5 million American households and 15.3 million urban or metro areas still do not have access to broadband Internet. Herivanto, Yoga and Krismayani (2020) explain that previous research has indicated that lecturers and students encounter issues acquiring, accessing, and utilising information online. This is based on issues such as a lack of technical competencies and infrastructural issues. These are the issues that can be avoided if there can be training for lecturers, librarians, and students on how to access and use electronic databases.

1.5 Accessing electronic databases during the COVID-19 pandemic

Herivanto, Yoga and Krismayani (2020) conducted a study at Diponegoro University, Indonesia; the authors focused on undergraduate students and investigated the experience of distance learning as part of their information literacy during COVID-19. The study's respondents indicated that due to a lack of training from the university, they needed more training to access the information resources available on the library website. They further indicated that they somehow managed to learn the system independently and relied on the information passed to them by their peers.

Additionally, Mashau and Nyawo (2021) remark that the huge socio-economic inequalities and extremely high levels of poverty and unemployment in South Africa (StatsSA 2019) have negatively contributed to students' ability to access modern technologies and gain ICT skills. This was essential, particularly to first-year students who enrolled in Higher Learning Institutions (HLIs) in 2020 when the COVID-19 pandemic officially hit South Africa around March. These students did not get enough time to familiarise themselves with the ICT skills and prepare for the online space. Most of these students experienced access to the computer and the Internet for the first time when they reached universities. Therefore, this study focused on postgraduate students who are done with their undergraduate studies, have attended some training on how to access and use the EDs, and probably have had an

experience with the use of ICTs during their previous studies or even during their employment.

Thomas (2021) explains that when it is effectively offered to library users, user education or information literacy training helps them recognise when information is needed. They will have the ability to locate, evaluate, and use it effectively. Thomas (2021) further notes that if the training for library users could have been effective before the COVID-19 pandemic, students could have been able to use the library services and resources remotely without any challenges. Mashau and Nyawo (2021) aver that online learning and accessing learning materials remotely, such as e-books and e-journals, during the COVID-19 pandemic becomes effective and efficient when students are computer literate and connected to the Internet. Hence, the researcher decided to investigate the challenges and use of electronic databases during the COVID-19 pandemic by Information Studies postgraduate students at the Pietermaritzburg Campus of the UKZN.

1.6 Purpose of the study

The study investigated the impact that the COVID-19 pandemic had on the use of electronic databases by Information Studies postgraduate students at the Pietermaritzburg Campus of the UKZN. This study sought to establish the impact that the recent world pandemic might have had on students using and accessing EDs remotely, what devices they used to access the EDs and what challenges were encountered by the students during this time, as this was new. Students were forced to transition from face-to-face to online teaching and learning since the COVID-19 pandemic forced students, librarians, and lecturers to move teaching and learning online and ensure that they have the required skills. This study built upon the previous studies, and in the context of the current situation, there is a need to assess the impact of the pandemic on the access to and use of EDs by students.

1.6.1 Filling the literature gap

This study will fill the literature gap, especially since most studies on the access and use of EDs were conducted before the COVID-19 pandemic. It focused on what occurred during the COVID-19 pandemic. Therefore, this study can provide answers to library management and a way forward in terms libraries' service delivery.

1.6.2 The benefits of conducted this study

This study will help library management and students adapt easily to the “new normal” brought by the COVID-19 pandemic. Students, employees, and people, in general, had to deal with many things, such as losing loved ones, being in a hard lockdown, and still be expected to continue their daily activities such as schooling and working. This affected both the physical and psychological well-being of all people around the world. Therefore, this study investigated how the UKZN library managed to prepare its students during this pandemic and continue offering services online. It also finds out how students managed to access and use EDs during the pandemic. It was envisaged that the results of this study would help the UKZN Pietermaritzburg Campus Library to plan and support its users and provide guidelines for other libraries.

1.7 Objectives of the study

The main objectives of the study are:

1.6.1 To determine whether students are aware of the EDs offered by UKZN.

1.6.2 To determine the availability of user education to assist students with accessing EDs during the COVID-19 pandemic.

1.6.3 To determine how the COVID-19 pandemic has affected the use of electronic databases.

1.6.4 To determine the challenges that students encountered when accessing EDs remotely during the COVID-19 pandemic.

1.8 Key questions

1.8.1 Are postgraduate Information Studies students aware of EDs offered by UKZN?

1.8.2. Did librarians offer user education on EDs to postgraduate Information Studies students during the COVID-19 pandemic?

1.8.3. How has the COVID-19 pandemic affected the usage of EDs by postgraduate Information Studies students?

1.8.4. What challenges did students encounter when accessing EDs remotely during the COVID-19 pandemic?

1.9 Scope and limitations of the study

This study investigated the use of electronic databases during the COVID-19 pandemic by Information Studies postgraduate students at the UKZN Pietermaritzburg Campus. The study did not focus on the undergraduate and other postgraduate students within the School of Social Sciences. The anticipated challenges in conducting the study included the possible inability of the researcher to reach out to postgraduate students as most of them might have been working, resulting in communicate with their supervisors only to arrange meetings online. To overcome this challenge, the researcher asked her supervisor to communicate with his colleagues to urge their students to participate in this study.

1.10 Theoretical framework

This study was guided by and based on the Cognitive Learning Theory (CLT) and the Technology Acceptance Model (TAM).

1.10.1 Cognitive Learning Theory

According to Money (1995) and McSparron, Vanka, and Smith (2019), the CLT postulates that the actions of a person in a situation depend on the interaction among the influences with a primary emphasis on social cognitive factors. The theory states that people learn from a variety of experiences. This is from observing the action of others. For example, students use EDs because they have seen them working for their mates. Additionally, CLT is also known for interaction among cognitive, behavioural, environmental, and physiological influences. This means that whatever might have been installed in them through training and how they understood will determine their perception of EDs. This could have been some of the influences of what took place with the usage of EDs during the pandemic. The environment, which is accessing EDs remotely in this case and under the world pandemic, could have impacted how students perceived EDs.

The main construct of the CLT assumes that the actioning and reasoning of individuals are influenced by their surroundings and their basic knowledge about what they want to learn.

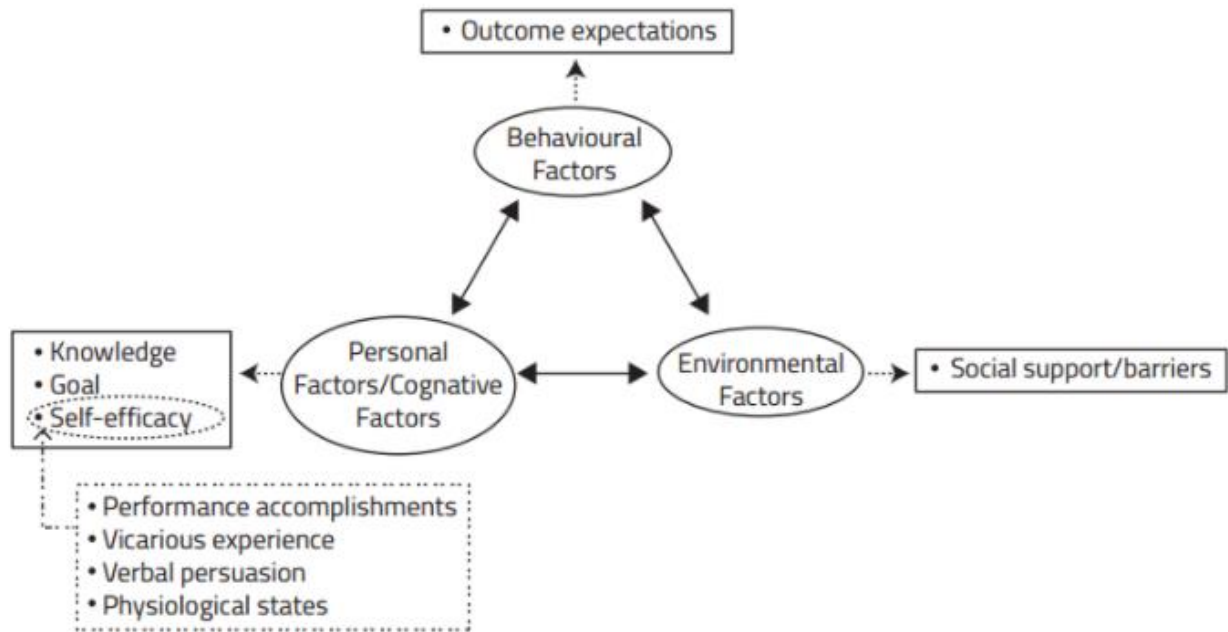
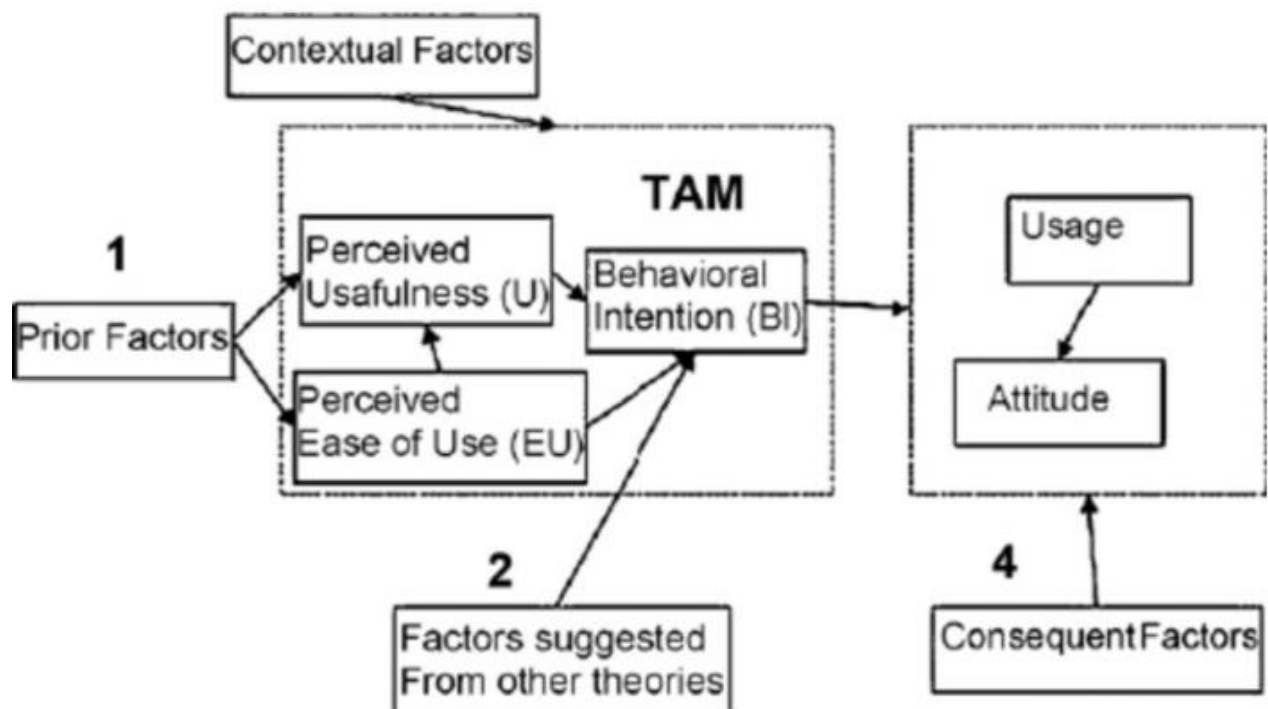


Figure 1.1: CLT diagram (Chin and Mansori 2018).

1.10.2 Technology Acceptance Model (TAM)

The TAM includes the participant's approach and acceptance, commonly known as perceived usefulness (PU), to elaborate on behavioural intention (Lu, Zhou, and Wang 2009). For instance, some users might use EDs if they perceive them to be useful to their academic work. Hence Lu et al. (2009) state that TAM was developed based on the action that results in reasoning. Actions considered within this model are triggered by the participants' behaviour, which in turn will result in the actual action. TAM was well suited for this study because accessing and using these EDs require students to have technological knowledge, devices, and skills. Urhiewh and Emojorho (2015:85) state that "TAM is an information system theory that models how users come to accept and use a certain technology". The model suggests that when users are presented with new technology, several factors influence their decision about how and when they will use it.



The original TAM model and four categories of modifications. Source : King and He (2006, p. 741).

Figure 1.2 TAM (King and He 2006)

1.11 Definition of key terms used in the study

Use: Forge (2010) defines ‘use’ as a way to install something to achieve or arrive at the main intended goal. In this study, the word ‘use’ refers to the access to electronic databases for the main purpose of studying and satisfying the information need that the students had.

Electronic databases: Electronic database (EDs) are a computer-based sets or listings of information (Raska et al. 2021). The information in the electronic databases includes professional, academic, conference papers, and peer-reviewed journal articles that are prearranged systematically with accessible search queries. This enables the inquiry to be quick and simple (Cabarrus College of Health Sciences 2021). Examples of electronic databases include EBSCO host, SABINET, and an OPAC. Students can access books, journals, periodicals, maps, how-to guides, and the library catalogue from electronic databases.

Postgraduate student: According to Soyizwapi (2005), postgraduate students are in their 4th level and above of their studies. This is the type of students who have completed their

primary or bachelor's degrees. A postgraduate qualification may include a higher diploma, a degree such as honours (Hons), Masters and Doctor of Philosophy (PhD) level qualification. These qualifications may require an undergraduate degree as part of the entry requirements.

1.12 Summary

This chapter provided the background of the study and of the UKZN is the institution of the population, the statement of the research problem, the reasons for choosing the topic and the key research questions that were investigated. The chapter also included key terms of the study. Terms that may sound unfamiliar to someone outside the discipline of Information Studies were well explained and it was shown how they blended in with what the study aimed to achieve. To conclude, the delimitations and overview of the study were discussed. The next chapter will discuss the literature reviewed in this study.

Chapter two

Literature review

2.1 Introduction

Information Communication Technologies (ICTs) are slightly becoming the main tool that academic libraries utilise to make their resources available online through what is known as an electronic database (Zaveri 2015). Therefore, the service providers and the customers need to be equipped with the relevant skills and access to the relevant technology devices to access the EDs. “Electronic resources have emerged as the primary source of information and essential support in students’ learning. Recent and relevant information, available through electronic resources, enables easy acquisition of necessary knowledge and skills” (Dukic and Striskovic 2015:244). “The multimedia character of such materials contributes immensely to their popularity as a source of information. In addition, an important feature of electronic resources is their relative availability without time and space limitation” (Dukic and Striskovic 2015:244).

Jain and Babber (2006) wrote a paper that focused on digital libraries in India. Their paper elaborates on the hybrid library that can offer information and library services online and in a contact platform. The responsibility and duties of the librarian and information officer were changing in the process of transitioning to the digital/online library. This included acquiring new skills for developing and managing the digital library (Jain and Babber 2006). Their study found that most overseeing institutions of libraries and old employees showed a lack of experience in the development of ICT structures that can ease the process of adapting to the Fourth Industrial Revolution (4IR). Jain and Babber (2006) explain that the poverty gap and digital divides were some of the main aspects that contributed to the slow progression of developing libraries in India. This is supported by the environmental factors mentioned in the Cognitive Learning Theory. Which explains that things such as access to Internet, ability to buy data and access to information can have an impact on the learning process of an individual.

This chapter focuses on and reviews other scholars’ work to determine what has already been done that relates to the topic investigated in this study. This prevents duplication of the work

that is already done. In the same vein, it guides the understating of the literature gap that the study can fill. This became the blueprint for the researcher to refine the research questions and embed them in guiding hypotheses that provide possible directions the researcher may follow (Du Plooy-Cilliers, Davis and Bezuidenhout 2014).

Additionally, this chapter includes the searching for, perusing, assessing, and summing up as much as could be expected of the accessible writing that relates to the research topic.

According to Du Plooy-Cilliers, Davis and Bezuidenhout (2014), the word literature is used broadly to refer to all kinds of published information published online or manually. A decent literature review requires the researcher to read widely and investigate the topic as much as possible by identifying sources that may be relevant and assessing these sources for their reliability and validity as they relate to the research. The subheadings in this chapter will be derived from the six main objectives of this study, to ensure that extensive literature review is done for each objective.

2.2 Awareness of the availability of EDs

Awareness of the EDs is important because it helps the library determine if the EDs are being used. Technology has also shown its impact on the availability of EDs for users. “Therefore, it is sufficient to state that the advent of electronic information resources has brought about better research opportunities” (Obande, Osakwe, Uyakpa, Iyawa, Ikechukwu, Amunkete, and 2020 IST-Africa Conference 2020:3).

Christian (2008) explains that the biggest challenge of awareness of EDs is based on the misconception and lack of understanding of the benefits of using EDs. Hence the Technology Acceptance Model (TAM) explain that Perceived Usefulness (PU) and Ease of Use (EU) can affect the intentions of a person towards using technology. Therefore, if people do not perceive the usefulness of using EDs they are not likely to use them (Christian, 2008). Even though this challenge is related to the lack of Internet access because EDs are located on the World Wide Web (www) and need a connection to the Internet to access them. Contrary to this, Verma (2016) notes that some students may have access to the Internet and still need to learn about the EDs that their institutions have subscribed to. Therefore, the awareness of the EDs depends on the training that librarians offer to the user, the marketing of those EDs and if users find the information from EDs reliable and useful for them.

Furthermore, Christian's (2008) study conducted on 66 participants at the University of Lagos shows that 3% of the respondents were aware of the EDs, 22.7% did not know much about them, and 74%, which comprised most of the respondents, indicated that they did not understand what EDs are. On the other hand, Borteye and Dadzie's (2015) study on awareness and use of open access journals by graduate students at the University of Ghana found that all respondents were aware of the open access journals. This was because the librarians were trained themselves, therefore, they ensured that they marketed the EDs available at the institution and offered ongoing support and training to their students. Both studies mentioned Christian's (2008) study with a low percentage of awareness has resulted in a low usage of the EDs and unreliable academic writings produced, while in Borteye and Dadzei's (2015) study, there was 100 percent of awareness, usage, and reliable academic writings produced by scholars.

Based on the study conducted by Obande et al. (2020), 379 students from the Nasarawa State University in Nigeria and the Federal University in Lafia, amongst other challenges they had, mentioned that some of the common challenges they encountered with regard to awareness and access to EDs included, lack of advanced searching skills, poor Internet connectivity, technological constraints, poor student orientation and library staff who are indifference. Thus, Msezane and Dlamini (2021) explain that the vast amount of information available through the EDs from the library does not necessarily mean that the level of awareness of those EDs will be high. Factors such as information searching skills and orientation also affect awareness.

A study by Msezane and Dlamini (2021) was conducted at the University of Zululand, South Africa, on the use of electronic resources by postgraduate students of Information Studies in 2021. It has illustrated that 35(76%) of the respondents were fully aware of the EDs offered at the University of Zululand, while 9 (19.5%) were partially aware, and the remaining 2 (4.4%) of the respondents were not aware of the EDs available in the library. The results of the 2 and 9 participants who were not aware and partially aware raise some eyebrows as to what kind of resources did these students use when they were studying their undergraduate qualifications or rather, the level of training that was offered during the orientation (Msezane and Dlamini 2021).

Zaveri (2015) explains that due to a lack of information and skills about using and operating the EDs and insufficiently advanced foundation arrangements in libraries, the odds of loss of information available online through the EDs are high, which later leads to the EDs not being advertised, and when students are not aware of them, there is no way they can use them.

While on the other hand, some developing countries are still looking for skilled and trained Library and Information Services (LIS) professionals to train and market library services, including EDs, to their users. In addition, Mulatiningsih and Johnson (2014) emphasise that LIS education in countries such as Indonesia is less well-developed and still looking for sufficient LIS programmes available due to limited LIS academics and aiding resources from the government.

Mulatiningsih and Johnson (2014) further state that due to limited LIS programmes, Indonesia has a few LIS graduates. In most cases, people who work in libraries are either not LIS graduate or have not attained degrees beyond high school diplomas. Therefore, this condition blurs the concept of LIS professionals in Indonesia. Kwadzo (2015) concludes that researchers and scholars in the academic field have experienced hard times accessing published research information in e-journals due to financial limitations. To overcome this challenge, Kwadzo (2015) remarks that both private and public Ghanaian universities and research institutions have implemented a group purchasing of EDs to try to afford these resources, due to them being expensive.

The study conducted by Kwadzo (2015) on awareness and usage of electronic databases by geography and resource development information studies graduate students at the University of Ghana. It has shown that 31 (66.9%) out of the 32 questionnaires that were received admitted that they were aware of the EDs available at the university through the library website. Kaladhar, Naick and Rao (2018) indicate that the level of speed availability and ease of accessibility of information by users has proved to have an impact on how often they prefer EDs over print materials. Dalal and Lackie (2014) explain that it is impossible for library users to be aware of the EDs offered by the library, if there was never a form of marketing of EDs offered by the library, especially during orientation at the beginning of each academic year.

According to Ngo, Hennesy and Knabe (2019), students use information from resources that they are aware of, but also those that they have easy access to. Ngo, Hennesy and Knabe

(2019), explain that after the University of California in Berkeley launched and subscribed to EBSCO Discovery Services (EDS), the library decided to pull out a report after a year of new electronic databases to see the impact of the new initiative. The report found that there was an increase in full-text downloads and a huge decrease in the use of abstract and indexing databases.

Some libraries have changed the teaching and learning techniques to accommodate COVID-19 and adapt to online platforms. Such as “Libraries at the Middle Tennessee State University, New Jersey Institute of Technology, Arizona State University, York University in Toronto and the Oviatt library of California State University have gone beyond using instructional design theories concerning learning motivation and started using marketing techniques to make instructional videos with content that students will find engaging and informational” (Dalal and Lackie 2014:228). According to Dalal and Lackie (2014), these universities were marketing the library EDs through posters and newsletters in the library, university bathrooms, and social media.

According to Dalal and Lackie (2014), the Moore Library at Rider University in central New Jersey, United States, has initiated a good project by hiring some of their students to work in the library. The students were employed after one of them created a video on the electronic resources available through the EDs from the library website and shared it on YouTube. The video went viral because it made more students aware of the resources and then started using them. However, the initial aim of the video was not for the library but for the student’s film and media class assignment. This initiative and project proved that students were now drawn to using the library EDs more than they usually do because now one of their own was involved in the marketing process.

Even though the marketing of EDs has surely worked at Moore Library, it is vital to note that skills acquired by librarians and financial support from the university had an impact on ensuring that the new project of marketing the EDs becomes effective. Agreeing with that, Mulatiningsih and Johnson (2014) explain that a survey conducted in 2003 by the Indonesian University Library forum (Perpustakaan Perguruan Tinggi Indonesia Forum), based on all 125 universities in Indonesia, found that only five of them have allocated five percent of their budgets to the library while 50 universities allocated two percent to their libraries. This had

an impact on how the libraries will then function in terms of acquiring resources, marketing the resources, and ensuring that the librarians are trained to operate the libraries effectively.

2.3 User education offered to students during the COVID-19 pandemic

This section focuses on the training offered to students prior to and during the COVID-19 pandemic, and how the skills were acquired and applied. The skills include identifying information needs, searching and retrieving information using various element electronic devices and the library OPAC.

2.3.1 Before the COVID-19 pandemic

When the library uses the current and advanced technology infrastructure for systems administration, it is generally a good sign of library development (Msezane and Dlamini 2021). Studies have shown that information literacy skills contribute significantly towards the ability of library users to use ICTs to access the EDs available from the libraries, and to identify when information is needed and if it is reliable (Thomas 2021). “The Fourth Industrial Revolution (4IR), also known as Industry 4.0, is the current and developing environment where disruptive technologies such as the Internet of Things (IoT), robotic, artificial intelligence (AI), and virtual reality are changing how libraries operate” (Chigwada and Nwaohiri 2021:3). Hence, the library users and staff need to have the required skills to keep up with the changing and new technologies.

The Sidney Martin Library at the University of the West Indies (UWI), Cave Hill Campus conducted a pilot workshop training on accessing electronic resources for their new students. During their recording of reactions from participants’ sessions, they found that most students were surprised that so many online resources were available to assist them with assignments and research. Many admitted they had not been using the library’s EDs as they should have, mainly because they were not aware of the existence of this wide range of resources and information available (Thomas 2021).

The COVID-19 pandemic might have forced the transition to the online space as practices, such as working from home, studying online, zoom meetings, and others, started to emerge drastically during the pandemic (Chartier, Guidry, Lee and Buckley 2021). However, by 2010, institutions such as the Online Computer Library Centre (OCLC) had already

researched and surveyed about the attitude of users and staff towards the use of online resources (Ruthven, 2010). The survey aimed to determine if there is a need to equip the user with the required skills to access information online and for staff members to offer training to the library users. The survey by OCLC was done in 2010. This is nine years prior to the COVID-19 pandemic meaning nine years later, during the pandemic, the OCLC could have been more developed in terms of using EDs. Graduate students at Croatian University preferred to use the university library website as their primary search source rather than the Internet. However, studies also show that students were not significantly oriented to use EDs when searching for information (Dukic and Striskovic 2015).

One of the reasons why students report that printed sources, such as books, have a better reputation and contain more basic and well-established facts are that the Internet holds a great amount of irrelevant and inaccurate information that makes the search difficult. This is especially when no effective user education was offered to students (Dukic and Striskovic 2015; Thomas 2021; Ma 2020). The significant disadvantage of electronic resources pointed out by students is the feeling of fatigue when reading such materials from the computer screen and the inability to complete the experience that can be provided by leafing through printed books, being able to make some notes and highlights on important phrases (Dukic and Striskovic 2015).

According to Ruthven (2010), the OCLC surveyed 3,348 respondents aged between 14 and 65 years from various countries, including Australia, about their seeking assistance in the use of library electronic resources. The OCLC published their results in 2005, the finding showed that most of the respondents (64%) were able and comfortable with using and accessing the library EDs with no assistance from the librarians. Respondents indicated that they would prefer to have all the resources made easier for people to use without needing assistance from library staff.

In the study conducted by Saikia and Gohain (2013) at Tezpur University in India, the majority of students visit the library as their information hub for completing their academic work. This is accomplished by the groundwork that librarians would perform during orientation. Saikia and Gohain's (2013) study had a total of 79.5% (159) respondents out of 200 questionnaires that were distributed. Their study indicated that 79.87% (127) of the respondents preferred using the library e-resources because of their easy and unlimited time

access. Saikia and Gohain (2013) suggest that librarians should ensure that they offer library resources awareness campaigns and training to their users at the beginning of every academic year and semester.

2.3.2 During the COVID-19 pandemic

Solis and Kear (2020) proffer that Croatia in the United States of America also went into full lockdown during the spring COVID-19 outbreak on 19 March 2020. This meant that all public libraries were to be closed for 38 days. However, during this hard time, the Croatian public libraries transformed their physical services into virtual ones in just over a weekend. Their online engagement grew profoundly because their users were engaging with them online and were able to access the library resources online. Some of the contents that were made available online by libraries included videos of librarians reading short stories to children (Solis and Kear 2020). This helped, even though it was full lockdown, as some parents were working online from home. This meant that they were able to concentrate on their work because children were kept busy by storytelling.

Solis and Kear (2020) assert that in Croatia, before the COVID-19 crisis, only a few libraries had e-resources in their holdings. Many libraries were getting ready to purchase and offer e-resources to patrons for the first time sometime during 2020. However, the COVID-19 crisis accelerated their plans. In late March 2020, several libraries fast-tracked acquisitions of e-resources and made it possible for patrons to borrow e-resources in early April 2020. Based on what was mentioned by Solis and Kear (2020), the availability of e-resources was established within a month of the COVID-19 outbreak in Croatia. This shows that libraries with strong financial muscle adapted to the online space that was abruptly brought to the world because of the COVID-19 pandemic.

Hence, Solis and Kear (2020) explain that the job which librarians did at Croatian libraries is the result of the time and money that the Croatian government has invested in the libraries through training and making funds available for libraries. Since January 2020, academic libraries have been affected by COVID-19 globally, and there is no exception to South African libraries when they were directly affected when the President of South Africa announced on the 15th of March 2020 through the state of the nation address, that the country would be implementing 14 days of hard lockdown due to the high rate at which the COVID-

19 was spreading in the country (The Presidency 2020). A few months later, the country was moved to COVID-19 alert level 4 and later to alert level 3. This was when some institutions, including schools and higher learning institutions, were allowed to operate with a few staff members and students as a way of complying with the rules and regulations of COVID-19 (The Presidency 2020).

Additionally, Shahid, Tasaddaq, Abdul and Kiran (2021) state that since wearing the mask was compulsory worldwide, somehow, this hindered librarians from offering user education on a face-to-face platform. This is because talking behind a face mask can cause misinterpretation of the message conveyed. Nevertheless, COVID-19 made the adaption to online learning a fast process that people were unprepared for. Temiz and Salelka (2020:369-370) conducted a study exploring the reaction of Swedish University libraries to COVID-19, focusing on 39 university libraries. They found that all 39 university libraries ensured that the login to the library service was available by providing clear instructions like phone number and email. Some universities made video tutorials on accessing e-books and e-journals. The video tutorials were created to guide students on accessing the EDs remotely. According to Ma (2020), during the COVID-19 pandemic, the Chinese University of Hong Kong (CUHK) introduced a new library service called Zoom-with-a-librarian to provide support and services to their users online. The Zoom-with-a-librarian services were used by librarians and users to communicate with each other, send messages or transfer files, and screen sharing, as a way of assistance in accessing EDs.

The CUHK introduced other services to access the library e-resources such as databases, e-books, digital repositories, and bibliographic management such as EndNote and RefWorks. Furthermore, Ma (2020) remarks that CUHK went the extra mile by introducing a Notepad loaning scheme to all undergraduate and postgraduate registered students residing around Honk Kong. This initiative was meant to assist students who did not own digital devices that they could use to access the university services during COVID-19. The initiative was beneficial to students coming from low-income family backgrounds.

Alternate to the online support that academic libraries were offering to their students during the COVID-19 pandemic. Coghill and Sewell (2020) explain that the academic health science library at the University of Maryland, Baltimore, in the United States, made personal protective equipment (PPEs), such as ear savers and clear plastic face shields and sewed face

masks from fabrics for their users. In addition to this, the librarians ensured that information on how to do materials for additional protection and ways to protect themselves while working in the hospital during the COVID-19 pandemic was available online through the library EDs.

In response to the COVID-19 pandemic and the amount of frustration and confusion that took place, librarians ensured that users' needs were met regardless. Librarians started providing quick access to critical consumer health information resources about the virus. Most library home pages have incorporated quick links to general consumer health information resources, from respectable, scientific organisations, along with federal and state health agencies (Coghill and Sewell 2020). Contrary to that, Tsabedze and Tella (2020) suggest that due to the advanced ICTs, librarians should not consider the element of training users and marketing the library resources a one-time thing that can take place during library orientations. However, the authors suggest that librarians can use videos in terms of lib-guides that students can revisit whenever they need information, clarity, or guidance. This will ensure that students do not have to wait for librarians to be available before they can get assistance. This could help during the pandemic when students cannot physically visit the libraries.

Eva (2021) comments that the University of Lethbridge academic librarians did not have an online platform to engage with their users for user education at the beginning of COVID-19. However, to ensure that they do not fall behind and their users are able to access information online, the academic librarians used the opportunity of the online classes that were taking place. They requested slots from lecturers so that they could train their users.

2.4 The impact of the COVID-19 pandemic on the usage of EDs

Booker, Detlor and Serenko (2012) remark that both employees (librarians) and users need to have or acquire information literacy skills, which incorporate the ability to retrieve, analyse, and use information effectively and efficiently so. Additionally, these skills could be developed time and again based on the information retrieval tools in the use of ICTs, for example, as they change over time with the technology available. Correspondingly, Code, Ralph and Forde (2020) comment that the level of usage of the EDs can either be low or high, and many factors such as training, skills, affordability, and accessibility contribute towards this.

Libraries, whether public, special or university, do not rely solely on their sources of income, but they are being funded by either the university, company or the government. Therefore, due to the COVID-19 shutdown in many countries, local, state, and national government revenues have declined with the result that many governments had to make budget cuts. This also affected subscriptions to the library EDs in many libraries. Users are unable to use their full potential in retrieving information online due to a lack of information literacy skills, which also resulted in a lack of user education.

The study conducted by Msezani and Dlamini (2021) has found that postgraduate students are more familiar with some of the e-resources, such as e-journals, and this is because they seem to solve their research queries. Therefore, there is poor usage of other e-resources such as e-books, CDs, DVDs, and e-catalogues, and they found that among others the factors contributing to this include lack of interest in e-resources workshops, academics do not encourage postgraduate students to consult librarians for assistance, and lack of awareness of e-resources (Msezani and Dlamini 2021).

Bushman, Lund, Wang, Garrett and Manyonga (2021) emphasise that almost half of Ugandans students cannot purchase information materials such as newspapers and books. Bushman et al. (2021) state that in 2020, the National Master Survey indicated that only 4.51% of Uganda's population had access to television, and since then, no change has occurred. "If an individual would like to access secure and complete (non-fragmented) information, they must be enrolled in private-sector information agencies, which require expensive membership due to the limited information resources" (Bushman et al. 2021). Consequently, with COVID-19 affecting everyone worldwide, the number of those who could afford the membership fee decreased due to loss of income.

Therefore, students who lack the finances to access information and ICTs required to access the EDs during COVID-19 are among those who could not access the EDs for their studies during the pandemic. In the same vein, Bushman et al. (2021) establish that there was low usage of the EDs from university libraries in Uganda. Amongst others, Bushman et al. (2021) mention that factors such as electricity, Internet access, user education, lack of library leadership organisation, support from the government, information literacy, and Uganda's production of literature have drastically affected the level of usage of the EDs during the COVID-19 pandemic.

Howes, Ferrell, Pettys and Roloff (2021) explain that the Southern Illinois University Medical Library in the USA ensured that its students and the campus residents maintained 24-hour access to the study and common computer areas in the library even though library staff was working from home. The initiative enabled its users to access the library EDs during the pandemic. This did not decrease their EDs usage; instead, the use was high as people feared the physical contact that could happen when using print materials due to the COVID-19 pandemic. Todorinova (2021) states that many university libraries were subscribed to EDs for students to access, but a few were subscribed to off-campus access. The other impact that the pandemic had on the access of EDs was not on the side of the user to ensure that they have the required ICTs to access, but it was on the side of the institution's capacity to afford off-campus access for their users.

Eva (2021) conducted a study at the University of Lethbridge Library, Canada, on information literacy instruction during COVID-19. The study points out that due to the COVID-19 pandemic, the university library had experienced a high demand for LibGuides on how to manoeuvre through the EDs, because students were used to the assistance from librarians through physical contact before the pandemic. This made the use of EDs statistics increase more than they were prior to the pandemic. The issue of moving the assistance and services from physical contact to the online space did not negatively affect the access to the EDs (Todorinova 2021; Bushman, Lund, Wang, Garrett and Manyonga 2021).

Skopljanac-Macina, Zakarija and Blaskovic (2021) also comment that another challenge they faced during COVID-19 was to ensure the integrity of the online assessment process. This is because the online exam environment cannot be controlled and managed the same way the normal physical contact examination room would be, and students are able to browse through the library site and look for information resources while they are busy with their online assessment.

Njegos Public Library in Serbia is one of the libraries that were still in the process of becoming a hybrid of online and contact the library, prior to the time the COVID-19 pandemic hit the world, the library had limited online resources that were going to become helpful to their users during the lockdown and online learning (Ćirić a and Ćirić b 2021). In contrast, the Sidney Martin Library at the University of the West Indies has been on the online space since 2002 to

date, and thus was prepared for the hard lockdown due to the COVID-19 pandemic. This was their way to keep up with the advance in ICTs and technology (Thomas 2021).

The Sidney Martin Library did not only subscribe to multiple EDs for access, they also had an information literacy skills programme during the years 2015 and 2017 (Thomas 2021). The aim of the programme was to ensure that all students were sufficiently knowledgeable about the components of information research skills and to achieve learning outcomes focusing on knowledge and skills application (Thomas 2021). For example, “in 2002, licensing agreements were signed with Elton, B Stephens Company (EBSCO) and OCLC for access to full-text electronic journals; in 2007, a subscription of Aleph Integrated Library System from Ex Libris with off-campus accessibility; in 2009, there was the setting up of MetaLib, which provides a single point of access to the library’s online resources” (Thomas 2021:50).

“In 2011 came the installation of Ex Libris Primo, branded UWILinC for all UWI libraries, which allows searching of online resources using a single portal. In 2012, the implementation of a policy, where possible, print materials would be replaced by electronic formats” (Thomas 2021:51). All this has enabled the Sidney Martin Library to offer online library services and e-resources during the pandemic with no quick and unplanned change to the online space like some libraries would have. Their users and staff were already used to the online services and resources, and this pandemic did not have any negative impact on the use of EDs. However, it had a positive impact because, according to the Sidney Martin Library statistics, the usage of EDs increased during the pandemic (Thomas 2021).

Contrariwise, libraries such as the Njegos Public Library in Serbia, only started a digitisation programme during the pandemic by scanning monographs, serial publications from its local publications collection, old, rare, and new books, handwritten manuscripts, and non-book materials (Ciric (a) and Ciric (b) 2021). This measure was put in place to ensure that their users can still manage to access information online during the pandemic. For the Njegos library to know if they were heading towards the right direction by digitising the resources during the pandemic for ease of access for their users. The library evaluated the interest needs of their users in digitised library materials by reviewing the list of frequently searched-for and borrowed online resources (Ciric (a) and Ciric (b) 2021).

In terms of studying, COVID-19 did not only affect access to the EDs for those who were studying remotely during the pandemic, but it also affected those who needed to meet with others for research purposes. People such as Anna (2020) illustrate how challenging it was for her as a student who was conducting research during the pandemic. Anna (2020) states that some of the impacts the pandemic had on her accessing information for her studies were the imposition of border closings and restrictions concerning movement (during the first half of March 2020); as the researcher who was conducting fieldwork by observing events, visiting crisis centres, and conducting interviews.

2.5 Challenges that students have encountered when accessing EDs remotely during the COVID-19 pandemic

COVID-19 had a significant impact on the lives of individuals and families, as the number of cases and deaths continued to rise around the world. With the COVID-19 number of cases that kept on fluctuating, life had to go on, including schooling, work; religion and in the form of making means to survive (Matthews 2020). The same applies to libraries that had to open or operate so that users can have access to information and services. Matthews (2020) explains that library users share numerous things in the library, such as information resources (books), computers, furniture, and bathrooms in an enclosed space which may make maintaining social distancing difficult when libraries re-opened.

It must be emphasised that the COVID-19 pandemic may function as an additional stressor to someone studying during the pandemic. This hypothesis is generated by the fact that the pandemic is novel, unpredictable and uncontrollable, which are three features of stressors (Pfeifer, Hevers, Ocklenburg and Wolf 2021). In addition, the measures put in place to prevent the spread of the virus may also be perceived as stressful. This is because one needs to social distance, avoid touching, and always wear a face mask covering both the mouth and nose. Therefore, with the COVID-19 pandemic being an ongoing and universal crisis, it should be viewed as an extraordinary stressor that will have serious repercussions on the health and well-being of others (Pfeifer et al. 2021).

Ali, Naeem, and Bhatti's (2021) findings from the study conducted at the Aga Khan University in Pakistan show that 75% of their respondents indicated that even though they had the Internet to access the EDs, they were facing the problem of low Internet speed due to

the high volume of downloading the library materials available through EDs. At the same time, the Australian health librarian work-from-home (WFH) survey indicated that the workload of librarians increased during the pandemic due to the high demand for information and literature production on COVID-19 by users (Howes, et al., 2021). In addition, Ali et al. (2021) state that 47.37% of their respondents admitted that they face problems when accessing the EDs, such as support from the Information Technology (IT) department regarding password reset and Virtual Private Network (VPN) for logging in to the library system. Inversely Creazzo, Baaker, Koos and Alpi (2021) state that the Health Science libraries are situated in the hospitals and never closed due to COVID-19. Instead, the libraries continued operating as they were considered an essential part of their users during this time.

Garner and Logue (2020) explain that students struggled to adapt to the new normal of borrowing library materials online and using them in electronic format. The students were never used to materials such as e-books and e-journals, and they were more comfortable with the print copies. Meanwhile, a study by Mahlaba (2020) at Northwest University, South Africa, introduced the concept of Self-Directed Learning (SDL) as an initiative to identify learning needs, goals, and strategies. In most cases, this does not primarily rely on external source. According to Mahlaba (2020), one of the challenges that students have encountered accessing the EDs during the pandemic was a lack of SDL.

A web-based survey conducted by Booker et al. (2012) on 337 undergraduate business students at the North American University reveals that business schools are recognising that in today's Internet-enabled world, many of these information sources exist in digital than print form. Thus, the business schools are investing more time in training their students to be skilful at utilising information technology tools that provide access to electronic information sources such as online library resources. The latter paint a good picture that institutions that had already started adapting to the online space prior to the COVID-19 pandemic could not experience the same challenges that are experienced by the institution that has not started.

Other challenges highlighted by Garner and Logue (2020) include not having the required devices to access the EDs from home, not all students having laptops, computers, and/or notepads, and the money that was required for things such as data. This is the challenge that was experienced by many students from a disadvantaged background across the world. Amal (2021) explain that students from the Princess Nourah Bint Abdulrahm University in Saudi

Arabia, a woman-only university, have ensured access to all by providing their students with laptops and Internet access to some disadvantaged students. Amal (2021), Mhandu, Mahiya, Muzvidziwa and Serpa (2021) and Mahlaba (2020) explain that both issues of sufficient data to access material needed for remote learning and for librarians to help online and the lack of required ICTs for remote working and learning were prevalent issues during the COVID-19 pandemic. There was also the challenge of students, lecturers and library staff who reside in rural areas where they encounter connectivity problems, and this resulted in a decreased number of EDs during the pandemic.

Furthermore, Chaturvedi, Vishwakarme and Singh (2021) establish that another challenge that students have encountered when accessing online learning materials, EDs and online classes is the mental illness that came with the pandemic and isolation. Chaturvedi, Vishwakarme and Singh (2021) state that mental illnesses such as post-traumatic stress disorder, anxiety and depression are some of the challenges that students had to deal with while studying online. These are illnesses that could have occurred due to isolation, death of a loved one, and/or the home situation where one could find that a student stayed in a big family and did not get the support or space to focus on their work.

However, Garner and Logue (2020) remark that the issue of not easily adapting to the online space and resources during COVID-19 was not only faced by students, but also by some librarians, especially old ones. This reason was reported similarly by the study conducted by Ruthven (2010) on the provision of Internet training for adult public library clients in the New South Wales public library, Australia. The study emphasised that older adults, both users and staff members, expressed concern in the following challenges: “difficulty in acquiring computer skills, found the situation stressful and expressed fear, had difficulty in remembering what to do even after they were given instructions, experienced difficulty in understanding the terminology, just keeping up with the new technology and trying to find things that have disappeared. Reasons for not taking up the Internet included that it would be too difficult (50%), too expensive (13%) and that they were not interested (13%)” (Ruthven, 2010:110). In addition, Tsabedze and Tella (2020) emphasise that there is no observed and experimental evidence to show that the librarians have taken some professional development to educate, train, and create awareness about the usefulness of online resources in their

libraries. “It should be noted that one can only create awareness and convince others to use a resource he or she is familiar with or has already used” (Tsabedze and Tella 2020).

Creazzo et al. (2021) explain that another challenge that students were facing online during the pandemic, was that some of the information that they were requesting was not available online. This means that their information needs were, at some points, not met. Creazzo et al. (2021) state that the library staff from the Health Science Libraries in the United States adapted their interlibrary loan (ILL) and document delivery (DD) services. This was to ensure that if the library does not have the information that the students are requesting, then the library will ask from another library or scan the chapter/article in a request for the students.

2.6 Summary

This chapter has reviewed other scholars’ work related to this study’s topic. It showed what has already been researched and clearly shows the literature gap that this study can fill. The literature review was based on the objectives that the study aimed to achieve. It also includes various studies that were done during the COVID-19 pandemic, based on the students and university staff members’ experience with accessing and using the library services. The literature review highlights numerous challenges and strategies on the use of electronic databases during the pandemic.

Most of the literature reviewed showed that if libraries and universities can invest a lot of money and time towards acquiring technical skills and encouraging familiarity with the use of Information and Communication Technologies (ICTs), can assist to combat low library service usage and it can help libraries to draw much attention from government in terms of funds and support.

Chapter three

Research Methodology

3.1 Introduction

User studies are conducted to understand how resources are used and to shed light on the behaviour of users (Finlayson 2010). The methodology section of the study focuses on the process of research and the tools or techniques used. In this study, a qualitative method has been employed to investigate the usage of electronic databases during the COVID-19 pandemic by postgraduate students at the University of KwaZulu-Natal Pietermaritzburg Campus. Furthermore, the chapter gives a detailed discussion of the choice of study participants, research design, pre-testing; the instrument used to collect data, the data collection process, and data analysis. The last part of this chapter discusses the study's validity and reliability and how these requirements were met in the study.

3.2 Research paradigm

This study adopted a post-positivism paradigm because it provides opportunities that help the researcher to examine data in broader ways and offers practical approaches to investigate what might cause a change in a situation (Henderson 2011). The post-positivism paradigm was appropriate for this study, as the study aimed to investigate how students responded to accessing EDs remotely during the COVID-19 pandemic. Henderson (2011) explains that the post-positivism paradigm helps to examine real-world issues that affect people daily. Therefore, this paradigm was used to examine the real-world issue experienced by students studying during the COVID-19 pandemic. The paradigm helped to guide the investigation of how students navigated the teaching and learning process during the pandemic and also determined their technological literacy levels required to access EDs.

Post-positivism suggests that knowledge is socially constructed (Henderson 2011). This means that what happens socially in a student's life can impact the type of knowledge they get, how they relate to it, and interpret it. The digital divide, which entails access to ICTs, the Internet, and the ability to use this technology to participate fully in business, political, and social life, has also contributed to studying online during COVID-19 (Alberchtsen and

Horden 2009). This is a good example that can contribute to the socially constructed knowledge that one can get, meaning that the student who lives in an area with limited access to the Internet and ICTs might be limited in the type of knowledge they get.

3.3 Research approach

According to Watson (2015:7), quantitative research encompasses a range of methods concerned with the systematic investigation of social phenomena using statistical or numerical data. Therefore, quantitative research involves measurement and assumes that the phenomena under study can be measured. Some items, such as height and weight, are easy to measure; others, such as what people think or feel, are difficult to measure. This implies that quantitative research encompasses this entire range, as mentioned above.

Using the quantitative research approach, this study has used numbers and statistics in the quantitative data collected to analyse the results (Du Plooy-Cilliers, Davis and Bezuidenhout 2014). According to Holton and Burnett (2005), quantitative research generalises data from a sample being studied to broader groups beyond that sample. This means that quantitative methods allow the researcher to use smaller groups of people to make inferences about larger groups that would be prohibitively expensive to study. Hence, this study aimed to generalise data collected from all information studies and postgraduate students, to a larger population of all UKZN students. This has aided the study in using small sample size results to generalise information from a larger population.

Therefore, even though the COVID-19 pandemic has affected the whole world, it would have been expensive to use all students worldwide as a population for a single study. However, using a small population that experienced COVID-19 like others could yield similar results should the same study be conducted on students studying during COVID-19 in other countries.

3.4 Research design

The study has adopted the descriptive research design, which aims to describe reality and why things occur the way they do (Lans and Van der Voordt 2002). In addition, Siedlecki (2020) states that the descriptive research design aids the researcher in providing an accurate

portrayal or account of characteristics of a particular individual, situation, or group as a way of discovering new meaning, describing what exists, determining the frequency with which something occurs and/or categorising information. This study used the descriptive research design to explain why and how students behaved towards the use of EDs during the COVID-19 pandemic and the frequency in which access to EDs occurred during this time.

3.5 The population and sample of the study

The population for this study is 51 registered Information Studies postgraduate students at the UKZN, Pietermaritzburg Campus. The reason for choosing this population is that they have already completed their undergraduate studies, some have written countless academic papers, researched thoroughly, and have attended user education. Moreover, their studies mainly revolve around information behaviour. Information Studies postgraduate students are trained to work in information and knowledge creation institutions such as libraries and archival agencies; hence, they have knowledge and expertise in using and teaching users about EDs. So, this study will be used to investigate if this population was able to put into action their knowledge and skills during COVID-19 and if ever there is a need for more training.

3.6 Sample size

This study has not conducted any sampling, but has adopted a census approach, given that the population group was manageable. Therefore, all registered postgraduate students within the Information Studies Discipline have formed part of the study. Therefore, findings from using this sample will be used to provide information for a larger population with similar characteristics. Census is when the researcher wants to provide relevant population data to users in context (Baffour, King, and Valente, 2013). Using a census approach this study will narrow down a large number of the UKZN students to the lowest level of population.

More detailed information on the population and sample size is shown in Table 3.1 below.

Table 3.1: Population and sample size

Qualifications	Number of students
Postgraduate Diploma in Archives and records Management	5
Postgraduate Diploma in Information Studies	3
Master of Information Studies (Course Work)	19
Master of Information Studies	4
Bachelor of Library and Information Science Honours	7
Doctor of Philosophy (Human Sciences)	13
Total	51

3.7 Data collection method

This study used a questionnaire as the data collection tool because it is time-saving and allows the participants to respond truthfully and honestly to the questions (Du Plooy-Cilliers, Davis and Bezuidenhout 2014). “They can also be used in a wide range of settings to gather information about the opinions and behaviour of consumers” (Williams 2003:245). The questionnaire comprises closed and open-ended questions to get clear information from participants. Using closed and open-ended research questions allowed this study to gather both quantitative and qualitative data, resulting in comprehensive results (Flick 2011). Due to the COVID-19 pandemic, the questionnaire was distributed to students through an online platform using emails. However, this was facilitated through the aid of the supervisor due to the POPI Act. To save time, the researcher used Microsoft Forms to create a questionnaire and shared the link with the participants, assisted by the postgraduate administrator.

3.7.1 Questionnaire

According to Acharya (2010), a questionnaire is a document with a set of questions created to get information that can be used to answer a research question, experiment and other types of observations. “The construction of the questionnaire depends on the type of information the researcher aims to gather. Here are some of the traits of a good questionnaire” (Du Plooy-Cilliers, Davis and Bezuidenhout 2014:56).

- **Uniformity:** All participants are exposed to the same questions.
- **Exploratory:** This includes open-ended questions that allow the participants to elaborate more on their answers or provide the answer the researcher did not require. This means that the answers are not premeditated by the researcher.
- **Question sequence:** It typically follows a structured flow of questions to increase the number of responses. This sequence of questions is screening questions, warm-up questions, transition questions, skip questions, challenging questions, and classification questions.

3.7.2 Open-ended question

“In an open-ended question, the possible responses are not given. In the case of a questionnaire, the respondent writes down the answers using their own words” (Kumar 2019). This type of question is not followed by choice, and their answers are recorded in full, with the number of lines provided.

3.7.3 Closed question

“In a closed question, the possible answers are set out in the questionnaire and the participant tick or underline the answer that best describes their answer” (Kumar 2019). Questions of this kind may offer simple alternatives such as yes or no.

3.8 Data analyses

According to Hardy and Bryman (2004) data analysis can be defined as a process that includes cleaning and processing raw data, by extracting reliable and relevant information that can assist to make informed decisions. The process and information provided through data analysing is usually presented in a form of charts, images, tables and graphs (Hardy and Bryman 2004). In terms of this study an examples of data analysis can be seen whenever one has to decide in life based on past experience with the use of EDs and decided if it will be worth it to use them again. This is backed up by the TAM, which suggest that people tend to use something if they perceive it to be useful (King and He 2006).

Libraries and user can both use data analysis to their benefit (Kwon and Motohashi 2021).

While libraries can use it to determine the needs of their user by identifying frequently used,

high in demand and less used materials in their library. By doing so they will offer good services to their users. While users can use data analysis to determine a good and convenient source of information based on their information needs.

3.9 Validity and reliability of research instrument

For validity purposes, this study used external validity, which focuses on generalising findings from a specific sample to a larger population (Du Plooy-Cilliers, Davis and Bezuidenhout 2014). This study pre-tested a questionnaire using a different population (with similar characteristics to the study's target population) before collecting data from participants. The pre-testing of a questionnaire was to test the research instrument's reliability and validity. The pre-testing questionnaire was issued to 15 postgraduate students from the School of Social Science-History Discipline who shared similar characteristics with the target population as they are from the same cluster (Development Cluster). The participants answered the questionnaire with no hesitation, which proved the validity of the research instrument.

3.9.1 Validity

Kumar (2019) defines validity as the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration. "In addition, linking each question with the objectives of a study and examining questions of the research instrument to establish the extent of coverage of areas under study will help in terms of validity of the instrument" (Kumar 2019:272). The participants of the pre-test managed to answer questions and even commented that the questionnaire was informative to them.

3.9.2 Reliability

Reliability involves the consistency of the research instrument used, meaning the results of the research instruments should have approximately the same responses each time the test is completed using different participants (Heale and Twycross 2015). Thus, reliability should be consistent, stable and equivalence. In addition, Kumar (2019) explains that when a research tool is consistent, stable, and accurate, it becomes more reliable. During the pre-testing of the questionnaire, the participants answered questions in a first attempt, without asking questions for clarity.

3.10 Summary

This chapter explained the steps undertaken in the study to collect the data that were used to answer the research question. The researcher used the questionnaire as a data collection tool for this study and due to the COVID-19 pandemic restriction a questionnaire was shared with participants using emails. The study adopted the post-positivism paradigm to gather information from a larger audience using a small population. To ensure reliability and validity, a pre-test of the questionnaire was done, and there were no challenges encountered. The researcher used SPSS to analyse data once the data collection process was completed. The following chapter will present the results gathered from collecting data.

Chapter 4

Presentation of research results

4.1 Introduction

This chapter presents the results of the study. The study set out to investigate the use of electronic databases by postgraduate students in the College of Humanities of the UKZN, Pietermaritzburg Campus. The study used a questionnaire to collect data. The purpose behind each question is explained, and the results are presented.

4.2 Response rate

The population for this study includes 51 postgraduate students in the College of Humanities at UKZN Pietermaritzburg Campus. A questionnaire was sent to all 51 registered students, and 32 responded, yielding a response rate of 63%. Babbie and Mouton (2001:261) regard this as a very good response rate. According to Wilson (1999), factors such as multiple mailing and pre and post-notifications may have a good impact in yielding a higher response rate than when none of these factors were applied. However, multiple mailing usually has a maximum of two as three has proven to be non-response from participants. This study used a multiple mailing technique to increase the response rate. The technique worked because after the first mailing of the questionnaire, the study received twelve responses as opposed to 32 responses after the second mailing.

4.3 Questionnaire results

The questionnaire was arranged to cover the demographic information of the participants and the research questions of the study. Questions one to three covered the demographic information of the students, while questions four to thirteen covered information about the use of EDs during the COVID-19 pandemic. It must be noted that questions eight, ten and eleven allowed the participants to provide their own answers, whereas question thirteen allowed them to add more comments. Figures are rounded off to one decimal place. The symbol N indicates the number of respondents that answered a particular question.

4.3.1 Background information

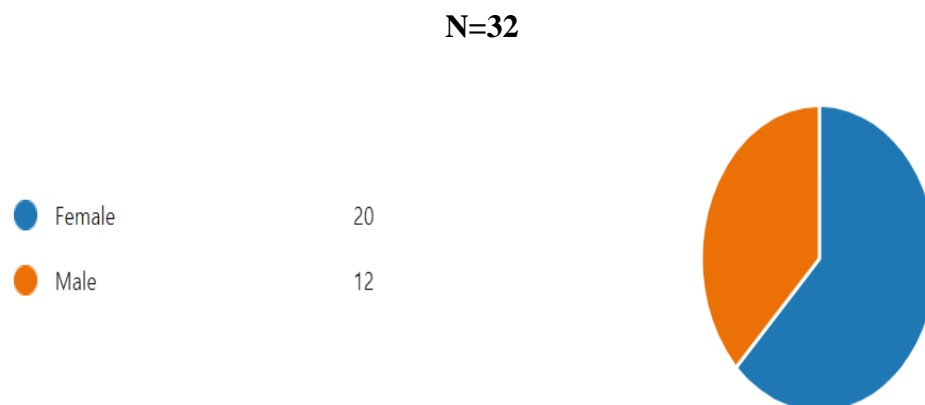
Background information provides more details about the respondents, their gender, age and the level of qualification they are registered for within the College of Humanities, School of Social Sciences, Information Studies Department.

4.3.1.1 Gender of the respondents (Question 1)

This question was asked to establish the number of male or female respondents registered within the Information Studies Department.

Figure 4.1 below illustrates that from a total of 32 students, 20 (62.5%) were female, and 12 (37.5%) were male. Therefore, the majority of the respondents were females.

Figure 4.1: Gender

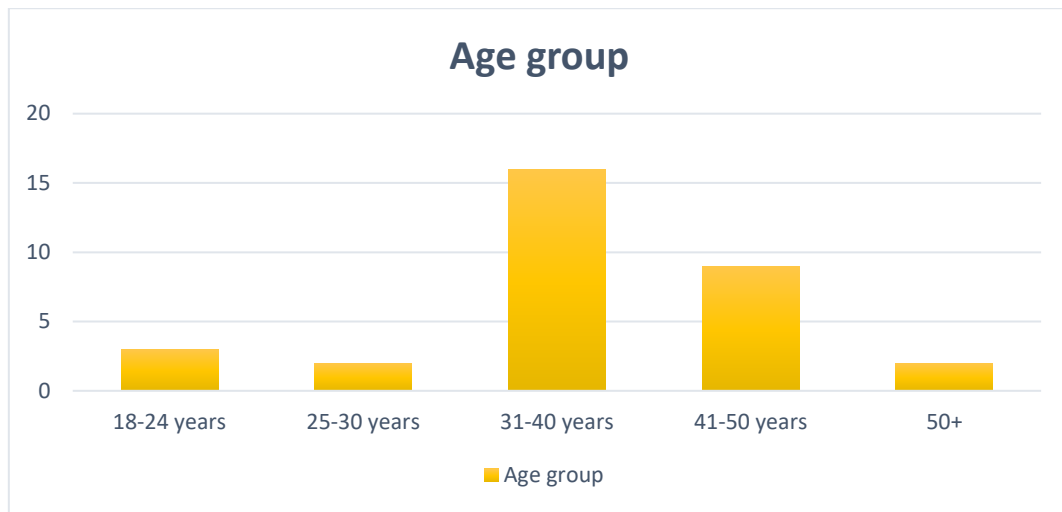


4.3.1.2 Age of the respondents (Question 2)

This question was asked to determine the age group the respondents belonged to. It also aimed at determining how age and technology correlate in terms of accessing electronic databases using digital devices and platforms during the COVID-19 pandemic. Out of 32 respondents, three (9.3%) were aged 18-24, two (6.3%) were between 25-30 years of age, sixteen (50%) were between 31-40 years, nine (28%) were 41-50 years of age, and two (6.3%) were 50 years and above.

Figure 4.2 illustrate the age groups of respondents.

N=32

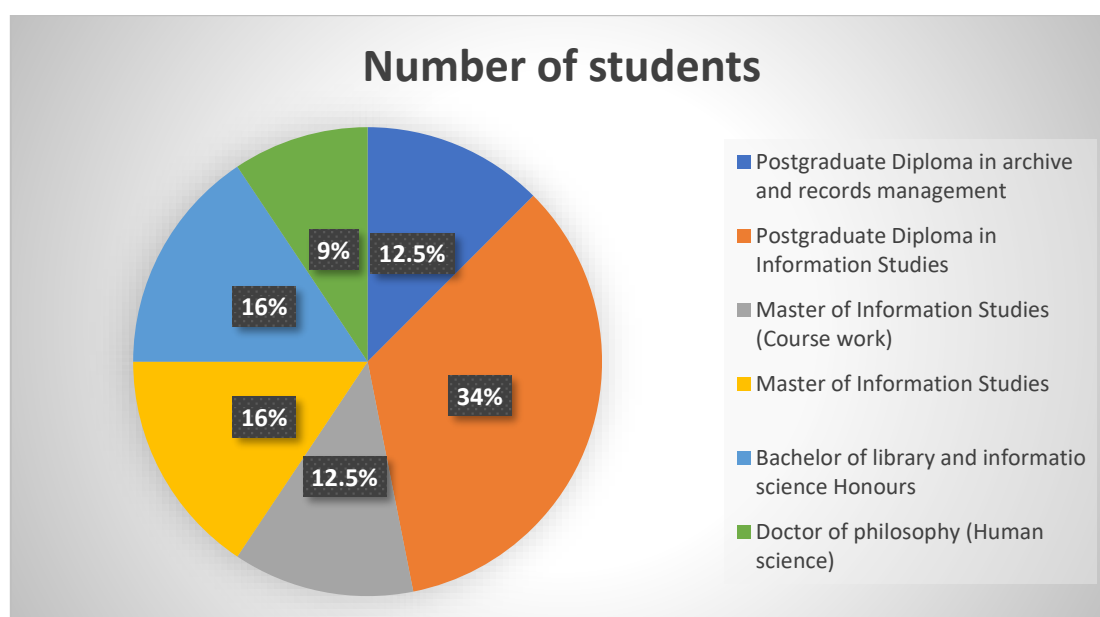


4.3.1.3 Qualification that the respondents are registered for (Question 3)

This question was asked to determine which qualification the respondents are registered for. Figure 4.3 below demonstrates that out of 32 participants who responded, four (12.5%) registered for a Postgraduate Diploma in Records and Archive Management, eleven (34%) registered for a Postgraduate Diploma in Information Studies, four (12.5%) registered for Master in Information Studies (Course work), five (16%) were studying towards Master in Information Studies, while five (16%) were studying towards a Bachelor of Library and Information Science Honours and the remaining three (9%) are studying towards a Doctor of Philosophy in Human Science (Information Studies).

Figure 4.3: Qualifications registered for

N=32



4.3.2 Section B-The use of electronic databases

This section discusses the responses received relating to the use and access of EDs, challenges and training on using and accessing EDs during COVID-19.

4.3.2.1 Are students aware of EDs available at UKZN? (Question 4)

This question asked the students if they were aware of the EDs available on the UKZN library website. All 32 (100%) students who responded indicated that they knew the EDs available through the UKZN library website.

4.3.2.2 Did students receive training on EDs during undergraduate studies? (Question 5)

This question asked the students if they had received training during their undergraduate studies on how to use EDs. Findings from this question will inform the UKZN library management of some students who might need more training. Out of 32 that responded, eighteen (56.2%) said 'yes', as an indication that they received training on EDs during their undergraduate studies while fourteen (43.8%) said 'no', meaning that they did not receive it.

4.3.2.3 Training on how to use and access EDs during the COVID-19 pandemic (Question 6)

Students were asked if they had received training on how to use and access EDs during the COVID-19 pandemic. This question will not only assist the UKZN library in measuring its level of service, but it can also assist teaching and learning. For instance, if there was a decrease in student assessment performance during this time, then they will know that in terms of access to information resources, the library can still do something to support teaching and learning. From the results, thirteen (40.6%) indicated that they received training during COVID-19. In contrast, nineteen (59.4%) indicated that they did not receive it.

4.3.2.4 Satisfaction with regard to the training received (Question 7)

This question focused on how satisfied the students were with the training they received on how to access and use EDs. Figure 4.4 below shows that of the 32 respondents, five (15.6%) were very dissatisfied with the training received, ten (31.3%) were neither satisfied nor dissatisfied, nine (28.1%) were somewhat satisfied, and the remaining eight (25%) were very satisfied with the training.

Figure 4.4: Training satisfaction

N=32

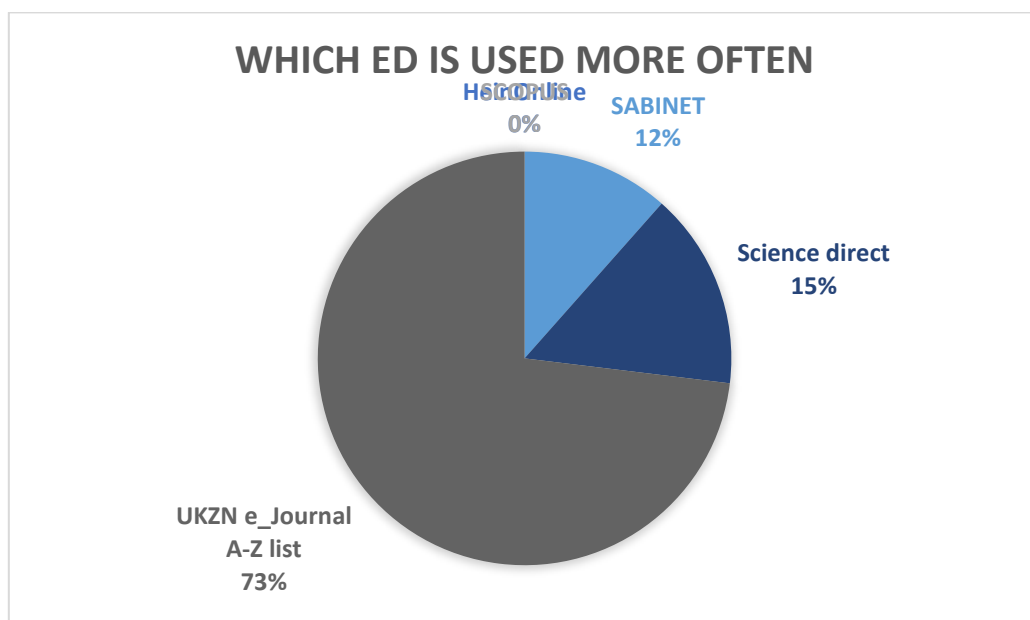


4.3.2.5 Frequency usage of the electronic databases (Question 8)

The participants were asked about the EDs that they used most of the time and to specify if there was one that they used more often and was not listed. According to the 32 respondents, nineteen (59%) used the UKZN e-Journal A-Z list more often, six (19 %) selected ‘other’, but did not specify which ones, four (13%) used Science Direct more often, three (9%) used SABINET more often, 0 (0%) did not use HeinOnline more often, and 0 (0%) did not use SCOPUS more often, and. Figure 4.5 shows an illustration of these results.

Figure 4.5: Frequency usage of EDs

N=32

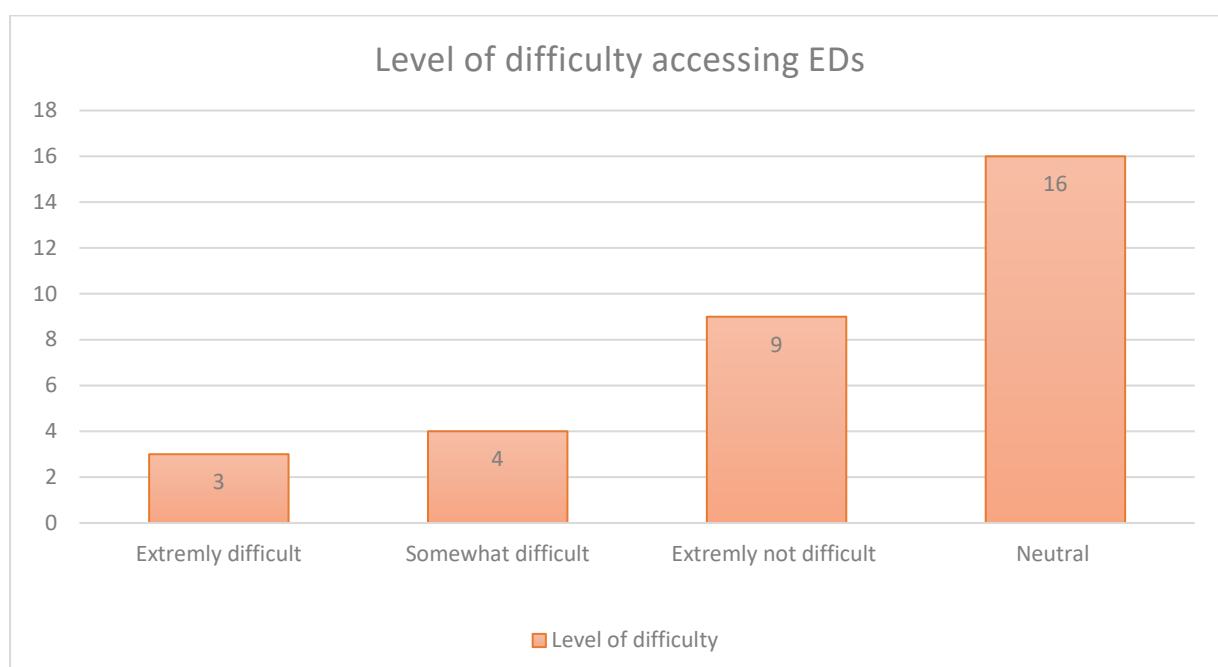


4.3.2.6 Accessing EDs from home as opposed to on campus (Question 9)

This question investigated the level of difficulty that students encountered when accessing EDs from home during COVID-19. Figure 4.6 below shows that, out of the 32 participants that responded, three (9%) found it extremely difficult, four (13%) found it somewhat difficult, nine (28%) found it extremely difficult, and sixteen (50%) found it neutral.

Figure 4.6: How difficult was it to access EDs from home during COVID-19, instead of on campus?

N=32



4.3.2.7 Challenges encountered while accessing EDs remotely (Question 10)

This question intended to determine the challenges students might have encountered when accessing EDs remotely during COVID-19. Table 4.3 shows that one student (3%) had no proper digital device to access the EDs remotely, four students (13%) experienced technical problems, five (15.6%) experienced stress and psychological pressure, seven (21.9%) encountered electricity outages, twelve (37.5%) had insufficient/unstable Internet connectivity and the remaining three (9%) stated other challenges, but did not specify them. Under ‘any comment’, one student indicated that they encountered problems with the Local Area Network (LAN) password and could not go through some databases that requested a LAN password.

Table 4.1: Challenges encountered**N=32**

Challenge encountered	Number of participants	Percentage
No proper digital device	1	3%
Technical problems	4	13%
Stress and psychological pressure	5	15.6%
Electricity outages	7	21.9%
Insufficient/ unstable Internet connectivity	12	37.5 %
Other	3	9%
Total	32	100%

4.3.2.8 Things that students enjoyed and liked most about accessing EDs remotely (Question 11)

Students were asked to provide answers about what they had enjoyed or liked the most about accessing EDs remotely or online during the COVID-19 pandemic. Table 4.4 below shows that out of the 32 respondents, eleven (34.4%) liked the fact that it was time and money efficient, seventeen (53.1%) indicated that it was more convenient and flexible for them, one (3%) liked that it was career advancing, another one (3%) said they liked the fact that it was paperless and the last two (6.3%) chose ‘other’ as their answer, but did not specify.

Table 4.2: Enjoyed and liked most**N=32**

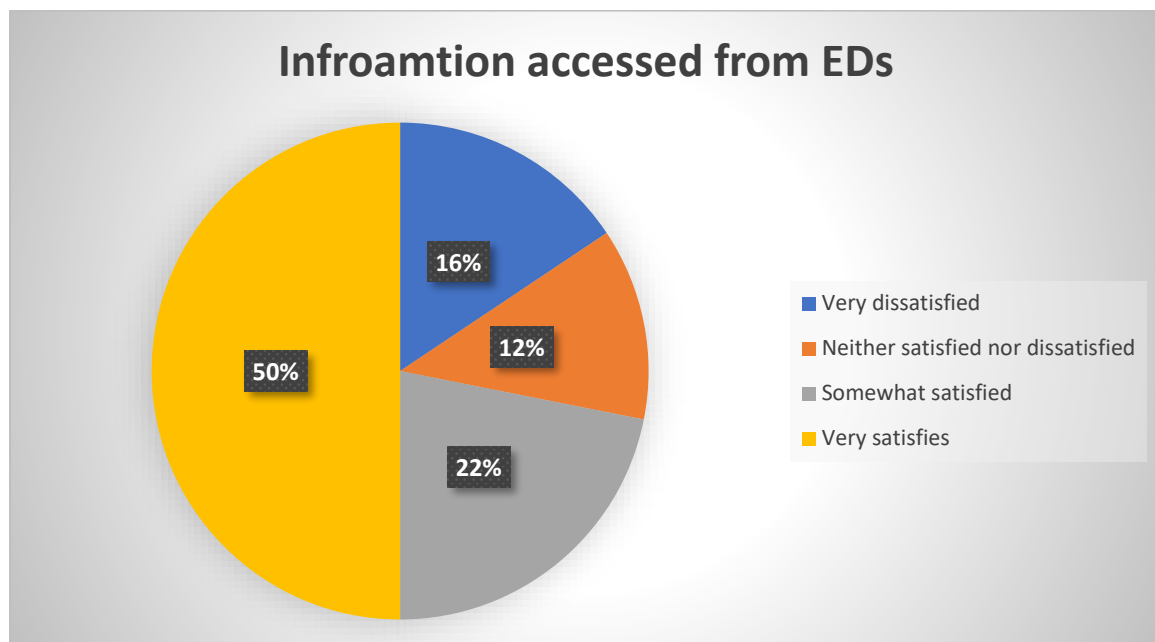
Enjoyed or liked most	Number of participants	Percentage (%)
Time and money efficient	11	34.4%
Convenience and flexibility	17	53.1%
Career Advancement	1	3%
Less impact on the environment (Paperless)	1	3%
Other	2	6.3%
Total	32	100%

4.3.2.9 How satisfied are you with the information you access on EDs for your academic work? (Question 12)

Students were asked to rate their satisfaction with the information they access through EDs for their academic work. Figure 4.7 below shows that five (16%) respondents were very dissatisfied with the information, four (12%) were neither satisfied nor satisfied, seven (22%) were somewhat satisfied and sixteen (50%) were very satisfied.

Figure 4.7: Information satisfactory

N=32



4.3.2.10 Any comment or additional information (Question 13)

There were other comments about the use of EDs during the COVID-19 pandemic. Out of the 32 participants, thirteen (40.6%) answered with 'no comment' to this question, while nineteen (59.4%) added various comments to this question. The general comments made by nineteen (59.4%) participants are:

- The electronic databases that are available through the UKZN library website are informative.

- Some students were unable to access UKZN electronic databases during the pandemic due to network and Internet problems.
- Students now prefer using EDs because they are accessible online and do not have time restrictions than hard copies.
- COVID-19 did not affect information access because the information was still available online.
- Students are happy that their postgraduate qualification of Information Studies offers information search training as part of their modules.
- Technical problems with login details.
- Some students indicated that they requested more training on accessing EDs, because they require more of ICTs.
- Others did not adapt easily to the change from contact to online that took place during the COVID-19 pandemic.

4.4 Summary

This chapter presented the results of the study, which set out to evaluate the use of EDs during the COVID-19 pandemic by Information Studies postgraduate students at the UKZN Pietermaritzburg Campus. The results of the study sufficiently answered the key questions of the study. Participants were required to state if they managed to access and use EDs during the pandemic, what challenges they faced, and what they liked most. The results showed that over half of the respondents were using UKZN EDs for their school work, and the majority enjoyed the home school that took place during the pandemic because it was time effective and easy to adapt to. The following chapter will discuss and interpreted the result presented.

Chapter 5

Discussion and interpretation of the results

5.1 Introduction

This chapter discusses the findings of the study on the use of EDs during COVID-19 by postgraduate students within the School of Social Sciences, Information Studies Department at UKZN, as presented in the previous chapter. It is compelling to interpret the information from the results to ensure that the research questions of this study were answered in light of the literature review. The literature reviewed focused on both developed and developing countries. However, most of the issues discussed are relevant and applicable to the situations in South Africa where this study was conducted. The research questions highlighted in Chapter One are as follows;

- Are postgraduate Information Studies students aware of EDs offered by UKZN?
- Did librarians offer user education on EDs to postgraduate Information Studies students during the COVID-19 pandemic?
- How has the COVID-19 pandemic affected the usage of EDs by postgraduate Information Studies students?
- What challenges did students encounter when accessing EDs remotely during the COVID-19 pandemic?

According to Blaikie (2003), research questions seek a descriptive answer to ‘what’, while the other seeks appropriate interventions to bring change by asking ‘How’. The discussion in this chapter follows the order of the research key questions. The findings discussed in Chapter Five relate only to the students who responded to the questionnaire.

5.2 Demographic information of participants

The questionnaire was distributed to 51 postgraduate students registered with the UKZN Pietermaritzburg Campus in the School of Social Sciences, Information Studies Department. Out of all 51 registered, only 32 participated in terms of gender; 20 (62.5%) were females, and 12 (37.5%) were males. This means more females were registered within the Information

Studies Department and that the Library and Information Services (LIS) might be a female dominated profession. According to Jaeger, Subramaniam, Jones and Bertot (2011), the LIS profession is female dominant because males tend to use ICTs for games while females use them for studying and working. These results are also in line with Hadebe's (2010) study that found that majority of the participants were female. This means that this is a female dominated profession given that librarians are mostly assumed to be female. Even literature often refers to librarians as 'she', meaning that most libraries are operated by females or one is mostly likely to find a female librarian at the circulations desk, which is at the reference section (usually at the entrance) of the library.

Within these 32 respondents, three (9.3%) were aged between 18-24 years, two (6.3%) were aged between 25-30 years, 16 (50%) were aged between 31-40 years, nine (28%) were aged between 41-50 years, and two (6.3%) were aged 50+ years. The majority of the participants consisted of young people between the ages of 31-40 years who spent most of their time using ICTs for work or leisure purposes. These results are supported by the study conducted by Samson (2014) on the usage of e-resources at the University of Montana, where the majority of their respondents, which were final year and postgraduate students (91.6%) and (71.7%) used e-resources than other groups. This means that students in the final year of studies and those at the postgraduate level tend to use e-resources more than undergraduate students because they had enough time to attend library training during their undergraduate studies.

Postgraduate Diploma in Records and Archive Management had four (12.5%) participants, Postgraduate Diploma in Information Studies had 11 (34%), Master of Information Studies (Course work) had four (12.5%) participants, Master in Information Studies had five (16%), followed by Bachelor of Library and Information Sciences Honours with five (16%) participants and lastly, three (9.3%) participants studying towards a Doctor of Philosophy in Human Sciences (Information Studies). From the above statistics, it is evident that a majority of the participants were registered for Postgraduate Diploma in Information studies whereas a minority of them were registered for higher degrees such as Masters and PhDs. This might have been affected by the notion that libraries and other information centres, hire people without LIS qualifications and this can discourage people with primary qualifications in LIS not to further their studies to Honours, Masters and PhD in LIS. As mentioned in the

literature review, Jain and Babber (2006) wrote a paper that focused on digital libraries in India. Jain and Babber (2006) mentioned that the Indian government did not have rules to regulate libraries in the country and people who did not have the LIS qualification were hired. These are some of the people who were not enthusiastic about library, therefore, they did not put effort to development of libraries.

5.3 Are postgraduate information studies students aware of EDs offered by UKZN?

One question in the questionnaire asked if the students were aware of the EDs available to them through the UKZN library website. The result showed that all 32 (100%) students who responded to the questionnaire were aware of the EDs available. Thomas' (2021) piloting a programme training that took place at Sidney Martin Library at the University of the West Indies, Cave Hill Campus, which had 43 participants, found that the majority of the students who took part in the workshop were unaware of the electronic resources available at their university library. At the end of the training workshop, Thomas (2021) stated that they recorded participants' reactions and allowed them to comment on the training received.

“Most students expressed that they were surprised that there were so many online resources available to assist them with assignments and research and many admitted they had not been using the library's databases as they should have, mainly because they were not aware of the existence of this wide range of resources” (Thomas 2021:56). This was because the library e-resources were not marketed to them. According to Thomas' (2021) study, most students were unaware of the electronic resources due to a lack of marketing and training. This study found that all participants were aware, meaning the UKZN library staff did well in marketing the availability of EDs to their students.

In comparison with prior studies, Msezane and Dlamini (2021) allude that other academic libraries neither maximise the use of ICTs nor create awareness for the use of e-resources and that the availability of e-resources does not necessarily ensure awareness and use among students. This means that even though e-resources are available for students, it is important for libraries to market them to their users and offer training so that they can be used.

5.4 Did librarians offer user education on EDs to postgraduate information studies students during the COVID-19 pandemic?

This research question captures the overall purpose of the study. Questions five, six and seven of the questionnaire focused on the user education that was offered to the students, even though question five tackled the user education offered during undergraduate studies. This question aimed to get basic information on how knowledgeable or skilled the students were in terms of using EDs prior to their current postgraduate studies with the UKZN. Out of the 32 participants, eighteen (56.3%) said 'yes', indicating that they had received training on using EDs during their undergraduate studies, while fourteen (43.7%) said 'no'.

These results reveal that even though all the participants had indicated that they were aware of the EDs available from the UKZN library website, chances were that the fourteen (43.7%) participants that did not receive training could either use the EDs based on the training and knowledge gained during their undergraduate studies or they would not use the EDs because of no training. In addition, one student mentioned that even though they received user training during their undergraduate studies, the digital world and technologies are forever changing, and users need constant training to keep abreast. Hence, Msezane and Dlamini (2021) state that the availability of e-resources does not necessarily mean usage thereof. The use of EDs entirely depends on training.

Additionally, Georgas (2014) explains that an effective and flexible introduction to the library's resources is critical to first-year students as it builds a basis for the years to come and how they will value the library services. Georgas (2014) further states that incoming Brooklyn College first-year students are required to take a library orientation as a compulsory module during their first year, which has helped Brooklyn College to see an increase in library service usage. The next question sought to determine if the students had received user training on using and accessing EDs from their librarians during COVID-19. Thirteen (40.6%) of the 32 participants said 'yes', they had received training during the pandemic, while nineteen (59.4%) answered 'no' to this question. Factors, such as late registration, Internet connection and technical devices might have contributed to a high number of participants who said they did not receive training on using and accessing EDs during COVID-19, since they were done online.

Thomas (2021) points out that issuing feedback forms to attendees at the end of training helped them to know what to focus on more in the next training and how good their attendees understood. Training, especially on technology-related things, cannot occur once or a few times in a while. Therefore, it will be good for the UKZN library to know how satisfied their students are after training on EDs and figure out what to do to eliminate negative feedback and increase the usage. When asked how satisfied the students were with the training received, five (15.6%) were very dissatisfied, ten (31.3%) were neither satisfied nor dissatisfied, nine (28.1%) were somewhat satisfied, and eight (25%) were very satisfied. The piloting programme training that had 43 participants and was conducted by Thomas (2021), found that seventeen participants were satisfied and liked the session because each one of them was given time to consult one on one with the librarian. In this case, the technique mentioned by Thomas (2021) of issuing feedback forms and allowing one on one sessions might come in handy to increase the number of satisfied students at the end of training.

5.5 How has the COVID-19 pandemic affected the usage of EDs by postgraduate Information Studies students?

The year 2020 will be remembered as the year the COVID-19 turned things around for everyone. Hundreds and thousands of people worldwide died from the disease, schools and businesses closed, wearing masks in public became a norm, and unemployment soared. Everyone and everything drastically changed, and libraries were no exception (Connell, Wallis and Comeaux 2021). This study discusses the impact that the pandemic had on the usage of EDs by UKZN Information Studies postgraduate students. Four questions from the questionnaire covered this research question.

The UKZN Library has made available access to a wide range of academic databases and has invested heavily in electronic services (Hadebe 2010). Therefore, it was vital to determine and understand which EDs were currently being used most. Findings to this question might not give an overall direction as to which databases the university needs to keep and which ones need more marketing or training since the population was on a small group of postgraduate students. However, it can shed a light on them to see which ones were used most and provide feedback based on the training they did during this time. UKZN e-journals A-Z list came at the top of the list as online databases that were used the most by 19 (73%)

students. This was followed by Science Direct with four (13%) and SABINET with three (9%). Scopus and HeinOnline were not selected, whereas six (19%) participants selected others, but did not specify them. UKZN e-journals A-Z list might have come at the top of other EDs because the UKZN library staff members are more familiar with it as this is their institutional database, meaning librarians are able to provide detailed and in-depth training on it as opposed to others, such as SABINET, that require a presentation from one of their employees to get in-depth knowledge and understanding.

EDs require one to have technical skills, knowledge and training to use them optimally (Raska, Zysk, Bower and Bitzinger 2021). This implies that during COVID-19, in working and schooling from home, both students and librarians needed a set of skills to train students on how to access and use EDs. The majority, sixteen (50%) participants, said it was neutral, followed by nine (28%) who found it not extremely difficult, whereas four (13%) said it was somewhat difficult. The last three (9%) participants said it was extremely difficult. Some reasons that contributed to this, such as Internet connection and stress, were covered in the last question, where students were allowed to add more comments.

One student mentioned that accessing EDs from home was difficult because the librarians never trained her to access and use them while another student preferred using EDs more often because the librarians were always available to assist them virtually. According to Connell, Wallis and Comeaux (2021), Louisiana State University (LSU) managed to get their information technology (IT) department to assist all library staff members in getting their work-from-home equipment up and running on Monday, 16 March 2020. After the state governor ordered a state-wide stay-at-home the previous day, though their staff members were sorted out, some of their students who were coming from less privileged families struggled with the Internet and devices to connect even though they had the required skills. Even though lack and no training to use EDs have a huge impact on the usage of EDs, other factors such as technical challenges (for example, Internet connection) may also contribute to the less usage of EDs, as suggested by Connell, Wallis and Comeaux (2021) earlier.

Though the COVID-19 pandemic might have caused more harm than good, students were asked what they enjoyed or liked most about accessing EDs from home during COVID-19. Likewise, 32 responses were examined, revealing that convenience and flexibility were the common things liked most about accessing EDs without visiting the library physically, as

evinced by seventeen (53.1%) responses. 'Time and money effective' became the second most liked with eleven (34.4%), and two (6.3%) responding by selecting other but did not specify. Lastly, a tie of one (3%) shows career advancement alongside less impact on the environment with one (3%) response.

Correspondingly, findings from a study conducted by Fatomia, Nurkhayatic, Nurdiawatid, Fidziahe, Adhag, Irawanh, Julyantoj and Azizik (2020) found that out of 100 responses, 32.01% were comfortable with learning while at the comfort of their homes, which support the results of seventeen (responses that liked the convenience and flexibility of online learning). When people enjoy learning or working in a comfortable space, they tend to be more productive. From the personal conversation, the researcher had with Ms Hanlie Baudin, Head of Digital Scholarship Services (DSS) at the Human Sciences Research Council (HSRC), the management found that the staff members had reached and exceeded the company's target during the COVID-19 work from the home period. Due to this, the company has since remained on the work from home terms even after the country was announced to go back to normal. Some students said they can listen to their lecturers' recordings in their own time, and 29.97% said it was time effective. They can ask lecturers questions more easily offline than when they are physically among other students. With regard to the information that was accessed through EDs during COVID-19, half of the participants indicated that they were very satisfied, as stated by sixteen (50%) participants, six (22%) participants were somewhat satisfied, five (16%) were very dissatisfied, and four (12%) were neither satisfied nor dissatisfied. Concerning these findings, it is also important to note that when students have access to the Internet, it does not necessarily mean that they know how to search for information using library electronic resources (Thomas 2021).

5.5 What challenges did students encounter when accessing EDs remotely during the COVID-19 pandemic?

This research question was covered by one question from the questionnaire that investigated the challenges that students had encountered when accessing EDs remotely during the COVID-19 pandemic. Twelve (37.5%) participants, which was the highest number, said they had challenges with insufficient/unstable Internet connectivity. This finding is supported by Chisita and Ngulube (2022) who found that even though the Internet Service Providers

Association of South Africa (ISPA) had requested South African Internet Service Providers (ISPs) and other ICT service providers to take steps and support Internet users engaged in online education during the COVID-19 National Disaster period. The initiative has benefited digital libraries supporting online learning, teaching and research during the COVID-19 era. However, some students and staff members located in rural areas encountered Internet connectivity issues.

One (3%) did not have proper digital devices to access EDs online, four (13%) had technical problems such as slow network, logging in to the VPN and computer virus, and five (15.6%) experienced stress and psychological pressure. Equally important is the fact that there is a similarity between these findings and the findings of Quintiliani, Sisto, Vicinanza, Giuseppe and Tambone (2022) that suggest that students' stress levels had increased due to the spread of the COVID-19 pandemic and lockdown. They found that 66% of the respondents reported moderate stress and 23.4% reported high stress. Most of the students who reported high-stress-levels were those who resided off campus far from the university. On the other hand, seven (21.9%) participants indicated that they experienced electricity outages, and three (9%) said 'other' but did not specify the challenges. From the above similarities, it is evident that most students suffered from mental health issues during the COVID-19 pandemic and this might have affected their studies. Universities and libraries with student's wellness facilities can assist with counselling the affected students.

5.6 Student's recommendations and comments

Lastly, students were asked to add any comments to the questionnaire. Of the 32 respondents, thirteen (40.6%) did not comment, while nineteen (59.4%) gave various comments. Some students mentioned that the databases available through the UKZN library website are informative and convenient. Due to detailed and effective training on using and accessing EDs, some students now prefer using them over hard copies. Other students mentioned that they do not perceive COVID-19 as a barrier to information access because EDs are available 24 hours every day. On the other hand, some students mentioned that they experienced a lack of training on using and accessing EDs during the pandemic. Because of this, some resorted to the self-taught method by teaching themselves how to access and use EDs, because librarians were unavailable to assist them. Others indicated that the information on EDs needs

to be updated regularly, and they require frequent training, not just once off at the beginning of the semester.

5.7 Summary of the chapter

In this chapter, the findings of the study, as presented in Chapter Four, were discussed. The key research questions provided the basis of the discussion. The major areas covered in the chapter included the challenges students encountered when accessing EDs during the COVID-19 pandemic, which databases they used most, if they received training on accessing EDs during this time and how effective the training was. It emerged from the study that most respondents were aware of the EDs provided by UKZN and used them during COVID-19, however, further training on how to access and use them is required. Other participants suggested that the information available on EDs should be updated regularly. Similar and different results gathered from other studies are also acknowledged. The next chapter will include the study's summary, conclusion and recommendations.

Chapter 6

Conclusion and recommendations

6.1 Introduction

Given the practical, logical and slant of the research undertaken, in conclusion, this chapter presents the study's summary of findings, conclusions and recommendations on the use of EDs by Information Studies postgraduate students at the UKZN Pietermaritzburg Campus. Conclusions are drawn from the findings in Chapter Four and the discussion of those findings in Chapter Five. The recommendations will flow from the key findings and conclusions of the study.

6.2 Revisiting the key research questions of the study

The study attempted to answer the following key questions regarding the use of EDs during the COVID-19 pandemic by Information Studies postgraduate students at the UKZN Pietermaritzburg Campus. The following research key questions guided the study:

- Are postgraduate Information Studies students aware of EDs offered by UKZN?
- Did librarians offer user education on EDs to postgraduate Information Studies students during the COVID-19 pandemic?
- How has the COVID-19 pandemic affected the usage of EDs by postgraduate Information Studies students?
- What challenges did students encounter when accessing EDs remotely during the COVID-19 pandemic?

6.3 Summary of the study

Chapter One introduced the study by presenting a brief background of the study, an outline of the research problem, reasons for choosing the research topic, a definition of the key terms relevant to the study, the broader issues that were investigated, the theoretical framework, which outlined the model for the study, and the research questions, which were asked as well as the scope and limitations of the study.

In Chapter Two, several studies on the use of EDs were examined. Some of the studies were about the use of EDs during the COVID-19 pandemic. The chapter covered the user training/library orientation, EDs training during the pandemic, users' training during the undergraduate studies, challenges experienced and what students enjoyed while studying using EDs as sources of information during the pandemic. The chapter concluded by discussing the various local and international studies on students' use of EDs.

Chapter Three discussed methodology that guided the collection and analysis of data to answer the research questions. The study was guided by a post-positivism paradigm and undertook the quantitative research approach to use the systematic investigation of social phenomena to analyse statistical and numerical data. The study adopted a census approach and relied on a population of 51 registered Information Studies postgraduate students at the UKZN Pietermaritzburg Campus. A questionnaire was used as a data collection tool.

Chapter Four presented the results of the study, which set out to evaluate the use of EDs during the COVID-19 pandemic by Information Studies postgraduate students at the UKZN Pietermaritzburg Campus. The results have sufficiently attempted to answer the key research questions discussed in the study. The questionnaire results covered the respondents' background information, their use and access to EDs and the challenges experienced during the COVID-19 pandemic. Recommendations and comments made by respondents were also discussed.

Chapter Five discussed and interpreted the findings of the study presented in Chapter Four in light of the key questions the study attempted to answer. The researcher also explained her point of view and opinion. The results of the study revealed that Information Studies postgraduate students accessed and used EDs for their academic work during COVID-19. Schooling and accessing EDs from home had advantages and disadvantages, which were discussed in Chapter Five. The recommendations of the study are provided in this chapter.

6.4 Conclusion

This study has produced baseline information on the use of information sources that can be used to pave the way for future studies that will be done during or prior to pandemics similar to COVID-19. It is evident enough that as much as life had to continue and people had to

figure out ways to do so during the pandemic, many factors such as finances, psychological and knowledge or skills had an impact on adjusting to living with the pandemic. Narrowing this phenomenon down to this study, students and library staff members had to ensure that they had ICTs (for example, laptops, smartphones, WIFI) required to study and offer user training. They also had to be psychologically well (regardless of the anxiety and stress that COVID-19 brought to others) to meet deadlines and have the skills to move from contact (face-to-face) to the online space. The results from the study attempted to answer the research questions as follows;

6.4.1 Are postgraduate Information Studies students aware of EDs offered by UKZN?

The study found that all Information Studies postgraduate students at the UKZN Pietermaritzburg Campus were aware of the EDs available from the UKZN library website. This was also shown when the majority of the respondents (59%) mentioned that they used UKZN e-journals A-Z list of databases more often for their academic work.

6.4.2 Did librarians offer user education on EDs to postgraduate Information Studies students during the COVID-19 pandemic?

The study found that the majority of students, nineteen (59%), did not receive user education from the librarians during the COVID-19 pandemic. It is alarming to see a big percentage of students indicating that they did not receive training on how to access information. One may ask what sources of information these students used to get information for their school work and whether it was reliable or of quality. On the other hand, 13 (41%) participants indicated that they received training during the pandemic.

6.4.3 How has the COVID-19 pandemic affected the usage of EDs by postgraduate Information Studies students?

Students indicated that COVID-19 had not negatively affected their usage of EDs because they were able to access them from home. They also mentioned that since EDs are available online, they are accessible at any time of the day. This was convenient for them as they were not restricted by time like they would be when borrowing a hard copy from the library. At the same time, others complained about getting the LAN passwords wrong and struggling to get assistance from IT to solve their password issues.

6.4.4 What challenges did students encounter when accessing EDs remotely during the COVID-19 pandemic?

Students mentioned different challenges that they experienced during the pandemic. The majority of students (37.5%) indicated that they experienced insufficient/unstable Internet connectivity. Things such as areas where the student lived, weather and/or load shedding that is being experienced in South Africa contributed to an unstable Internet connection. At the same time, poor network providers and/or the inability to afford enough data can contribute to insufficient Internet. All these mentioned factors could have contributed to or affected some of the students who said they had experienced this challenge.

This was followed by 15.6 % of students who indicated that they experienced stress and psychological pressure during the COVID-19 pandemic. This is one of the big challenges that students faced, considering that not all students can afford to see a psychologist or physiotherapist, especially if these types of services are not offered freely at the university. Since this is not a physical or tangible illness, it might have been difficult for both students and staff to deal with and that it can be life-threatening unless a person consults with a doctor.

6.5 Recommendations based on the findings of the study

Based on the findings of the study, the following recommendations are made for action and further research:

6.5.1 Awareness of databases

This study indicated that all students were aware of the EDs, but this did not match the usage findings. The use of EDs must be encouraged based on the importance and impact they can have in peoples' development when used for leisure and academic purposes. It is also important for the UKZN library to have ongoing awareness campaigns for students at intervals during the year because a once-off awareness campaign can easily be forgotten or missed due to unforeseen circumstances. Liaising with the teaching and learning department for class visits can also help students not assume that EDs are a library thing and thus do not affect their studies.

6.5.2 Library user education/training

The library can offer training to students from time to time to accommodate the forever-changing technology and make available different ways and platforms to access the library services. A combination of approaches when training users is necessary. This may help to reach a bigger audience and make understanding easier for those who experience learning difficulties. Training can involve talks, demonstrations, workshops with small groups and one-on-one when needed and identifying special needs students. There is a need for online tutorials that assist the user with a step-by-step guide that they can use during their time of need.

6.5.3 COVID-19 impact

The UKZN library can start by doing damage control, as affirmed by the findings' that reveal students' experiences when accessing EDs during COVID-19. The library can either begin by offering training to those who have not received it during the pandemic or recommend those with psychological problems to the university wellness centre for intervention. They can also use the feedback method to see what services their users need now and what they wish they had received or accessed from the library during the pandemic.

6.5.4 Accessing EDs remotely during COVID-19

The UKZN library may consider assisting students with digital devices to access EDs remotely because some students indicated that they did not have electronic devices to access EDs from home.

6.6 Suggestions for further research

The following suggestions concern other research studies that should be conducted at the UKZN:

- A similar study on the use of EDs, focussing on students in other colleges on campus. This will help the University to research about other students who do not have the LIS background.

- A similar study on the use of EDs, focussing on the library and academic staff members, is necessary.

6.5 Summary

In higher education environments, the interaction between students and the online information resources is an increasingly important part of the learning and research process. This chapter presented the study's summary of the findings, conclusions, and recommendations. The study showed that most students know of EDs and use them for their academic work. Challenges associated with the use of EDs were identified. The results of the study could assist the UKZNP Library and other UKZN libraries in decision-making in terms of which EDs postgraduate students use and which areas need improvement to ensure maximum use. The post-COVID-19 era will be a great opportunity for the UKZN library to identify the challenges in providing remote services for their user and establish an effective online system so that the library can fully operate and meet users' needs under a similar situation in future. Innovations should be given top priority in the action plan of the library services.

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LIST OF APPENDICES

Appendix A: Questionnaire

1. Gender					Male				Female		
2. Age											
18-24				25-30				31-40			
3. What qualification are you currently studying at UKZN?								Tick the appropriate answer			
<ul style="list-style-type: none"> • Postgraduate Diploma in Records and Archive Management 											
<ul style="list-style-type: none"> • Postgraduate Diploma in Information Studies 											
<ul style="list-style-type: none"> • Master in Information Studies (Course work) 											
<ul style="list-style-type: none"> • Master in Information studies 											
<ul style="list-style-type: none"> • Bachelor of Library and Information Science Honours 											
<ul style="list-style-type: none"> • Doctor of Philosophy in Human Science (Information Studies). 											
4. Are you aware of the electronic databases available at UKZN?											
Yes						No					
5. Did you receive training on the use of electronic databases during your undergraduate studies?											
Yes						No					
6. Did you receive training on how to access and use the electronic databases by your librarian during the COVID-19 pandemic?											
Yes						No					
7. How satisfied are you with the training you have received on electronic databases?											
Very dissatisfied											
Neither satisfied nor dissatisfied											
Somewhat satisfied											
Very satisfied											

8. Which electronic databases do you use most?	
HeinOnline	
Scopus	
SABINET	
Science direct	
UKZN e-journal A-Z list	
Other (Specify)	
9. How difficult it is for you to access the electronic databases from home as opposed to being on campus?	
Extremely not difficult	
Neutral	
Somewhat difficult	
Extremely difficult	
10. What challenges have you encountered when accessing the electronic databases remotely during the COVID-19 pandemic? (You can choose more than one)	
Insufficient/ unstable Internet connectivity	
No proper device	
Technical problems	
Stress and psychological pressure	
Electricity outages	
Other	
11. What did you enjoy and like most about being able to access the electronic databases without visiting the library physically? (You can choose more than one)	
Time and money effective	
Convenience and flexibility	
Career advancement	
Less impact of the environment (Paperless)	
Other	
12. How satisfied are you with the information you access from the electronic databases for your academic work?	
Very dissatisfied	
Neither satisfied nor dissatisfied	

Somewhat satisfied	
Very satisfied	
13. Any comment	

Appendix B. Informed consent document

Dear Participant,

My name is Lethabo Letsoalo (220100890). I am a master's candidate studying at the University of KwaZulu-Natal, Pietermaritzburg Campus. The title of my research is: The use of electronic databases during the COVID-19 pandemic by postgraduate students at the Pietermaritzburg campus of the University of KwaZulu-Natal (UKZN) Pietermaritzburg Campus. The aim of the study is to research about the use of electronic databases and how the COVID-19 has affected how you as a student accessed, used, and received training on the electronic databases. I am interested in sharing my questionnaire with you so as 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 penalized for taking such an action.
- Your views in this interview will be presented anonymously. Neither your name nor identity will be disclosed in any form in the study.
- The interview will take about 5-10 minutes of your time.
- The record as well as other items associated with the interview will be held in a password-protected file accessible only to myself and my supervisors. After a period of 5 years, in line with the rules of the university, it will be disposed by shredding and burning.
- If you agree to participate please sign the declaration attached to this statement (a separate sheet will be provided for signatures)

I can be contacted at: School of Social Sciences, University of KwaZulu-Natal, Pietermaritzburg Campus, Durban. Email: 220100890@stu.ukzn.ac.za;

Cell: 079 494 3355 and 063 658 4223

My supervisor is Dr. Siyanda Kheswa who is located at the School of Social Sciences, Pietermaritzburg Campus, Durban of the University of KwaZulu-Natal. Contact details: email kheswas1@ukzn.ac.za Phone number: 033 260 6987

The Humanities and Social Sciences Research Ethics Committee contact details are as follows: University of KwaZulu-Natal, Research Office, Email: HSSREC@ukzn.ac.za Thank you for your contribution to this research.

DECLARATION

I..... (*full names of participant*) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand that I am at liberty to withdraw from the project at any time, should I so desire. I understand the intention of the research. I hereby agree to participate.

I consent / do not consent to have this interview recorded (if applicable)

SIGNATURE OF PARTICIPANT

DATE

.....

24 August 2022

Lethabo Mohlago Rogator Letsoalo (220100890)
School Of Social Sciences
Pietermaritzburg Campus

Dear LMR Letsoalo,

Protocol reference number: HSSREC/00003363/2021

Project title: The use of electronic databases during the coronavirus disease pandemic by postgraduate students at the Pietermaritzburg campus of the University of KwaZulu-Natal

Degree: Masters

Approval Notification – Expedited Application

This letter serves to notify you that your application received on 17 September 2022 in connection with the above, was reviewed by the Humanities and Social Sciences Research Ethics Committee (HSSREC) and the protocol has been granted **FULL APPROVAL**.

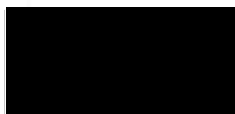
Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further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

This approval is valid until 24 August 2023.

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

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

Yours sincerely,



Professor Dipane Hlalele (Chair)

/dd