

**THE USE OF INFORMATION AND COMMUNICATION TECHNOLOGY FOR
LIBRARY SERVICES AT THE UNIVERSITY OF LIMPOPO DURING THE COVID-19
PANDEMIC ERA**

BY

NOXOLO NGWENYA

DISSERTATION

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SUPERVISOR: DR M.J MONYELA

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DECLARATION

I, Ngwenya Noxolo, declare that the dissertation hereby submitted to the University of Limpopo, for the degree of Master in Information Studies has not previously been submitted for an assessment or degree at this or any other university, that it is my work in design and in execution, and that all materials contained herein have been duly acknowledged by means of complete and proper referencing.



Researcher's signature

Date: 06/02/2024



Supervisor's signature

Date: 06/02/2024

DEDICATION

Let all the glory, honour and adoration be unto God. It is not by might nor by power but by His spirit. I truly appreciate God for giving me the grace, resources, strength and wisdom to complete my dissertation. I dedicate this work to my supervisor Dr. MJ Monyela and all my family members as an epitome of courage and a foundation of a trend of academic excellence for our entire generations. Especially my grandmother, Paulinah Ngwenya, who motivates all her grandchildren to be educated; my mom, Thoko Ngwenya, who served as an immediate educated role model in my life; my sister, Thembisile, who provided tremendous financial support for this work to be completed; my sister, Phumla, who has been my cheerleader and my sister, Boniswa, who has been supportive in all aspects and amazing in my academic journey.

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ABSTRACT

The use of Information and communication technology (ICT) has revolutionised each sector, including academic libraries globally. The revolution is enabled by how the digital era is embraced globally. In South Africa, many academic libraries have adopted the use of ICT for their services prior the Covid-19 pandemic using automated systems and virtual self-help systems. The use of ICT has never replaced some manual services until the Covid-19 pandemic national lockdown level 5.

This study explored the use of ICT in support of library services at the University of Limpopo (Mankweng and Pietersburg branches) amid the Covid-19 pandemic. The research problem addresses the reliance on physical library resources despite existing online services, compounded by limited remote access to databases and technical challenges like poor network connectivity and restricted social media use, impacting library services during the Covid-19 pandemic at UL libraries (Mankweng and Pietersburg) branches. The study was guided by the following objectives; to examine the types of ICT used to provide support for library services at UL libraries' Mankweng and Pietersburg branches during the Covid-19 pandemic, to determine how ICT was used to render library services during the Covid-19 pandemic at UL libraries' Mankweng and Pietersburg branches, to establish the perceived usefulness of ICT to render library services during the Covid-19 pandemic at UL libraries' Mankweng and Pietersburg branches, to explore the attitudes of library staff and patrons towards the use of ICT in rendering library services during the Covid-19 pandemic at UL libraries' Mankweng and Pietersburg branches, to identify factors that interfere with staff and patrons while using ICT to render library services during the Covid-19 pandemic at the University of Limpopo libraries' Mankweng and Pietersburg branches. The Technology Acceptance Model (TAM) was employed in the study. However, only two constructs were used in this study which were perceived usefulness and attitudes towards using .The adoption of digital tools, virtual resources, and online platforms became crucial for enhanced accessibility, use and engagement with information delivery within the academic community. The study evaluated the effectiveness of these technological interventions in maintaining seamless library services during the pandemic, offering insights for future advancements in academic libraries.

The researcher employed a qualitative research method and a descriptive research design. Data were collected using face-to-face interviews with 16 participants consisting of two library personnel and 14 library patrons. Collected data were analysed through thematic analysis.

Findings from the study revealed that UL libraries employed various types of ICT which included; online databases, e-books, virtual reference services, and digital catalogue to support patrons during the pandemic. In terms of the use of ICT in support of library services, ICT was extensively utilised for virtual assistance, remote access to resources, and online tutorials to ensure library service continuity. Overall, patrons recognised ICT's value for remote access, but a preference for manual services persisted among some patrons, especially at the Pietersburg branch. While library staff adapted to ICT and had positive attitudes, patrons at Mankweng embraced it more, while those at Pietersburg showed a preference for traditional methods, affecting ICT optimal use. Factors Interfering with ICT usage included technological barriers like poor connectivity and limited digital literacy, along with ingrained preferences for manual services, particularly at the Pietersburg branch. The study recommends the expansion of training programs to familiarize both staff and patrons with the full range of available ICT tools and the implementation of user-friendly interfaces and clear instructions to enhance accessibility and usability of digital resources. Strengthening of virtual reference services and online tutorials to meet evolving user needs and Investing in robust ICT infrastructure to ensure reliable and seamless remote access to library resources. Conducting awareness campaigns to promote the benefits of ICT for remote access and research and tailor outreach efforts to address specific concerns and preferences identified among patrons, particularly at the Pietersburg branch. Offering incentives or rewards for patrons to encourage the adoption of ICT-enabled services and providing ongoing training and support for staff to enhance their confidence and proficiency in utilizing ICT tools effectively. Improving internet connectivity and access to digital devices, particularly in underserved areas and developing targeted interventions to enhance digital literacy skills among patrons, with a focus on addressing barriers identified at the Pietersburg branch.

Keywords: Covid-19, ICT, library patrons, library services, online resources

LIST OF ABBREVIATIONS

ALA	: American Library Association
ASU	: Actual System Use
CILIP	: Chartered Institute of Library and Information Professionals
COVID-19	: Corona Virus Disease of 2019
4IR	: Fourth Industrial Revolution
ICT	: Information Communication Technology
IFLA	: International Federation of Library Associations and Institutions
IGTV	: Instagram Television
ILL	: Interlibrary Loans
LIS	: Library and Information Science
LLB	: Legum Baccalaureus (Bachelor of Laws)
MBchB	: Bachelor of Medicine and Bachelor of Surgery
MIT	: Massachusetts Institute of Technology
OCLC	: Online Computer Library Centre
OPAC	: Online Public Access Catalogue
PEU	: Perceived Ease of Use
PU	: Perceived Usefulness
RFID	: Radio-Frequency Identification
SALB	: South African Library for the Blind
SDI	: Selective Dissemination of Information
TAM	: Technology Acceptance Model
TPS	: Total Population Sampling

TREC : Turfloop Research Ethics Committee

UL : University of Limpopo

UNISA : University of South Africa

USA : United States of America

USAF : Universities of South Africa

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CHAPTER 1

BACKGROUND AND MOTIVATION OF THE STUDY

1.1 INTRODUCTION AND MOTIVATION

The Covid-19 pandemic outbreak significantly altered people's lives on a global scale and had an enormous effect on higher education, particularly academic libraries (Connell, Wallis & Comeaux, 2021). To function throughout the pandemic, every industry in the world had to make significant changes. The coronavirus 2019 is responsible for Covid-19, an acute respiratory infection in humans that can produce severe symptoms and, in rare circumstances, death, especially in the elderly and those with underlying medical disorders (Oxford Languages Dictionary, 2022). Libraries, among other institutions, were forced by the pandemic to make investments in digital materials and services (Frederick & Wolff-Eisenburg, 2020). This implies that more libraries, especially those that provided their services manually, underwent significant shifts to digitisation.

Most university libraries had to rethink how they typically provided services when the Covid-19 pandemic hit, especially in view of the rules that encouraged social isolation as one method of halting the spread of the airborne virus (Muhammad & Pervaiz, 2021). The imperative shift to online service delivery during the pandemic compelled higher education institutions and academic libraries to enhance their digital capabilities. This demanded the creation or enhancement of digital infrastructure to accommodate remote access to educational resources and support services (Connell et al., 2021). In view of this, the purpose of this study was to investigate how ICT was used by the University of Limpopo's (UL) Mankweng and Pietersburg libraries to provide library services during the Covid-19 pandemic.

Even before the pandemic, the libraries provided their services both manually and virtually. The researcher felt it was essential to investigate how the libraries fought the pandemic in their supply of services and resources to its clientele because the pandemic's arrival necessitated the usage of digital information services and resources to limit physical contacts to curb the spread of the virus (Muhammad & Pervaiz, 2021).

The University of Limpopo (UL) is an institution of higher learning in South Africa situated in Mankweng, about 30 kilometres East of Polokwane (Dlamini, 2020:3). It has two branch libraries in addition to one on the main campus. The Turfloop Campus, Mankweng Hospital and Pietersburg (Polokwane) Hospital all have libraries. The hospital in Polokwane that houses the UL library is officially known as Pietersburg Hospital (University of Limpopo, 2022). These libraries are used by the university staff, students and researchers for study, teaching and research development. In addition, the libraries acquire, organise and facilitate access to information resources that are both printed and electronic (Dlamini, 2020). The libraries in Mankweng and Pietersburg also meet the informational needs of the Limpopo Department of Health staff. These libraries have a variety of information sources, including printed books, printed journals, online journal articles, online databases, theses and dissertations. Moreover, the university libraries offer the following services: circulation services, inter-library loan services, reference and information services, current awareness services, selective dissemination of information (SDI), user-education, literature searching, compilation of bibliographies, indexing and abstracting services, knowledge management services, preservation and conservation services, bindery services, information literacy services, information media literacy, internet services, archiving services, consultancy services, photocopying/reprographic services, publication of guides to the library, compilation and maintenance of statistics, e-library services, translation services, statistical data analysis services, internet services and book editing services. The Covid-19 pandemic disrupted traditional information access at UL libraries. Closure during lockdowns hindered physical access to print resources and essential services. Limited operational hours and reliance on campus credentials for database access further challenged patrons. This highlighted the importance of robust digital infrastructure for uninterrupted service provision during crises.

To curb the spread of Covid-19, the South African government issued the order to close all establishments in March 2020 and placed the country on level 5 lockdown. UL libraries had to close their physical spaces to adhere to the government's order. Therefore, traditional information dissemination methods were severely disrupted during level 5 of the first national lockdown because library visits by patrons were prohibited. The closing of the libraries also changed the library service delivery model, as libraries suddenly had to migrate all their services to online without proper planning

and preparing the patrons, such as providing them with gadgets and data. When libraries migrate from manual to virtual means of rendering services, they should have time to prepare themselves and make adjustments to their existing systems and policies or change them altogether, if necessary (International Federation of Library Associations and Institutions, 2020). During level 4 of the national lockdown the Minister of Higher Education, Science and Technology, Blade Nzimande, announced the repatriation of health sciences and final-year students to branches (Maphanga, 2020). Due to the essentiality of their services, health sciences students who had been repatriated and the UL libraries resumed their operations on 29 June 2020, although their operational hours were limited from 7h00 to 16h30.

1.2 PROBLEM STATEMENT

The researcher observed that although the library offered some of their services online even prior Covid-19, the patrons visited the library every day to access print information sources such as prescribed books, study materials and journals that are not available online or due to the patron's preferences, as well as study space, circulation services, library computers, internet access and library databases. However, to access library databases, students had to be on campus using their university credentials or they had to request the suppliers' credentials from the librarians to access them remotely. The limited operational hours could have disadvantaged those services. Moreover, Dlamini's (2020) study of the utilisation of electronic databases by postgraduate students in the Faculty of Humanities at the UL revealed that, in some cases, participants could only access the abstracts of articles, without receiving the full text. Librarian assistance is needed to access the full articles in that regard. Furthermore, Williams, Dhoest and Saunderson (2019) found the issue of poor network connectivity, blockage of library staff and patrons by the firewall as well as the restriction of access to social media during working hours to be a challenge at UL libraries, because social media can be a vital tool for easy communication, especially when rendering interlibrary loans (ILL) and other services. Hence, this study aimed to find out how ICTs were used for library services during Covid-19 at UL libraries (Mankweng and Pietersburg) branches.

1.3 AIM OF THE STUDY

This study aims to investigate the use of information and communication technology for the support of library services at UL during the Covid-19 pandemic.

1.4 OBJECTIVES OF THE STUDY

The study was guided by the following objectives:

1. To examine the types of ICTs used to provide support for library services at UL libraries' Mankweng and Pietersburg branches during the Covid-19 pandemic.
2. To determine how ICT was used to render library services during the Covid-19 pandemic at UL libraries' Mankweng and Pietersburg branches.
3. To establish the perceived usefulness of ICT to render library services during the Covid-19 pandemic at UL libraries' Mankweng and Pietersburg branches.
4. To explore the attitudes of library staff and patrons towards the use of ICT in rendering library services during the Covid-19 pandemic at UL libraries' Mankweng and Pietersburg branches.
5. To identify factors that interfere with staff and patrons while using ICT to render library services during the Covid-19 pandemic at the University of Limpopo libraries' Mankweng and Pietersburg branches.

1.5 SIGNIFICANCE OF THE STUDY

The study adds value to existing literature in the use of ICT in support of library service, especially. It will reduce gaps in the Library and Information Services (LIS) sector by adding more credible information about library service delivery since Covid-19 commenced. The study is beneficial to UL libraries, as it reveals both negative and positive accurate impacts of the use of ICT to render library services that may inform library policies and practices on the use of ICT to render library services. The study recommends solutions that would be beneficial to both the UL libraries' staff and their patrons. Other libraries may also learn from the study.

1.6 SCOPE OF THE STUDY

The study was limited to the UL libraries (Mankweng and Pietersburg branches). The researcher chose these two library branches because they were health libraries and provided services to health workers who were essential workers during the Covid-19 pandemic lockdown. Their services were essential, as they provided crucial information to health workers during the pandemic. The study was centred on the following five sub areas of research, namely: the types of ICTs used to provide support for library services at UL libraries' Mankweng and Pietersburg branches during the Covid-19 pandemic, how the ICTs were used to render library services during the Covid-19 pandemic at UL libraries' Mankweng and Pietersburg branches, perceived usefulness of ICT in support of library services during the Covid-19 pandemic at UL libraries' Mankweng and Pietersburg branches, attitudes of library staff and patrons towards the use of ICT in rendering library services during the Covid-19 pandemic at UL libraries' Mankweng and Pietersburg branches, and factors that interfere with staff and patrons while using ICT to render library services during the Covid-19 pandemic at the University of Limpopo libraries' Mankweng and Pietersburg branches

1.7 DEFINITION OF KEY CONCEPTS

1.7.1 Library personnel

The term library personnel or staff refers to all persons appointed by the library to act on its behalf. This includes library volunteers (Law Insider, 2023)

1.7.2 Library patron

Library patron means an individual or group who has paid an annual membership fee to the library for the purpose of borrowing items from the library or who enters the library physically or electronically to make use of library resources (Law Insider, 2023).

1.7.3 Electronic resources

Kenchakkanavar (2014) defines an electronic resource as a resource that requires computer access or any electronic product that delivers a collection of data, including full-text databases, electronic journals, image collections, other multimedia products and numerical, graphical or time-based products, as a commercially available title that

has been published with the aim of being marketed. These may be delivered on CD ROM, tape and online.

1.7.4 Library services

Library services are services outlined in the library in order to solve the information needs of the library users at a particular given time (Okonoko, Abubakar & Nwafor, 2022:16).

1.7.5 Library services rendering

Library service rendering refers to the provision of library materials and services manually or virtually by a particular library (IGI Global, 2023)

1.7.6 Information and communication technology

UNESCO glossary (2024) defined ICT as a diverse set of technological tools and resources used to transmit, store, create, share or exchange information.

1.8 CHAPTER OUTLINE

This section gives a summary of the chapters in the study, which are presented below.

Chapter 1: Background and motivation of the study

Chapter one presents the introduction and background to the study, problem statement, aim of the study, significance of the study, scope and definition of key concepts and chapter outline of the study.

Chapter 2: Literature review

This chapter presents the conceptualisation of the theory in the study and the review of the literature based on the objectives of the study, which were divided to subheadings.

Chapter 3: Research methodology

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

Chapter 4: Data analysis and presentation of the findings

This chapter presents data analysis and discussion of the findings. The presentation consists of the analysis for qualitative data collected from structured interviews.

Chapter 5: Summary of findings, conclusion and recommendations

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

1.10 SUMMARY

This chapter provided an overview of the study's background and motivation, highlighting the significant impact of the COVID-19 pandemic on higher education and academic libraries. It outlined the problem statement, objectives, and significance of the study, focusing on investigating the use of Information and Communication ICT for the support of library services at the University of Limpopo during the pandemic. Additionally, the chapter defined key concepts and outlined the scope of the study, setting the stage for subsequent chapters on literature review, research methodology, data analysis, and conclusions.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter covers the review of literature on the current researched topic. "Literature review means careful examination or evaluation of published information or data on a specified topic or subject" (Dlamini, 2020:16). Furthermore, Bertram and Christiansen (2017:13) define literature review as "a comprehensive overview of previous research on a subject. These publications can include print and e-journal articles, print and e-books, magazines, newspapers, and theses and dissertations. Gastel, in Dlamini (2020:16), states that "the essence of a literature review is to provide more room for a more in-depth understanding, wisdom and knowledge regarding the researched topic or subject." A literature review's objectives are to highlight significant connections or patterns, point out strengths and weaknesses, pinpoint any knowledge gaps, point out contradicting data and offer a strong foundation for a research paper's examination (Guisseppi, 2022). A literature review is important because it carefully examines the body of literature that will lead to the solution to the research question (Mogale, 2019). This indicates that it is an account, synopsis and critical assessment of various information sources concerning the study issue under investigation (Guisseppi, 2022). Moreover, according to Mogale (2019), it enables readers of the research to understand the rationale behind the choice of study topic. This chapter is developed with the following research objectives represented below, namely:

- The types of ICTs used to provide support for library services at UL libraries' Mankweng and Pietersburg branches during the Covid-19 pandemic.
- How ICT were used to render library services during the Covid-19 pandemic at UL libraries' Mankweng and Pietersburg branches.
- The perceived usefulness of ICT to render library services during the Covid-19 pandemic at UL libraries' Mankweng and Pietersburg branches.
- Attitudes of library staff and patrons towards the use of ICT in rendering library services during the Covid-19 pandemic at UL libraries' Mankweng and Pietersburg branches.

- Factors that interfere with staff and patrons while using ICT to render library services during the Covid-19 pandemic at the University of Limpopo libraries' Mankweng and Pietersburg branches.

2.2 THEORETICAL FRAMEWORK

The Technology Acceptance Model (TAM) was employed in the study. However, only two constructs were used in this study which were: perceived usefulness and attitudes towards using. The TAM provided valid and reliable measures that predict the acceptance of the usage of by patrons and staff in academic libraries technologies. Davis, (1989) developed the TAM to evaluate and understand the user's acceptance of technology. It enabled the researcher to examine the attitudes and actions of librarians and patrons, offering insightful information for enhancing ICT integrations in library services.

2.2.1 Technology Acceptance Model

Davis et al. (1989) developed the TAM to forecast societal adoption of new technology. Perceived usefulness (PU) and perceived ease of use (PEU) are the two external factors that make up the model, according to Davis et al. (1989), and they have an impact on a person's attitude and behavioural intention to utilise technology.

According to Davis et al. (1989), PU and PEU determine whether a system will be adopted by its potential users. According to this approach, users can only adopt a technology they find practical and easy to use. The following constructs make up the model:

2.2.2 Perceived usefulness

According to Davis et al. (1989), PU is the extent to which a person thinks that a certain system would improve his or her ability to perform at work. According to Jogiyanto (2007), PU is the idea that adopting technology will enhance a person's performance. When applied to the proposed study, this theory would imply that a system would need to improve UL library staff members' job performance (Mankweng and Pietersburg branches) to think it is useful. Because of this, the study aimed to determine how useful people thought ICT was for providing library services at UL's Mankweng and Pietersburg branches during the Covid-19 pandemic.

2.2.3 Perceived ease of use

According to Davis et al. (1989), PEU is the degree to which a person thinks utilising a specific system would be effortless. PEU is characterised as a state in which a person thinks using a specific technological system would not require much effort. The study investigated the various technology systems utilised by UL library employees at the Mankweng and Pietersburg branches, as well as how each group viewed PEU. In essence, the study looked into the many ICTs that UL libraries employed to offer library services.

2.2.4 Attitudes towards using

According to Davis et al. (1989), attitudes toward using (AU) refer to the broad opinion of a potential technology user. According to Muhammad and Pervaiz (2021), "attitudes" are approaches towards the use of systems that manifest as acceptance or rejection. In this study, the AU among the UL library employees (Mankweng and Pietersburg branches) as created by PU and PEU was investigated. As a result, the study investigated how library personnel and users felt about using ICT at UL libraries to provide services during the Covid-19 pandemic.

2.2.5 Behavioural intention to use

This concept is based on the idea that people's attitudes regarding technology systems can influence whether or not they plan to use those systems (Davis et al., 1989). The use or non-use of technology can be influenced by the attitudes of UL library staff and users (Mankweng and Pietersburg branches).

2.2.6 Actual system use

The point at which individuals use the technology is known as the actual system use (ASU), according to Davis et al. (1989). Favourable PU and PEU, according to Davis et al. (1989), have a favourable impact on how the system is actually used. In this study, utilisation was heavily influenced by whether UL library employees and users thought the technology was beneficial and easy to use.

2.3 TYPES OF ICTS USED TO PROVIDE LIBRARY SERVICES DURING THE COVID-19 PANDEMIC

The use of library ICTs changed during the Covid-19 pandemic; it required intense use of technologies, according to Kaminska et al. (2021). According to Kaminska et al. (2021), librarians connected with their clients via Google Meet for services like reference interviews, orientations and information sessions. A study on library services offered during the Covid-19 pandemic in India that was conducted by Dadhe and Dubey (2020) discovered that laptops and mobile devices were used for emailing since emails were heavily used to give services, including document delivery, current awareness and reference interviews. Additionally, during the Covid-19 lockdown, email was one of the best ways to provide assistance while maintaining a social distance. Many librarians valued electronic materials more during the Covid-19 pandemic lockdown, according to an Indian study on the role of library during that time (Fakiragoudar, 2021).

Patrons of the Clement C. Maxwell library at Bridgwater State University (USA) used its digital services during the Covid-19 pandemic, according to Mehta and Wang in Kaminska et al. (2021). According to these authors' statement, "some information technologies were used to inform about changes in library services for patrons, those were library's website, social media and public announcement platforms, free access to electronic resources and multimedia tutorial guides and reference services on access were offered by librarians through communication technologies such as Zoom, Microsoft Teams, LibChat or LibAnswer" (Kaminska et al., 2021:6). According to a study conducted in the USA, Online Computer Library Centre (OCLC) played a crucial role in assembling timely information when it came to putting resources together to support their communities throughout the pandemic (OCLC, 2020). The full utilisation of online resources during the pandemic, according to Martzoukou (2021:1), encouraged "information literacy training, addressing access and connectivity issues,

designing for online education, and fostering development for digital literacy of students." Furthermore, an Indian study by Kaur and Mahajan (2020) on the library and information services of the AC Joshi Library during the Covid-19 pandemic revealed that the adoption of ICT for library services was a gradual transformation that made use of platforms like Zoom, Google Meet, Cisco, WebEx, Skype and Google Duo.

According to Chidozie (2020:233), "some libraries have started publishing electronic research guides and tutorials online while integrating help content and virtual reference services into their Facebook pages and Websites since the Covid-19 pandemic." This suggests that the usage of various ICT tools in libraries' service delivery was influenced by the pandemic. Furthermore, Ameh, Ukwuoma and Oye's (2021) study on the Covid-19 pandemic and changing library and information services indicated that a lesson learnt by Nigeria was that online public access catalogues (OPAC) and remote access to databases made it easier to access information services and resources during the pandemic. Through Facebook Live or Instagram IGTV, the participants had access to services like virtual storytelling. The fact that they were using ICTs to offer their services online suggests that librarians were open to innovation. According to Shonhe (2022), it is undeniable that libraries are providing virtual reference services through a variety of platforms, but their pace of technological adoption is still quite slow. The employment of drones would be one of the perfect ways to get there because, as libraries need to broaden the types of technologies, they use drones to assist digital transformation and battle Covid-19 and to remain relevant in the 4IR (Shonhe, 2022).

A study by Ameh et al. (2021) provided a library-based model for explaining information exchange in Nigeria after taking into account the shifting dynamics in library service delivery as a result of the pandemic. The study revealed that mobile technology devices, including smartphones, netbooks, laptops, tablets and cell phones, can be used to successfully convey health information to library visitors in Nigeria. Ameh et al. (2021) suggests that libraries use mobile technologies to efficiently provide services to their customers. The potential of social media platforms like Facebook, Twitter, YouTube, LinkedIn, Skype and Google+, as well as other social tools, are now being recognised by library staff who are working to incorporate them into library services like orientation, new resource arrival, reference services, selective

dissemination of information (SDI) and customer services in general (Friday, Chidozie & Chukwuma, 2020). Libraries have been able to connect with their users through social media tools, primarily Myspace, Facebook, Twitter, LinkedIn, Delicious, Flickr, Blogs, Wikis, YouTube, Podcasts and Hi5 (Ezeani & Igwesi, 2012). This has given libraries the opportunity to take on a new role by interacting socially with users even before the pandemic.

Dube (2021) conducted a study on library staff support with the Fourth Industrial Revolution's (4IR) application to provide services during the Covid-19 pandemic and discovered that social media (Facebook, Twitter, blogs, WhatsApp and Instagram), video conferencing for meetings, training and responding to customers' clarification-seeking questions were the ICT methods used by the participants for communication and current awareness during the Covid-19 pandemic. Voicemails were used to leave messages for people who could not answer their phone immediately, as telephones were mostly utilised for communication. Additionally, according to Becker et al. (2022:59), "South African academic libraries have embraced LibGuides and made considerable contributions with a total of 2332 LibGuides by 22 academic libraries." As its use grew significantly in most libraries during the Covid-19 pandemic, LibChat was also welcomed. The extensive use of ICT technologies shows that throughout the pandemic, customers' demand for communication and information resources increased. The widespread use of ICT tools showed that throughout the pandemic, patron demand for communication and information resources soared. Despite the fact that social media were a crucial instrument for communication during the Covid-19 era, Chisita and Ngulube (2022) agree that it was also important for libraries to be sources of accurate information because social media were also found to be distracting and misinforming.

2.4 HOW ICTS WERE USED TO RENDER LIBRARY SERVICES DURING THE COVID-19 PANDEMIC

In this digital age, libraries have long used ICT to provide services to its patrons. The Covid-19 pandemic, however, caused a significant shift in utilisation patterns because manual services had to be provided virtually (Kaminska, Ksiazczak-Gronowska & Wiorogorska, 2021). Rysavay and Michalak (2020) state that ICTs enabled the Hirons

Library, Archives and Learning Centre Beacom College librarians to conduct their work remotely throughout the Covid-19 pandemic. Communication technologies (Slack, Zoom and FlipGrid), project planning tools (Notion) and file sharing tools (SharePoint) were among the ICTs mentioned. According to the NAPPLE Narratives Report (2020) social media was used to advertise story time and other library services in Germany. This implies that different ICTs were used based on how well suited they were to a certain library service.

A study on how professionals in the Gujarat State perceived their ICT abilities and the difficulties they faced using technology during the Covid-19 pandemic was undertaken by Shastri and Chadasma in 2021. They found that throughout the pandemic, library staff in Gujarat State, India, used a variety of strategies to direct customers to access online resources. These techniques included LibGuides, mobile apps for remote library login and class meetings, websites and other tools. In addition, meetings and webinars for library professionals were implemented. Libraries in Germany used ICT methods for communication and information services, including social media, mailing lists and putting information on websites (NAPPLE Narratives, 2020). All of these were essential and necessary because the Covid-19 pandemic was unanticipated and required significant skill sets and adaptations from both patrons and librarians to provide services successfully and efficiently.

As librarians continued to assist clients through email and Zoom-based sessions, ICT played a vital role in providing services during the pandemic and prevented services from becoming obsolete (Connell et al., 2021). Guo, in Molepo and Shokane (2021), conducted a survey on the usage of ICT for library services during the Covid-19 pandemic in Chinese academic libraries. The survey found that over 94% of academic libraries in China used ICT to disseminate Covid-19-related material as their services shifted from in-person to remote access. The study participant indicated that Covid-19 has changed their perspective and made them aware of the fact that the environment in which they worked was becoming more dynamic, necessitating strategic planning. In fact, Covid-19 has made ICT use in libraries necessary, and from the pandemic age to the future, ICT use had to be welcomed gradually. A study by Shonhe (2022) on Covid-19 and Africa: Perspectives indicated that the curbside pick-up was one of the virtual services provided in the majority of African nations. Curbside pick-up systems

allowed customers to request library goods virtually, check them out while they are away and then pick them up from the library's driveway.

According to a South African study by Mashiyane and Molepo (2021), academic libraries frequently employed ICTs such as telephone, email, online request forms and the "Ask a librarian" function to provide their services. Furthermore, a study on the effects of Covid-19 in libraries by Becker, Arendse, Tshetsha, Davids and Kiva-Johnson (2022) at the Cape Peninsula University of Technology found that libraries employed LibGuides as one of their crucial ICT resources during the Covid-19 lockdown. This indicates that libraries went above and beyond by using a variety of ICT methods to continue providing information services throughout the world crisis. Additionally, a study by Ndzinisa and Dlamini (2022) titled "Responsiveness vs. Accessibility: Pandemic Driven Shift to Remote Teaching and Online Learning" revealed the importance of having the right digital infrastructure, knowledge and framework, particularly in the context of the digital divide.

2.5 PERCEIVED USEFULNESS OF ICT TO RENDER LIBRARY SERVICES DURING THE COVID-19 PANDEMIC

Perceived usefulness (PU) measures how much a potential user of a technology thinks it will be helpful or can enhance the effectiveness and quality of their work (Davis, Bagozzi & Warshaw, 1989). Because of the Covid-19 pandemic, libraries are now using ICTs to provide services. However, the fact that many libraries around the world turned to ICTs during the pandemic shows that they recognise their value. During the pandemic, librarians started to adopt new technologies, such as Google Meet, to connect, according to a study by Kaminska et al. (2021), which by itself is evidence that librarians found these tools useful. A quick surge in the use of social media, electronic resources, and email, as reported by Dadhe and Dubey (2020), is another sign that library employees welcomed the extensive use of ICTs during the Covid-19 pandemic. University librarians across Asia, North America and Europe have a favourable perspective on the value of ICT, according to Chu and Du, in Banda and Chew (2022). According to an Egyptian study on the electronic management in university libraries under Covid-19 by Farag (2021), most libraries increased the number of employees they had, extended the "Ask My Office" service outside of working hours and increased the amount of time patrons could borrow from outside

service providers. By properly utilising ICT for the demands of clients throughout the Covid-19 era, all these extensions were made possible.

According to a study conducted at Jordan Academic Institution by Othman (2020) on the evaluation of digital library services during the Covid-19 pandemic, academic libraries in developed countries had previously thought that ICT tools were helpful and efficient, and the Covid-19 pandemic had only forced them to make a few adjustments, like faster internet. A study by Nurul, Kadek and Corry (2021) on the positive impact of Covid-19 mentioned that prior to the Covid-19 pandemic, many Indonesian librarians believed that information technology posed a threat and was a competitor to libraries. However, because of the pandemic, their perspectives changed and they began to use ICT extensively, as they deemed it useful. According to a study on ICT usage during Covid-19 by Lee, Malcein and Kim (2021), while ICT was helpful for library services during the pandemic, it could not replace the social aspect of libraries like physical human interaction; therefore, its usefulness in that regard was limited.

Banda and Chewe's (2022) study of social media use in libraries during the Covid-19 pandemic in the Zambia University library revealed that the use of social media and ICT presented many benefits to the delivery of library services, though skills of usage remained a challenge for librarians, as their existing systems had to be modified to accommodate remote access for all services. It took much training to give librarians the ICT skills they needed to provide good service during the Covid-19 pandemic. According to Ocks (2020), libraries and librarians are establishing their social media presence as they become more aware of social media as a crucial ICT tool. Their willingness to participate in training and education suggests that they view ICTs as helpful when providing services during the Covid-19 pandemic.

A comparable study by Lobo and Dhuri (2021) found that most participants thought that ICT resources, such as social media networking sites, had a significant impact on digital literacy and helped to connect patrons with libraries during the Covid-19 lockdown. Ocholla and Enakrire (2017) note that most library staff members were using ICTs more frequently, to provide services to users. Since the Covid-19 lockdown, in the digital era, it is appropriate to assume that librarians' opinions of the utility of ICT were largely favourable since they were aware of and appreciated their positive impact on providing library services. In addition, Banda and Chewe (2022)

found that 72% of librarians liked YouTube, 96.3% chose Facebook and 100% preferred WhatsApp. According to Dube (2021), because of Covid-19 regulations, librarians in the South African province of Gauteng were forced to adopt digital libraries and ICT since they were helpful during the pandemic.

2.6 ATTITUDES OF LIBRARY STAFF AND PATRONS TOWARDS THE USE OF ICT IN RENDERING LIBRARY SERVICES DURING THE COVID-19 PANDEMIC

Since the start of Covid-19, librarians all around the world have been displaying a range of opinions on the use of ICT to provide services. Connell et al. (2021) claim that while the majority of libraries have always had hybrid service delivery systems, during the lockdown, they were forced to rely solely on virtual systems. This shows that most libraries just needed to tweak existing systems rather than go through significant transformations. Therefore, it would be reasonable to believe that virtual services were well received. Additionally, according to a survey by Zhong (2020), 96.4% of the participants were in favour of providing services utilising ICT during the Covid-19 pandemic. Similar findings were found by Shastri and Chadasma (2021), who also found that library professionals had a favourable attitude towards the use of ICTs. They also found that 68.8% of their participants believed that the library personnel had been responsive to calls and active on social media throughout the pandemic. This suggests that during the pandemic, the crisis fostered a favourable attitude towards the use of ICT for library services.

In Idhalama (2020), Pew Research Centre found that 5.3% of American librarians believed that the internet has been a crucial help in providing library services during the Covid-19 pandemic, as virtual service delivery methods were adopted, and librarians, like other professionals, were impacted and needed to have a constructive attitude concerning the changes. According to Idhalama (2021), in Nigeria, the attitude of some librarians towards online resources has improved as a result of their ability to work from home.

Dube (2021) discovered that South African library workers who used technology to work remotely concurred that they were open to employment innovation. According to Khanya (2021), many librarians may have been eager to use ICTs to provide library services during the Covid-19 pandemic, but limiting factors like low bandwidth, which creates connectivity issues; a lack of infrastructure and a shortage of skilled staff

typically resulted in a negative attitude towards usage. According to Williams et al. (2019:482), "a new generation, called Millennial, is embracing technology and are more technologically inclined," making it easier to provide services to these clients because they live online. It would be simpler for librarians to assist them in a cheerful manner.

2.7 FACTORS THAT INTERFERE WITH STAFF AND PATRONS WHILE USING ICT TO RENDER LIBRARY SERVICES DURING THE COVID-19 PANDEMIC

ICT-based library services faced several difficulties, as revealed by research. In Shastri and Chadasma's (2021) study, 46.75% of the participants revealed that patrons' lack of ICT skills was a barrier to their ability to access e-resources, and 37.66% cited a lack of internet or slow connectivity as another obstacle. Zhou (2021) states that obstacles to using ICT to provide library services during the Covid-19 pandemic included a lack of qualified library staff, a lack of e-resources, internet problems, a lack of digital copies of enough print materials, and copyright laws that made it difficult to digitise textbooks. Additionally, Martzoukou (2021) emphasises the need to pay particular attention to the evolving role of the academic librarian in terms of the necessity for training and practice, the design of online curricula and mechanisms that will ensure their continuing personal and professional development. In turn, this will reduce many difficulties related to the use of ICT to provide library services. According to Reimers, Schleicher, Saavedra and Tuominen (2020:3), "students with access to digital devices and the internet may not be the majority in most countries" during the pandemic.

In a study on the Covid-19 pandemic and changing library and information services conducted in Nigeria by Ameh et al. (2021:84), it was discovered that libraries played a significant role for health service providers during the pandemic, "as they provided authentic news sources, databases, and links through ICT to support research and medical scientists." Service delivery is made simple by ICT, but without the right resources, it can be challenging. According to Asimah, Dzogbede and Akuba (2021), a computer or mobile device is necessary to use a digital library. Additionally, they emphasise how important having a reliable and functional internet connection is.

In developing nations, Ailakhu and Odili (2020) note that their power supply was intermittent, and libraries did not have enough funding to obtain appropriate resources

for providing services online using ICT tools. This was confirmation that it was not always guaranteed that librarians had all the necessities. The idea that some libraries had library employees who lacked the knowledge and skills necessary to effectively serve their users in the digital age was emphasised by Tella, Akande, Orim and Olayini (2018). Covid-19 and African libraries were the subject of a study by Shonhe (2022:14), which found that "African libraries were faced with numerous challenges such as lack of change management, lack of ICT literacy, inadequate ICT infrastructure, and lack of technological support, lack of clear policies, power cuts, and financial issues."

Kumah, Ocran, Osman and Parbie (2021) found that after moving many of their conventional services online during the Covid-19 lockdown, African nations such as Ghana, Nigeria, Uganda, Tanzania, Kenya, Botswana, and South Africa confronted several difficulties. They encountered weak management support, poor training on digital services for students, poor training on virtual reference services, intermittent power supply and inadequate internet access. A Namibian study by Kaisara and Bwalya (2021) found pupils struggled with network connectivity, noisy learning environments and limited access to digital tools. Despite these difficulties, the study also showed that African librarians tried to serve their clients in the given situation.

According to Makhanya (2021), libraries' lack of adequate infrastructure and resources prevented them from using ICTs to their full potential when providing services. This indicates that the Fourth Industrial Revolution and Covid-19 era in South Africa, as indicated by Mhlanga (2021), also highlighted, and entrenched the country's existing digital gap. All universities claimed that availability of computer hardware or data was a barrier to online learning during the Covid-19 pandemic, according to University of South Africa (USAF) (2020). This shows that throughout the Covid-19 era, academic libraries likewise faced difficulties in transitioning all library services to virtual methods.

2.8 SUMMARY

This chapter highlighted various studies that were conducted globally. The literature encompasses studies published both nationally and internationally. The literature indicates how ICT was used to render library services during the Covid-19 pandemic, types of ICT used to provide services at UL libraries, perceived usefulness of staff

towards the use of ICT in rendering library services and challenges experienced by UL libraries when using ICT to render library services during the Covid-19 pandemic era. This chapter also covered a discussion of the theoretical framework on which the study is based.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter discusses research methodology adopted to collect data for this study. The chapter explains the steps and/or processes that were followed and used to collect data. To address research methodology, the researcher elaborates on and discusses how the research approach, research design, population, sampling, data collection, pilot study, data analysis, quality criteria and ethical considerations were followed during research.

3.2 RESEARCH METHOD

The definition of research methodology given by Walliman and Walliman (2011) is "research methods and logical steps for how to solve a problem and achieve the proposed objectives." To accomplish the objectives of the study, the research used scientific rationale and procedures, such as research design, approach, necessary population, data gathering techniques and analysis.

There are three methods or approaches to research, namely, qualitative, quantitate and mixed method approaches. Pietkiewics and Smith (2012) in Mogale (2019) provide the difference between the two research approaches thus: "qualitative researchers are mainly concerned with meaning, that is, how individuals make sense of the world, how they experience events and what meaning the attribute to phenomena and that they are more concerned with the quality of the experience, rather than causal relationship. On the other hand, quantitative studies are more preoccupied with counting occurrences, volumes in order to carry out statistical analysis". The qualitative research method, is primarily concerned with understanding human beings' experiences in a humanistic, interpretive approach (Jackson, Drummond & Camara, 2007:21).

3.2.1 Qualitative research method

The qualitative research method of interview was adopted in this study. It was chosen in this study because it attempted to understand the participants' individual experiences and because it recorded real accounts of how UL (Mankweng and

Pietersburg branches) library personnel and patrons used ICT to provide library services during the Covid-19 pandemic through in depth semi-structured interviews of approximately 20 minutes.

3.3 RESEARCH DESIGN

According to Creswell and Plano Clark (2007:58), "a research design refers to the procedures for collecting, analysing, interpreting, and reporting data in research studies." The research design used in the study was the descriptive research design. Aiming for the most intuitive presentation possible, descriptive research includes direct study, analysis and description of the individual phenomenon (Streubert & Carpenter, 1999:49). The study examined and analysed how ICT was used for library services in UL libraries (Mankweng and Pietersburg branches) during the Covid-19 outbreak, making the descriptive research design an appropriate choice.

3.4 POPULATION AND SAMPLING

According to Heilman (2012), a study population is a group of persons from whom research findings can be formed. The two library branches' registered users and the library personnel made up the study's population. Both libraries had five employees. Two library personnel situated at the Pietersburg branch, while three were stationed in Mankweng. There were 317 registered patrons from the Mankweng branch, while the Pietersburg branch had 625 registered users. Of this populations the study used 16 participants which comprised of 2 library personnel and 14 patrons from both libraries

3.4.1 Sampling

According to Du Plooy-Cilliers, Davis and Bezuidenhout (2018:135), a sample refers to a portion of a population that is thought to be representative of the entire population. Total Population Sampling (TPS) of all five libraries personnel were used in this study. In addition, the study's sample consisted of five patrons from the Mankweng branch and ten from the Pietersburg branch. The study used purposive sampling, which involves identifying groups that are known to possess specific characteristics the researcher is interested in studying (Allen, in Williams et al., 2019). This type of

sampling was ideal for the study, as the researcher used patrons and library personnel of the health sciences libraries, which experienced the effects of the pandemic with the shift of manual services to virtual services through the use of ICT.

3.4.2 Sampling strategy

Following a sample of 10 patrons from the Pietersburg branch and five patrons from the Mankweng branch, the researcher asked the librarian to provide them with the email addresses of the patrons who were consistently using the library during the Covid 19-pandemic. Each member of the sample was sent an email asking them to take part in the study. The emails addressed to library personnel and patrons of the UL libraries included an interview guide with a consent form attached, ethical clearance certificate and a letter from the gatekeeper.

3.5 DATA COLLECTION

Data collection is the process of acquiring and evaluating relevant information variables in a predetermined systematic way that enables one to gather information and assess results (Kabir, 2016). In a qualitative study data can be collected through interviews, focus groups, observations, and oral histories. Data for the study were gathered through interviews. Face-to-face interviews were used to collect data because patron participants did not have time to view emails due to exams, and some library personnel preferred face-to-face interviews rather than online interviews due to connectivity problems. Semi-structured interviews were used to collect data. Semi-structured interviews are a qualitative research technique that, in the words of KnowHow (2018:1), "combines a predetermined set of open questions with the opportunity for the interviewer to further explore particular themes or responses." Semi-structured interviews were suitable for this study since they allowed for in-depth conversation that, if necessary, allowed the interviewer to ask follow-up questions that were not in the guide and deepened the researcher's comprehension of the subject matter (Knowhow, 2018). Each interview took approximately 20 minutes to complete.

3.5.1 Pilot study

The pilot study was conducted with two library personnel and four library patrons from the UL Turfloop main campus library before data were collected. In a pilot test, the instrument used in the study was tested with individuals who shared traits with the

intended or actual study participant (Daniel & Sam, 2011). This process involves conducting a preliminary study using all research procedures with a small sample.

A pilot study's primary goal is to test the research methodology in order to find any potential issues that would compromise the accuracy of the findings (Blessing & Chakrabarti, 2009). A pilot test was also employed by the researcher to check for instrument flaws such as repetitious and ambiguous questions, as well as potential research instrument deficiencies. The researcher first used Google Meet but the participants experienced connectivity problems. Then the researcher used face-to-face semi-structured interviews. The pilot study made the researcher realise that online interviews were not viable because of network connectivity problems and the patron participants writing their exams and not having time to check their emails when the links were sent. Consequently, the pilot study helped the researcher realise that the interviews were not going to last for 60 minutes, but only approximately 20 minutes, and it also helped the researcher to prepare and ease the nerves before conducting interviews in the hospital libraries.

3.5.2 Data analysis

According to Jansen and Warren (2020), data analysis is the process of analysing information without losing any relevance. The study used thematic data analysis, a technique for analysing qualitative data that involves looking through several data sets to find, examine and document recurring patterns (Braun & Clarke, 2006). For this study, it was the best data analysis technique because "the processes of thematic analysis have the researcher developing organisational and classification labels to describe data; it also goes further into interpretation and data transformation processes" (Kiger & Varpio, 2020:10). One way of analysing qualitative data is thematic analysis. Usually, it refers to a collection of texts, such as an interview or a transcript. It lets the researcher to carefully go over the data to find recurring themes, or subjects, ideas and meaning patterns (Braun & Clarke, 2006).

3.6 QUALITY CRITERIA

According to Creswell (2016:251-252), quality criteria are "internal quality standards used as procedures during data collection and analysis, and external quality standards serving as strategies ensuring the quality of research." The qualitative research

strategy informed the investigation. Therefore, credibility, transferability, dependability, conformability and reflexivity were used to gauge quality standards. According to the Oxford Languages Dictionary (Oxford, 2022) "the quality of being trusted and believed in" is credibility. By making it clear who did the study, why it was conducted and how data were acquired, the study established its credibility. Transferability is described as "the fact that something can be moved from one place to another" in the Oxford Languages Dictionary of 2022. It is the extent to which findings from qualitative research can be applied to different situations and participants. Constant testing and data comparison in the form of a pilot research were employed to make sure the study is transferable. The researcher was able to rephrase some of the questions to determine an estimated completion time for the interview according to the data from the pilot study. According to the Oxford Languages Dictionary (Oxford, 2022), "Dependability refers to the quality of being able to be relied upon." The study maintained dependability by using participants' data without modifying it, allowing for the drawing of true results. Oxford Languages Dictionary (2022) defines conformability is defined as "the action of making firm or sure, strengthening and settling opinions, etc." by the. To ensure that it can be verified as accurate by other researchers, the study used real data and sources. Reflexivity is the act of thinking about how one's beliefs, attitudes and behaviour affect how data are created, examined and interpreted. The research was objective, ensuring that no personal biases or beliefs would skew conclusions when data were gathered, analysed and evaluated.

3.7 ETHICAL CONSIDERATIONS

The study ensured that the research was conducted in accordance with the ethics and guiding principles set forth by the Turfloop Research Ethics Committee. This committee made sure that any study involving human subjects was carried out lawfully and ethically. To obtain authorisation to gather data, the ethical clearance certificate was obtained from the TREC and permission was granted by the executive director of library service at UL. Participant signed a consent form stating that their participation was voluntary and that the study would safeguard their identity at all times. A consent form, gatekeeper's letter and the ethical clearance certificate was sent to both the library staff members and patrons via email, and the consent was signed by the participants prior the interview.

Furthermore, the study avoided plagiarism by citing sources properly and containing a reference list of every cited source using the Harvard referencing style. Du Plooy-Cilliers et al. (2018:267) state that if “anonymity is promised, the names of participant will not be recorded at any stage of the research process.” To ensure privacy, the participants were not be asked to give their names at any stage of the interviews meaning that their identity was be protected. Du Plooy-Cilliers et al. (2018:267) explain that “confidentiality is assured through making sure that information obtained from participant will be known only to the researcher and made available to no one else.” To ensure confidentiality, the researcher restricted access to raw data obtained from participants only to authorised people, such as the researcher, supervisors and statistician. The raw data were kept in a locked safe accessible only by the researcher and the supervisor. In line with the university policy, after a period of five years, the raw data will be shredded. As pointed out by Maree (2017:47), the study has to consider ethical aspects, which include “permission to conduct the study, informed consent form, anonymity and confidentiality even online platforms, and avoidance of plagiarism.”

3.8 SUMMARY

In this chapter, the researcher described and discussed the research methodology of the study. The research approach and procedures that were used to address the research methodology of the study were discussed in this chapter. The researcher adopted the qualitative research method within a descriptive research design. Data were collected using face-to-face interviews with participants from the Mankweng and Pietersburg academic libraries. Thematic analysis was employed to analyse the data. The study observed the ethical concerns as outlined by the UL.

CHAPTER 4

DATA ANALYSIS AND PRESENTATION OF THE FINDINGS

4.1 INTRODUCTION

The previous chapter discussed structural and fundamental methodological components relevant to this study. This chapter presents analysis and interpreted data that were collected for this study in the previous chapter. Data analysis refers to the accurate examination of data collected, which is raw or unorganised to determine the useful results (Somani & Deka, 2017). All the data were collected through face-to-face semi-structured interviews from the UL hospital libraries, Mankweng and Pietersburg library branches. Library personnel and patrons were interviewed and the findings are presented and discussed following the objectives of the study, which were used as themes in this chapter.

4.2 RESPONSE RATE

The response rate of the study, which is a potential difference between participants and non-participants, is estimated by dividing the total number of participants by the sample size of the study (Molaudzi, 2020:37). Out of two library personnel who were permanently employed and experienced the Covid-19 pandemic in Pietersburg library branches and one at the Mankweng library, the researcher sampled all three the participants, but only two participated; one from each library. Out of the 15 sampled patrons from both libraries, only 14 participated, which were 10 from the Pietersburg branch and four from the Mankweng branch. The majority of the participants participated in the study. This was achieved through consistent follow-ups with participants and changing the data collection tool from virtual interviews to face-to-face interviews to avoid network problems and accommodate patrons who had no time to go through their emails due to exam preparations. The qualitative data were presented in themes.

4.3 RESULTS FROM THE LIBRARY PERSONNEL

4.3.1 Demographic Information

This section comprises data about the participants' biographical information including age, qualifications, and institutions of study, years of qualification, and years of employment at the library. The findings revealed a demographic skew towards older age groups, with participants aged between 37 and 55 years. Both participants held qualifications in information studies, one with a master's degree and the other with an honours degree, obtained from different institutions. Additionally, participants had over a decade of experience working at the library, indicating a presence of experienced personnel in the field. These factors are included in this study because they are variables that influence the usage of ICT.

4.3.2 Types of ICT used to provide library services during the Covid-19 pandemic

To determine which types of ICT was largely used by the library personnel to provide library services during the Covid-19 pandemic, the participants were asked which types of ICT they used to render library services during the Covid-19 pandemic. The findings revealed that email, Blackboard Ultra, databases, e-books and the institutional repository, the library online system, telephone and Google Meet were largely used by the libraries during the Covid-19 pandemic for library services. The following is what the participants said:

Participant 1: *"Emails became our greatest means of communication since we were working remotely and then other tools such as Google Meet, Blackboard Ultra, databases, e-books and institutional repository articles through the library online system, telephones were used when necessary."*

Participant 2: *"Emails were largely used for communication, the library system was used by our clients to access services as some services became obsolete and tools like blackboard ultra were used mostly for our training."*

4.3.2.1 ICT used for manual services that had to be offered virtually

To determine which ICT made it possible for the migration of manual services to virtual services during the Covid-19 pandemic, the participants were asked which ICT they used for manual services that had to be offered virtually. These findings revealed that the most dominant ICT tools used during the Covid-19 pandemic by both library personnel were email and telephone. This might have been due to their ease of use and minimal need for strong network connectivity. They also revealed that the Pietersburg library did not implement ways to keep their manual services from becoming obsolete during the Covid-19 pandemic. During level 5 of the pandemic, the Pietersburg library was not functional at all because most of their patrons only used the library for manual services and were well informed of the existence of online services from the university online system, which existed prior the pandemic and was never prioritised. Some claimed that they relied on their lecture notes and got access to printed books from Mankweng and the UL academic library where they could request material through email and telephone calls. They also used the library online system for renewal of library items

The following is what the participants said:

Participant 1, *“The renewal of library items was introduced to the library online system during the Covid-19 pandemic, circulation services took place telephonically where a patron would request a book and they would be given an appointment to pick it outside the library door. Reference interviews took place via emails and telephonically. Information literacy classes were offered through Blackboard Ultra and or Google Meet. The academic library also eased us by using the library online system to put the library orientation YouTube video link, Google Meet and Blackboard Ultra for information literacy classes, a tutorial video for access to the library catalogue, library inter-loans online form and added a renewal of library materials.”*

Participant 2, *“Most our patrons use the library for the printed material, access to internet and studying space and they were not allowed to use the library for such during the Covid-19 as they are students who are doing Medicine who were in close contact with patients who might be infected, so the ICT that was used had to be telephone, emails to request for books at the academic library and Mankweng and minority used the library online system for database access.”*

4.3.3 Use of ICT to render library services during Covid-19 pandemic

To ascertain whether the participants truly used ICT to render library services, the participants were asked if they used ICT to render library services. It was found that the participants used ICT to render library services.

4.3.3.1 Period of using ICT to render library services

The participants were asked for how long they have been using ICT to render library services. It was found that participants have been using ICT to render library services for more than 10 years, including during the Covid-19 pandemic. This implied that the libraries have embraced the use of ICT prior the pandemic. It also revealed that the participants had experienced emerging technologies through their years of working for the libraries.

The following is what the participants said:

Participant 1 *“ICT is nothing new in the library environment, though they have been advancing over the years and Covid-19 has caused adjustments in our library online system like current databases which are accessed through the library online system to have off campus access and the renewal of books was added in the system. But throughout my 20 years working experience, we have been using ICT in some way to serve our patrons.”*

Participant 2: *“Ever since I was employed by the library which is 13 years ago, in one way or another I have been using ICT to serve my clients. So I would say I have been using ICT to render library services for thirteen years.”*

4.3.3.2 Effects of Covid-19 to library service provision

The participants were asked how the Covid-19 pandemic affected their library service provision. The findings indicated that, initially, Covid-19 had put the participants under a lot of distress and made most manual services obsolete during level 5 of the pandemic. This led to the libraries not functioning for quite some time, which means they could not provide services to their patrons at all during that period. The Pietersburg library became functional during level 4 of the lockdown after the

repatriation of health sciences students. However, the Mankweng library became functional after the implementation of remote working, which occurred in the middle of level 5 during the period when the UL did not provide the necessary resources for the virtual migration.

The following is what the participants said:

Participant 1 *“Covid-19 was a true challenge and hindrance to our service provision process. Our library had to close during level 5 and we stopped working altogether, and soon after had to work remotely.”*

Participant 2: *“Covid-19 literally made most of our services obsolete because most of our patrons visit our library for manual services and because of that for a long period our library was not as functional.”*

4.3.3.3 Migration of Library Services from Manual to ICT during the Covid-19 Pandemic

The participants were asked to describe their experience of migration from manual ways of rendering services during the Covid-19 pandemic to ICT. It was found that at the beginning of the pandemic, the migration to ICT was challenging because the participants had to abruptly adapt to a new way of rendering library services.

The following is what the participants said: Participant 1 *“The migration was honestly tricky at first but ended up being convenient to us in a sense that it made our jobs easier and more efficient than manually.”*

Participant 2: *“Pietersburg library mostly relied on the existing library system during the Covid-19 pandemic and did not move manual services online, as most patrons prefer accessing manual services within the library space. Though the pandemic era made us realise that ICT tools are really convenient for library services.”*

4.3.3.4 Rating the use of ICT to render library services prior and during the Covid-19 pandemic

The participants were asked to rate the use of ICT for library services prior to and during the Covid-19 pandemic. It was found that participants used ICT for library

services extensively during the Covid-19 pandemic, as manual services were prohibited and had to be offered online. The following is what the participants said:

Participant 1 *“ICT was used for library services prior the pandemic, but during the pandemic, it was used extensively and at some point it was the only way to offer library services to patrons.”*

Participant 2: *“Most of our patrons prefer manual services but during the pandemic, they had no choice but to use the library system to access the services available there through the use of their personal devices. This indicates that prior the pandemic, the use of ICT for library services was minimal in our library and only intensified during the pandemic.”*

4.3.3.5 Training methods used for the effective usage of ICT to render library services

The participants were asked which training methods were used to train them to provide library services online. The participants were trained using common means by the university such as database webinars, book webinars by vendors, Blackboard Ultra training so they could train patrons through it to conduct online searches, bibliographic instruction, RefWorks, and information literacy training in how to use the library catalogue and how to access the library databases. What one could retract from the responses was that regardless of the pandemic occurring unplanned, the academic libraries took measures and had employees who were willing to rise to the occasion. These findings also demonstrated that the UL library branches were given enough training support to survive during the global crisis.

Participant 1: *“The University offered a variety of virtual trainings through blackboard ultra and vendors of online books also took it upon themselves to train us on the access of online books.”*

Participant 2: *“Training was offered to all the University of Limpopo library personnel through platforms like Blackboard Ultra and Google Meet since they can display pictures and screenshots of the library systems.”*

4.3.4 Perceived usefulness of ICT to render library services during the Covid-19 pandemic

To determine the Perceived Usefulness of ICT for library services during the Covid-19 pandemic, the participants were asked their general perceptions of the usage of ICT. It was revealed that participants actually thought ICT was the way to offer library services in this age and they were even open to more advanced technologies to improve their efficiency.

The following is what the participants said:

Participant 1: *“I was honestly concerned at first because the hospital libraries were not well resourced like the main library and ICT made things hard at first but gradually it improved the quality of my work.”*

Participant 2: *“Even though the campus branch does not use virtual services optimally, I still think they were generally useful because under the circumstances they were the most viable option for our work.”*

These findings revealed that even though the use of ICT was not prioritised equally, both the libraries perceived their use of ICT for library services as useful and convenient. The participants shared a common understanding of the importance of ICT in the LIS sector, especially the library environment.

4.3.4.1 Usefulness of ICT to render library services during the Covid-19 pandemic

To determine the Perceived Usefulness of ICT for library services during the Covid-19 pandemic, the participants were asked if they thought ICT improved the quality of their work. It was revealed that participants perceived ICT as useful and convenient for their work in all aspects. Participants depicted positive perceptions towards the use of ICT for library services during the Covid-19 pandemic.

The following is what the participants said: Participant 1: *“ ICT was useful and it improved the quality and efficiency because it reduced effort in a manner that what would take me forever to do, can be done in seconds. For example, the renewal of library materials was done by us through Sierra and our patrons had to come to the*

library for it but during the pandemic they started renewing online and that gave us space to do other work and that is very convenient.”

Participant 2: *“With the minimal work we did during the Covid-19 pandemic, I believe that ICT was beyond useful and indeed improved the quality and efficiency of the limited work we had. It was our only viable option, especially for us since the restrictions were more intense because our patrons are medical doctors in the making and dealt with infected patients.”*

4.3.5 Attitudes of library personnel towards the use of ICT in rendering library services during the Covid-19 pandemic

To discover the attitudes of the participant towards the use of ICT for library services during the Covid-19 pandemic era, participants were asked their initial attitude towards the use of ICT for library services. It was revealed that both libraries had a positive attitude towards the use of ICT for library services; however, at the Pietersburg branch, the concern was with the patrons who did not necessarily prioritise online services. These findings revealed that both the UL library branches were skilled and eager to use ICT for library services even prior the Covid-19 pandemic, which indicated a positive attitude. The following is what the participants said:

Participant 1: *“I am a generally technological savvy individual and I am open to exploring ICT in this digital age so my attitude was positive towards the online services through ICT but my main concern is that majority of my patrons have never prioritised online services even during the Covid-19 pandemic.”*

Participant 2: *“I had a very positive attitude and have always desired intensive use of ICT even prior the pandemic.”*

4.3.5.1 Acceptance of the use of ICT to render library services during the Covid-19 pandemic

To discover the attitudes and willingness of the participant towards the use of ICT for library services during the Covid-19 pandemic lockdown, participants were asked if they accepted it even though it was imposed on them by circumstances. It was revealed that irrespective of circumstances that generated the use of ICT for library services, the participants are technological savvy people who had experienced their

library's transformation through the years and have always embraced the emerging technologies.

The following is what the participants said:

Participant 1: *"I have accepted the use of ICT for library services and I am grateful that the Covid-19 pandemic era has compelled us to utilise the tools which always existed to improve our efficiency. I am even yearning for more advanced technologies because I am well aware of their existence and would like to experience them during my working years."*

Participant 2: *"I have indeed accepted the use of ICT for library services during the Covid-19 pandemic and I generally believe that library services in this age require intense use of ICT and a noble librarian has to accept and embrace them."*

4.3.6 Factors that interfere with library personnel while using ICT to render library services during the Covid-19 pandemic

To determine hindrances that might have caused hurdles in the effective and efficient provision of library services, the participants were asked to mention challenges they encountered, as they were using ICT to render library services. The findings revealed that the participants were not well resourced and equipped for using ICT to render library services at the beginning of the migration, but they did improve over time.

The following is what the participants said:

Participant 1: *"We initially had to use our personal devices and data to be able to work remotely and that was quite challenging as data is costly."*

Participant 2: *"Working remotely exposed us to connectivity problems and made us realise that in order to use ICT for library services we need more advanced and relevant ICT and proper training."*

4.3.6.1 Ways in which the mentioned challenges could have been avoided if the manual to virtual migration was planned

Participants were asked to suggest ways in which the challenges could have been avoided if the manual to virtual migration was planned. The findings revealed that the participants believed that if the migration was not enforced abruptly by Covid-19,

challenges like a lack of devices, mobile data and difficulties using new ICT tools would have been avoided, as they would have prepared properly and received intensive training. Only network connectivity would have not been avoided as they were working remotely in their homes, which were affected by load shedding and had no back-up like the physical library. These findings revealed that the use of ICT was not much of a challenge, but the state of their preparedness perpetuated the challenges encountered.

The following is what the participants said:

Participant 1: *“If the migration to virtual services was planned for and not enforced by the Covid-19 pandemic, devices and data would have been made available, proper training would have been given to the library personnel and patrons prior the migration and libraries would have invested in stronger internet connection to avoid severe connectivity problems.”*

Participant 2: *“Preparing well and getting the necessary resources would have made us avoid the challenges but since Covid-19 pandemic was unplanned the challenges occurred.”*

4.4 RESULTS FROM THE LIBRARY PATRONS

4.4.1 Demographic Information

The researcher collected demographic information of the participants to support the findings in the objectives of the study. Participants in the study provided demographic details, revealing a majority in their youth (aged 22-25), mostly female, enrolled in various programs such as MBChB, nursing, pharmaceuticals, and LLB. They had been library patrons for nearly five years, with experiences spanning pre and during the Covid 19-pandemic.

4.4.2 Types of ICT used to provide library services during the Covid-19 pandemic

To determine which types of ICT was largely used by the patrons to access library services during the Covid-19 pandemic, the participants were asked which types of ICT they used to access library services during the Covid-19 pandemic. It was

revealed that the majority of the participants used email, Blackboard Ultra, library online system, telephone and Google Meet during the Covid-19 pandemic for library services.

The following is what the participants said:

Participant 1” *“Telephone, email and definitely Blackboard Ultra.”*

Participant 2: *“Email, Google Meet, the library online system and Blackboard Ultra were my preferred ICT during the pandemic era.”*

Participant 3: *“I used a telephone and email frequently for communication and Blackboard Ultra for training.”*

Participant 4: *“I used to call or email the library on campus and Mankweng because the Pietersburg library did not operate at all during level 5 of the Covid-19 pandemic.”*

Participant 5: *“I only used the library manual services before the pandemic and because the Pietersburg library closed down during level 5 of the pandemic and did not move their manual services online, I relied mostly on material from Mankweng and the library on campus since they moved their manual services online.”*

Participant 6: *“I mostly used the library online system.”*

Participant 7: *“I only used the library manual services during level 4 of the pandemic.”*

Participant 8: *“I used a telephone and email for communication and Blackboard Ultra and Google Meet for training and the library online system for various services.”*

Participant 9: *“I used a telephone, email, Blackboard Ultra and Google Meet and the library online system for various services.”*

Participant 10: *“I only used the library manual services and I started accessing them after the end of level 5.”*

Participant 11: *“I used email, Google Meet, the library online system and Blackboard Ultra.”*

Participant 12: *“I only accessed library services after the repatriation of health sciences students and we had manual services.”*

Participant 13: *“I used a telephone, email, Blackboard Ultra and Google Meet and the library online system for various services.”*

Participant 14: *“I used the library online system mostly for my information needs.”*

4.4.2.1 ICT used for manual services that had to be offered virtually

To determine which ICTs made it possible for the migration of manual services to virtual services during the Covid-19 pandemic, the participants were asked which ICTs they used for manual services that had to be offered virtually. It was revealed that email, Blackboard Ultra, library online system, telephone and Google Meet were largely used by the libraries during the Covid-19 pandemic for library services, especially for manual services such as renewal of library items, circulation services and information literacy training.

The following is what the participants said:

Participant 1: *“Telephones were used for reference interviews and blackboard-ultra for information literacy.”*

Participant 2: *“Emails and telephones were used for reference interviews and circulation services, Google Meet and Blackboard Ultra were used for information literacy sessions and the library online system was used for the renewal of library materials.”*

Participant 3: *“I used a telephone and email frequently for communication and Blackboard Ultra for training.”*

Participant 4: *“I only used the library manual services during level 4 but I am aware that the library online system was one of the most helpful ICT tools.”*

Participant 5: *“I started accessing library services after the manual services were made available manually again.”*

Participant 6: *“I mostly used the library online system for renewal of library material.”*

Participant 7: *“I only used the library manual services which only became available at the end of level 5 pandemic.”*

Participant 8: *“I used a telephone and email for communication and blackboard-ultra and google meet for training and the library online system for various services.”*

Participant 9: *“I used a telephone, email, Blackboard Ultra and Google Meet and the library online system for various services.”*

Participant 10: *“I prefer manual services, so I had no interest in accessing them online though I know it required the use of laptops and or mobile devices as it was online.”*

Participant 11: *“I used email, Google Meet, the library online system and Blackboard Ultra.”*

Participant 12: *“I only used the library manual services but I know the library online system was a viable option for manual services.”*

Participant 13: *“I used a telephone, email, Blackboard Ultra and Google Meet and the library online system for various services.”*

Participant 14: *“I used the library online system mostly for my information needs and I hardly even went to the library physically prior the pandemic, so I did not really find out on which ICT tools were used for manual services.”*

These findings revealed that the prior the Covid-19 pandemic, the university libraries had an online system that was of good use during the pandemic. It also revealed that regardless of resources being made available, the patrons continued to utilise the services they preferred.

4.4.3 How ICTs were used to access library services during the Covid-19 pandemic

To determine the use of ICT to access library services, participants were asked about their use of ICT in general. It was revealed that the participants used ICT to access library services in various ways. The majority of the participants from the Pietersburg library branch did not use ICT optimally to access library services during the Covid-19 pandemic, but the minority still used the university online system; however, participants from the Mankweng branch embraced the virtual services.

The following is what the participants said:

Participant 1: *“Yes, since I prefer using the library online system to access databases I have to use ICT.”*

Participant 2: *“Yes”*

Participant 3: *“Yes I do.”*

Participant 4: *“Yeah I use ICT to access library services.”*

Participant 5: *“Of course I do, occasionally though.”*

Participant 6: *“No.”*

Participant 7: *“Not really, I mostly visit the library for its quite studying space.”*

Participant 8: *“No, I am more of a traditional user of the library, meaning that I use printed collections, the studying space and fast internet.”*

Participant 9: *“Not entirely.”*

Participant 10: *“No”*

Participant 11: *“Yes, everything in this age requires the use of ICT in some way.”*

Participant 12: *“Yes, mostly for the renewal of printed material through the library online system and nothing beyond that.”*

Participant 13: *“Yes, not specific services though and only when it’s necessary.”*

Participant 14: *“Yes”*

4.4.3.1 Period of using ICT to access library services

The participants were asked for how long they have been using ICT to access library services. It was found that the majority of the participants have been using ICT to access library services for over five years, including the Covid-19 pandemic lockdown. However, the usage of the patrons from Pietersburg was minimal but throughout their years of being library members, they have accessed library services occasionally. This implied that the participants have been aware of and have embraced the use of ICT prior the pandemic.

The following is what the participants said:

Participant 1 *“I would say I have been using ICT for over 5 years now.”*

Participant 2: *“For as long as I have been a library user which is close to 5 years I have been using ICT.”*

Participant 3: *“I honestly started accessing online library services during the Covid-19 pandemic.”*

Participant 4: *“I would say for over 5 years.”*

Participant 5: *“Approximately six years, I have been accessing databases and e-books online ever since I registered and what I noticed was new during the Covid-19 pandemic was the off-campus access of databases and the renewal of library materials.”*

Participant 6: *“From 2019 even though it’s occasional use. “*

Participant 7: *“5 years.”*

Participant 8: *“I have been using ICT to access library services for 3 years now.”*

Participant 9: *“I have been using ICT to access library services close to 4 years.”*

Participant 10: *“5 years.”*

Participant 11: *“It has been 5 years now.”*

Participant 12: *“3 years.”*

Participant 13: *“It has approximately 5 years now.”*

Participant 14: *“4 years.”*

4.4.3.2 Effects of Covid-19 to library service access

The participants were asked how the Covid-19 pandemic affected their access to library services. It was revealed that the majority of the participants experienced a severe disruption of access to library services during the level 5 lockdown. It was also found that before the implementation of online services, the libraries were not functional at all and that caused a huge distress to the participants.

The following is what the participants said:

Participant 1: *“The Covid-19 pandemic disrupted access to library services severely as during level 5 of the lockdown the library was not functional at all.”*

Participant 2: *“The pandemic really caused a panic and some kind of passiveness in terms of accessing library services using ICT, as a lot of this changes required adjusting.”*

Participant 3: *“The Covid-19 pandemic disrupted manual services and caused them to be migrated online.”*

Participant 4: *“Covid-19 simply made library services obsolete in our library.”*

Participant 5: *“The Covid-19 pandemic was simply negative in a sense that it changed the dynamics of the library.”*

Participant 6: *“The pandemic disturbed the access to library services initially, but later transformed the access to services into something really convenient.”*

Participant 7: *“The pandemic necessitated intense use of ICT which was a step into the right direction.”*

Participant 8: *“The Covid-19 pandemic did not only have negative effects in the library services but also served as a catalyst which speeds up the optimal use of ICT for library services.”*

Participant 9: *“The restrictions of Covid-19 pandemic were too harsh and they made it impossible for some time to access library services.”*

Participant 10: *“To me Covid-19 eliminated the library services until the repatriation of health sciences students during level 4 of the pandemic”.*

Participant 11: *“As a person who prefers printed books and the physical space of the library, the level 5 pandemic to me meant that my preferred services will no longer be offered.”*

Participant 12: *“Initially the Covid-19 had a negative impact over library services but overtime the library implemented ways to exist during the crisis.”*

Participant 13: *“The pandemic limited my access to library services.”*

Participant 14: *“Covid-19 made the library adjust their services well and suit this current digital era.”*

4.4.3.3 Migration of Library Services from Manual to ICT during the Covid-19 Pandemic

The participants were asked to describe their manual to ICT migration experience of accessing services during the Covid-19 pandemic. It was found that the majority of the participants from the Mankweng library experienced many challenges at the beginning of the pandemic because they were used to some services being offered manually. Adapting was a process, but, eventually, it became convenient for them. However, the majority of participants from Pietersburg claimed that their manual services simply became obsolete.

The following is what the participants said:

Participant 1: *“I honestly started using library services again after the repatriation of health sciences students.”*

Participant 2: *“Manual services were never migrated to online in our library; the only online services I accessed were the ones I always accessed online through the library online system.”*

Participant 3: *“I personally did not experience that migration in our library but I know the main library and Mankweng library ventured in something like that.”*

Participant 4: *“The migration was frustrating at first but we got used to online services using ICT.”*

Participant 5: *“The beauty of not having to rush to the library for a minor thing like renewal of library materials made me realise that the migration was a development I have been yearning for forever.”*

Participant 6: *“It was unusual at first but after accepting my fate and embracing the new normal, the migration of manual services was no longer a burden to me.”*

Participant 7: *“The Pietersburg branch library started operating after the repatriation of health sciences students during level 4 and never migrated their manual services.”*

Participant 8: *“Well, the migration never took place in the Pietersburg library but we were well aware that the main library on campus and the Mankweng library offered manual services online which also catered for our needs.”*

Participant 9: *“Manual services were never migrated to online in our library.”*

Participant 10: *“Manual services were never migrated to online in our library.”*

Participant 11: *“Manual services were never migrated to online in our library.”*

Participant 12: *“Manual services were never migrated to online in our library.”*

Participant 13: *“As a person who loves technology, I enjoyed the shift from manual to virtual services of library services using ICT.”*

Participant 14: *“Manual services were never migrated to online in our library.”*

4.4.3.4 Rating the use of ICT to access library services prior and during the Covid-19 pandemic

The participants were asked to rate their use of ICT for library services prior to and during the Covid-19 pandemic. It was revealed that the majority of the participants used ICT for library services extensively during the Covid-19 pandemic, as manual services were prohibited and had to be offered online.

The following is what the participants said:

Participant 1: *“Prior the pandemic it was minimal and during the pandemic it became extensive.”*

Participant 2: *“Prior the pandemic I used ICT less to access library services but during the Covid-19 I used them more.”*

Participant 3: *“The pandemic prompted me to use more for library services than before.”*

Participant 4: *“Prior the pandemic I used ICT less to access library services but during the Covid-19, I used them more as at some point they were the only way.”*

Participant 5: *“Prior the pandemic I did not use much ICT to access library services but during the pandemic I had to learn to use them”*

Participant 6: *“I only use the library for manual services.”*

Participant 7: *“I only used the library for manual services.”*

Participant 8: *“I only used the library for manual services.”*

Participant 9: *“My interest for library online services only developed after the pandemic era, where most users had figured the new normal out.”*

Participant 10: *“Before the pandemic I did not use ICT to access library services because I could simply go there at any given moment but the pandemic left me with no choice.”*

Participant 11: *“It went from occasional to frequent use of ICT.”*

Participant 12: *“I only used the library for manual services.”*

Participant 13: *“Prior the pandemic, I used them less and during the pandemic it was more or less the same to me.”*

Participant 14: *“I only used the library for manual services.”*

4.4.3.5 Training methods used for the effective usage of ICT to access library services

The participants were asked which training methods were used to train them to access library services online. The majority of the participants were trained using common means by the university such as Blackboard Ultra and Google Meet so that they would be able to conduct online searches, bibliographic instruction, RefWorks and information literacy training in how to use the library catalogue and how to access the library databases. The responses implied that regardless of the pandemic occurring unplanned, the academic libraries took measures to equip their patrons with the necessary tools under the circumstances. However, some patrons who had registered before 2020, did not attend the training, as it was offered face to face prior the pandemic, and others from Pietersburg library were simply not interested in online services and training.

The following is what the participants said:

Participant 1: *"I received a lot of PowerPoint presentation slides via my student mail which served as step by step guide to access library services online."*

Participant 2: *"I first registered for my degree two years prior the pandemic and I received all the necessary information literacy lessons which enabled me to have access a soon as the library services were made available during the pandemic."*

Participant 3: *"During the pandemic I used to receive a lot of emails from the library which were supposed to guide me how to access library services online especially e-books but I hardly payed attention to them as I preferred to call and request for printed material or just rely upon my lecturers who availed most of our textbooks online through WhatsApp."*

Participant 4: *"Blackboard-ultra was used to train us to access library services online using ICT during the Covid-19 pandemic and the links to the training sessions were sent through our student emails."*

Participant 5: *"Training sessions took place through blackboard-ultra, power point step by step guide videos and Google Meet."*

Participant 6: *"I had no mobile device at the time, so even when training sessions were made available, I could not access them because the only time the lend me one at home I had to prioritize getting notes."*

Participant 7: *"I did not attend training."*

Participant 8: *"I did not attend training."*

Participant 9: *"I had previously received training manually a year before the pandemic took place so I saw no need to repeat the same training online."*

Participant 10: *"I enjoyed the training for use of ICT to access library services during the pandemic because it was really convenient and should have been implemented earlier because one could access it at the comfort of their space through Blackboard Ultra."*

Participant 11: *"I adapt easily to online systems so I did not see a need for training."*

Participant 12: *“The library online system added a platform for training which included details of librarians who offered bibliographic instruction sessions, database access guidelines, library catalogue tutorial video and library orientation YouTube link, which was helpful for every information need.”*

Participant 13: *Training sessions took place through blackboard-ultra, PowerPoint step-by-step guide videos and Google Meet.”*

Participant 14: *“I was well aware of the training sessions that were offered, but I was simply not interested.”*

These findings revealed that there was still a lot of work to be done to market and promote library e-resources, because there was awareness but usage was still minimal, even during the pandemic where services were accessed virtually

4.4.4 Perceived usefulness of ICT to access library services during the Covid-19 pandemic

To determine the perceived usefulness of ICT for library services during the Covid-19 pandemic, the participants were asked their general perceptions of the usage of ICT for library services. It was revealed that majority of the participants thought that the use of ICT for library services is convenient than manual services.

The following is what the participants said: Participant 1: *“Honestly, my general impression about the use of ICT to access library is that it was truly a good and impressive move because of its convenience.”*

Participant 2: *“The use of ICT for library services initially worried me but as time went by, I realised that it was actually the change we have been waiting for.”*

Participant 3: *“I simply loved the use of ICT for library services.”*

Participant 4: *“I thought it was a convenient way of accessing library services, even though I did not entirely embrace them.”*

Participant 5: *“I thought it would be impossible to access library services using ICT as some services have normally been offered manually for years, hence I did not initially embrace them.”*

Participant 6: *“Because of my lack of understanding initially, I despised the use of ICT to access library services but came to understand them over time.”*

Participant 7: *“I thought they were a great idea under the circumstances.”*

Participant 8: *“I simply thought a step to the right direction is finally taking place.”*

Participant 9: *“I felt like the pandemic has opened possibilities of making libraries more convenient.”*

Participant 10: *“I was pleased and thought it was a great idea.”*

Participant 11: *“I did not use the online services optimally but knowing that I can access them at the comfort of my own space and time truly pleased me.”*

Participant 12: *“Deep down, I thought to that an era of convenience has arrived.”*

Participant 13: *“I thought that even though we were not ready for the migration, it was the digital age and most of us already are part of the social media communities and this was just a step to the right direction and I also believe that ICT access of library services was truly more convenient.”*

Participant 14: *“I honestly thought that the use of ICT for library services was ideal but I acknowledged that to some of us it was no necessity.”*

4.4.4.1 Usefulness of ICT to access library services during the Covid-19 pandemic

To determine the usefulness of ICT to access library services during the Covid-19 pandemic, the participants were asked if they thought ICT improved the quality of their access to services. It was revealed that most of the participants perceived them as useful and convenient for their access to library services, as they are not limited by space and time. Most participants from the Pietersburg branch mentioned that they did not prioritise the use of ICT to access library services during the Covid-19 pandemic; however, most participants from the Mankweng branch perceived the use of ICT to access library services as useful as they embraced the use. Participants depicted positive perceptions towards the use of ICT for library services during the Covid-19 pandemic.

The following is what the participants said:

Participant 1: *“Honestly, my general impression about the use of ICT to access library is that it was truly useful and convenient.”*

Participant 2: *“The use of ICT for library services was useful and improved efficiency in our access to library services.”*

Participant 3: *“I simply loved the use of ICT for library services because I find it convenient.”*

Participant 4: *“I thought it was a convenient way of accessing library services, even though I did not entirely embrace them but I deemed them useful.”*

Participant 5: *“I personally think the usage of ICT was a constructive initiative to help promote access even though I did hardly accessed services.”*

Participant 6: *“Because of my lack of understanding initially, I despised the use of ICT to access library services but came to understand them over time and saw their usefulness.”*

Participant 7: *“I believe that the use of ICT to access library services was ideal and pushed us both as patrons and librarians to use our potential and explore ICT in ways that we did not bother to try all these years.”*

Participant 8: *“I simply thought a step to the right direction is finally taking place and that means I perceived them as useful and thought they improved my quality to access library services.”*

Participant 9: *“I believe that the pandemic has opened possibilities of making libraries more convenient and improving the quality of their services through efficiency.”*

Participant 10: *“I think they were useful and did improved our access to library services.”*

Participant 11: *“I did not use the online services optimally but knowing that I can access them at the comfort of my own space and time especially under the Covid-19 critical times.”*

Participant 12: *“Deep down, I thought to that an era of convenience has arrived because I knew the usefulness of ICT for library services during that time.”*

Participant 13: *“I thought that even though we were not ready for the migration, it was the digital age and most of us already are part of the social media communities and this was just a step to the right direction and I also believe that ICT access of library services was truly more convenient.”*

Participant 14: *“I honestly thought that the library was burdening itself with all these things because some of us relied on lecture notes.”*

The respondent’s motivation shares similar characteristics with the TAM theory that motivation for one to use ICT is determined by the individual’s perceived usefulness of the tool and ease of use.

4.4.5 Attitudes of library patrons towards the use of ICT in accessing library services during the Covid-19 pandemic

To determine the attitude of participants towards the use of ICT in accessing library services, participants were asked their initial attitude. The majority of the participant from the Pietersburg library branch did not depict a positive attitude towards the use of ICT to access library services during the Covid-19 lockdown, as they believed that manual services were not going to be offered properly online and did not bother trying. However, the majority of the participants from Mankweng had a positive attitude and accepted the use of ICT for library services.

The following is what the participants said:

Participant 1: *“My attitude towards the use of ICT for accessing library was positive throughout the Covid-19 pandemic.”*

Participant 2: *“My initial attitude was not as positive but it changed overtime as I saw how ideal ICT was for library services during that era.”*

Participant 3: *“I had a positive attitude because I am a believer of development and transformation.”*

Participant 4: *“My attitude was negative; I simply did not want to accept the new normal.”*

Participant 5: *“My attitude was negative. I thought all the solutions implemented by the university to save the academic year will fail because ever since I registered at UL almost everything has been manual. From registrations, to assessments and most library services, hence my attitude was negative.”*

Participant 6: *“My attitude was negative because I am naturally resistant to change, so changing from manual to ICT access to library services was also not going to be embraced easily by me.”*

Participant 7: *“I think the use of ICT for access to library services was an ideal strategy and with or without training most of us already use technology for all aspect of our lives without training and we simply adapt.”*

Participant 8: *“I was looking forward to the first online service experience because I was excited.”*

Participant 9: *“My initial attitude was positive because I knew that ICT was going to avail library services online especially manual services.”*

Participant 10: *“My attitude was negative because I just knew that my favourite services which include access to the library Wi-Fi and library studying space were going to be obsolete either way.”*

Participant 11: *“I feel like I did not embrace the use of ICT for library services because the pandemic was just a discouraging space to be in and I thought it would be impossible to adjust to so much changes and restrictions.”*

Participant 12: *“Services like circulation services and information literacy training were better physically and I did not see myself accessing them online and I kept that attitude throughout until the day of repatriation.”*

Participant 13: *“I firmly believe that there are no library services without the library and an online space can never replace the library.”*

Participant 14: *“I had the most positive attitude.”*

4.4.5.1 Acceptance of the use of ICT to access library services during the Covid- 19 pandemic

To discover the willingness of the participants towards the use of ICT for library services during the Covid-19 pandemic, participants were asked if they accepted it even though it was imposed on them by circumstances. It was revealed that irrespective of the Covid-19 pandemic that generated the use of ICT for library services, the majority of the participants were people who were eager to use ICT for library services.

The following is what the participants said: Participant 1:

“Yes, I did.”

Participant 2: *“Yes”*

Participant 3: *“Definitely”*

Participant 4: *“We had no choice but deep down I knew acceptance was key, so yes.”*

Participant 5: *“Of course I did.”*

Participant 6: *“Yes, I accepted the use of ICT for library services.”*

Participant 7: *“No, I am a typical traditional library user.”*

Participant 8: *“Yes”*

Participant 9: *“Yeah”*

Participant 10: *“Not entirely”*

Participant 11: *“I did not fully accept then use of ICT for library services.”*

Participant 12: *“To a certain extent, I did, or should I say, for some services.”*

Participant 13: *“Yeah I did”*

Participant 14: *“Yes”*

These findings revealed that the acceptance of participants varied and preference of the platforms they preferred to access library services was vital in this aspect. As much

as they have varying attitudes, they still acknowledged that ICT make library services convenient.

4.4.6 Factors that interfere with patrons while using ICT to access library services during the Covid-19 pandemic

Participants were asked to mention challenges experienced when accessing library services using ICT. The majority of the participants from both the libraries complained about connectivity problems, especially during power cuts, a lack of access to data and devices during level 5 lockdown, and limited skills to access library services.

The following is what the participants said:

Participant 1: *“Accessing library services online was challenging, especially for those of us who come from villages who experienced load shedding.”*

Participant 2: *“Accessing library services online during the pandemic was challenging for me because I was a first entering student who had no laptop and mobile device.”*

Participant 3: *“Accessing library services online during the pandemic required us to have data and at the beginning of lockdown we were not provided for, so we had to buy data which is very costly.”*

Participant 4: *“Accessing library services remotely subjected connectivity problems, it made me hate the new normal which compelled us to adapt to ICT.”*

Participant 5: *“Connectivity problems especially during load shedding were a huge hindrance to my access to library services during the Covid-19 pandemic.”*

Participant 6: *“Having to adjust from manual to online ways of accessing every library service was personally very challenging.”*

Participant 7: *“Having to buy data frequently as a student was a huge financial burden.”*

Participant 8: *“Load shedding made connectivity really poor.”*

Participant 9: *“Accessing library services online was challenging for me because I am not a technological savvy person, even though the academia requires me to be.”*

Participant 10: *“Google Meet, Blackboard Ultra, the library online systems consume a lot of data so even when the university started offering data to the students, and it was still not enough.”*

Participant 11: *“Load shedding made connectivity really poor and that made remote access close to impossible.”*

Participant 12: *“Laptops were only issued from the level 4 of the pandemic, meaning that for some of us there it was a challenge to simply access library services online.”*

Participant 13: *“For me a challenge that I experienced often was poor network connectivity and it deprived me from accessing most services.”*

Participant 14: *“Challenges that I experienced when accessing library services online using ICT included network connectivity, load shedding, insufficient data, lack of access to functional devices.”*

4.4.6.1 Ways in which the mentioned challenges could have been avoided if the manual to virtual migration was planned

Participants were asked to suggest ways in which the challenges could have been avoided if the manual to virtual migration had been planned. The majority of the patrons from Mankweng suggested that thorough preparation, which includes access to devices, data and training would have eased the challenges if the migration had been planned. However, participants from Pietersburg suggested that if the migration had been planned, training was supposed to be offered face to face where trainers can see the body language of their patrons and could tell easily when they do not understand something.

The following is what the participants said:

Participant 1: *“There was no way load shedding could have been avoided, especially in rural areas.”*

Participant 2: *“If the manual to virtual migration was planned for, the university could have provided devices on time.”*

Participant 3: *“If the manual to virtual migration was planned for, data could have been provided on time.”*

Participant 4: *“If the migration was planned for, the network issue could still not be avoided for patrons as they are from different locations with different network coverage.”*

Participant 5: *“If the migration was planned for, connectivity problems would have been avoided by investing in devices and or routers and modems with stronger internet connection.”*

Participant 6: *“If the migration from manual to virtual access to library services was planned for, training would have been offered prior the pandemic to avoid sudden adjustments.”*

Participant 7: *“If the migration was planned for, data was going to be provided before.”*

Participant 8: *“Adapting to sudden change does not come naturally for some of us. If the migration was prepared for, manual training access to library services using ICT would have been ideal to equip us with the necessary skills.”*

Participant 9: *“If the migration was planned for patrons who are not technological savvy like me would have been prepared thoroughly for the migration.”*

Participant 10: *“If the migration was planned for, the universities would be informed early how much frequently used ICT tools consume data and they would have offered enough data or found alternative platforms to offer services online.”*

Participant 11: *“If the migration was planned for load shedding would obviously not be avoided but maybe we would be advised to get into sessions of the time slots that best suit us.”*

Participant 12: *“If the migration was planned for, laptops and mobile devices would have been issued early or before the migration. I also believe that proper training before would have made us mentally prepared and more accepting of the migration.”*

Participant 13: *“If the migration was planned for I would have probably known which spots in my community allow network connectivity so that when I experience poor connectivity, I will know where to go.”*

Participant 14: *“Most of us only had access to devices after level 5 lockdown and those of us who had devices, could not afford data to access online services, if the migration was prepared access to data and devices could have been sorted on time.”*

These findings indicated that migration of services require proper preparation and should not be done hastily. However, the cases of the libraries were severe and they were only complying with laws and responding to the global crisis in a manner that would curb the spread of Covid-19.

4.5 SUMMARY

This chapter presented, categorised and analysed the findings collected through semi-structured face-to-face interviews from the UL Mankweng and Pietersburg library branches. The first section covered the results obtained from the library personnel and the second section covered the results obtained from the library patrons. The next chapter is about a summary of the findings, conclusion and recommendations of the study.

GCHAPTER 5

FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

The previous chapter presented, analysed and interpreted data of the study. The purpose of this chapter is to discuss the findings of the study and to discuss suggestions based on the findings. This chapter is divided into re-statement of the objectives of the study, summary of the major findings, conclusions and suggestions that can be derived from the findings of the study.

5.2 AIM AND OBJECTIVES

This study sought to investigate the use of information and communication technology ICT for library services at UL (Mankweng and Pietersburg branches) during the Covid-19 pandemic. This chapter provides the discussion of the study findings, with the aim of addressing the following research objectives which guided this study:

- The types of ICT used to provide support for library services at UL libraries' Mankweng and Pietersburg branches during the Covid-19 pandemic.
- How ICT were used to render library services during the Covid-19 pandemic at UL libraries' Mankweng and Pietersburg branches.
- The perceived usefulness of ICT to render library services during the Covid-19 pandemic at UL libraries' Mankweng and Pietersburg branches.
- Attitudes of library staff and patrons towards the use of ICT in rendering library services during the Covid-19 pandemic at UL libraries' Mankweng and Pietersburg branches.
- Factors that interfere with staff and patrons while using ICT to render library services during the Covid-19 pandemic at the University of Limpopo libraries' Mankweng and Pietersburg branches.

5.3 DEMOGRAPHICS OF THE PARTICIPANTS

5.3.1. Age

This section responds to both datasets. The findings revealed that the library personnel participants' age range was 37 to 55 years. The patrons' age range was 22

to 25. Kropf, in Molaudzi's (2020), study mentioned that older individuals may refuse to try new technologies, while younger individuals are more open to trying to work with them. The researcher believed that both the library personnel and the library patrons were within the age of technological savvy people and have been part of the revolution that comes with the digital age in different sectors, including the libraries.

5.3.2 Gender

This section responds to library patrons' dataset. The findings revealed that the majority of the library patron participants were female. The researcher established that there were more females registered in the Faculty of Health Sciences than males because most participants in the libraries were female. Furthermore, Motlhake (2021) highlights that it is also confirmed by the Public Higher Education Vital Statistics of 2016 that there are more females than males in higher education institutions in South Africa.

5.3.3 Qualifications/Programmes for which the participants have obtained and are registered

This section responds to both datasets. The findings revealed that one participant, who was a library staff member, held a master's degree in library and information science and another held an honours degree in information studies. Ary et al. (2020) express that the usage of ICT facilities is often higher among the better-educated society group. This explains their attitude towards them and the openness to even have more advanced technologies in their libraries. Most of the patron participants were registered in the Faculty of Health Sciences for the qualifications such as Bachelor of Medicine (MBChB), nursing, pharmacology and few were registered for Bachelor of Laws (LLB). Health science libraries serving universities and medical facilities have long used technology to provide library services (Pope, 2023). Similarly, the Pietersburg and Mankweng libraries were not any different from any of those health sciences libraries that have been using ICT to provide library services to their patrons who, at times, are not just health sciences students but students in different faculties registered with the UL. The researcher found that the UL library branches had highly qualified library personnel during the pandemic, which was an advantage because new technologies and upgrades to existing systems require users to be at least literate to be able to read and understand instructions.

5.3.4 Institution where highest qualifications were obtained

This section responds to the library personnel dataset. The findings revealed that one of the library personnel participants obtained their highest qualifications at UNISA and the other at the UL. South Africa has a total of 26 universities and each university has an academic library that supports their teaching, learning and research activities with printed resources and online resources (Mashiyane and Molepo, 2021). This means that whether a participant has obtained their qualifications at the UL or not, they were exposed to the use of ICT for library services at the South African institution which they attended. The researcher believes that the UL library branches were made up of staff who obtained their qualifications from different institutions and during their years of studying, they were exposed to the use of ICT.

5.3.5 Year in which highest qualifications were obtained

This section responds to the library personnel dataset. It was revealed that one of the library personnel obtained their highest qualification in 2018 and another in 2006. This implied that the library personnel participants were technology savvy, as the years in which they completed their studies were already in the age when technologies were embraced in different sectors.

5.3.6 Period of employment/membership in the library

This section responds to both datasets. The findings revealed that the library personnel have been employed by the library for over 10 years. The majority of the library patrons have been members for over 10 years. Similarly, a study on social media and the provision of information services at the UL by Mogale (2019) revealed that the library was dominated by more experienced employees, as most of the respondents had more than eight years of experience. The researcher established that the library personnel were exceptional candidates because their qualifications were complemented by a huge number years of experience.

5.4 MAJOR FINDINGS

5.4.1 Types of ICTs used to provide library services during the Covid-19 pandemic

This section respond to both datasets. The findings revealed that the library personnel used Google Meet, Blackboard Ultra, databases, e-books, institutional repository articles through the use library online system, emails and phone calls during the Covid-19 pandemic for rendering library services. Likewise, the majority of the library patrons used emails, telephones, Blackboard Ultra, Google Meet and the library online system to access library services during the Covid-19 pandemic. Similarly, in the United States, many libraries relied heavily on virtual platforms, such as Zoom and Microsoft Teams, to conduct online programmes, workshops and virtual book clubs, ensuring community engagement despite physical closures (American Library Association, 2021). In Africa, particularly in countries like Kenya and Nigeria, libraries leveraged mobile technologies to disseminate information, such as COVID-19 guidelines, and utilised social media platforms to connect with patrons and share digital resources (Ocholla, 2020; Lawal, 2021). Obim (2023) highlights that in Nigeria, Zoom, email and social media were common ICT tools used during the Covid-19 pandemic. Moreover, Nurul et al. (2021) emphasise that social media and digital technology were extensively used for library services during the Covid-19 pandemic. In South Africa, libraries adopted Radio-Frequency Identification (RFID) technology for contactless book borrowing and implemented online cataloguing systems to facilitate remote access to their collections (South African Library for the Blind (SALB), 2020). These examples demonstrate the global shift towards technology adoption in libraries during the pandemic, with each region adapting ICT tools based on their specific needs and available resources.

5.4.1.1 ICT used for manual services that had to be rendered and accessed virtually during the Covid-19 pandemic

The findings respond to both datasets. It was revealed that the library personnel had to use the library online system for the library orientation YouTube video link, Google Meet and Blackboard Ultra for information literacy classes, a tutorial video for access to the library catalogue, library inter-loans online form and a renewal of library

materials. Bibliographic instructions sessions and information literacy sessions were also rendered virtually through Blackboard Ultra and Google Meet. The majority of the library patrons revealed that they used the library online system for most manual services offered virtually, while some relied on Blackboard Ultra for information literacy sessions and others from Pietersburg did not access manual services virtually during the pandemic. During the Covid-19 pandemic, libraries worldwide had to adapt their manual services to virtual platforms, leveraging various ICTs to ensure continued access to resources.

In the United States, an article by Bourg (2020), Director of Libraries at MIT, highlighted the importance of virtual reference services, digital collections and online collaboration tools to maintain library services remotely. Sagar and Ghogare (2021) opine that the digitising of printed material was a crucial service, as students relied on some material for their academics. In Nigeria, Chidozie (2020) emphasised the use of online databases, e-books and virtual assistance to bridge the physical gap caused by lockdowns and restrictions on library access. Abdullahi (2023) highlights that sub-Saharan African countries implemented virtual library programmes and events to keep their services running during the Covid-19 pandemic. Dube (2021) discussed the implementation of virtual library orientations, webinars and electronic document delivery services to facilitate remote access for patrons. These insights from various sources show the reliance on ICT to transform traditional manual library services into virtual offerings during the challenging circumstances posed by the pandemic.

5.4.2 How ICTs were used to render library services during the Covid-19 pandemic

This section responds to both datasets. The findings revealed that the library personnel used ICT for library services during the Covid-19 pandemic; however, the Pietersburg branch did not use them optimally due to their patrons not embracing them fully. The majority of library patrons from the Mankweng library used ICT to access library services during the Covid-19 pandemic; however, Pietersburg patrons did not embrace the use of ICT that much, as most of them claimed that they had always used the library for the study space and printed materials before the pandemic. Some claimed that during level 5 of the Covid-19 lockdown, they did not access library services at all while others said that they accessed online services from the academic

library branch and the Mankweng library branch. Libraries globally prioritised the use of ICT for delivering their services. In the United States, libraries enhanced their existing digital offerings by providing virtual programs and increasing access to e-resources (American Library Association, 2020). An Indonesian study on the positive impacts of Covid-19 by Nurul et al. (2021) highlighted that without the use of ICT, services like book lending would have not been available during the pandemic because the online system which was used for requesting books required the use of ICT. A Tanzanian study at the Muhimbili University of Health and Allied Sciences by Sukums, Wamala-Larsson and Kisenge (2023) mentioned that the use of ICT during the Covid-19 pandemic intensified in the university at large; for instance, the Moodle-based e-learning platform was reported to have improved the sharing of teaching and learning contents, sharing of electronic resources, learner-teacher interactions and feedback, and conduct of continuous assessments such as quizzes, tests and assignments. In Kenya, libraries recognised the importance of ICT to overcome physical limitations, prompting initiatives to strengthen digital infrastructure and promote online services by communicating with their patrons through emails and social media platforms like Facebook and WhatsApp, digitising their printed material, and providing access to e-books and databases through their library systems (Musangi & Sawe, 2021). Similarly, South African libraries embraced ICT to ensure that library services do not become obsolete during the Covid-19 pandemic (Holland, 2021). The researcher established that the Covid-19 pandemic became a catalyst facilitating the use of ICT in the library environment.

5.4.2.1 Period of using ICT for rendering and accessing library services

ICT had been used for library services by the library personnel prior the Covid-19 pandemic, although the pandemic facilitated intensive usage. Similarly, the majority of library patrons claimed to have been using library services before the Covid-19 pandemic and some said that there were services that had always been online, like current databases, which were accessed through the library online system. However, they mentioned that a few adjustments like off-campus access to databases were made such as the renewal of books. This means that for as long as they were in the library environment, they were exposed to ICTs and used them at some point for library services. A study by Islam and Islam (2007) on the use of ICT for library services indicated that libraries in Bangladesh began to use computers in the early 1980s. A

study on the IT diffusion on sub-Saharan Africa by Mutula (2004) revealed that in libraries in Africa started to fully embrace the use of ICT for library services during the early 2000s. Furthermore, In South Africa, Modiba and Bopape (2017) concur that governments across the world have identified public libraries as providers of ICT as means of bridging the digital divide. A study by Pope (2023) on virtual services in the health sciences library revealed that, previously, staff used multiple shared email accounts for reference, causing difficulties in collecting data for analysis, but the Covid-19 pandemic facilitated the introduction of LibChat and LibAnswers allowing easy data analysis. Furthermore, “with the invention and growth of ICT, librarians and libraries now have to adapt to the use of various types of technologies to aid the services they render to their clientele accurately and as fast as possible” (Emmanuel, 2018:76). This gives an implication that the use of ICT for library services has been embraced globally prior the period of the Covid-19 pandemic, although the lockdown perpetuated enhanced use.

5.4.2.2 Effects of Covid-19 to library service provision and access

This section responds to both datasets. The findings revealed that the library personnel believed that the Covid-19 pandemic affected library services greatly, as it transformed the means of information provision and access. The Mankweng library had to migrate their manual services to virtual platforms, without proper planning, during level 5 of the Covid-19 lockdown, which required adjustments, as they had never worked remotely before. Training was introduced in the middle of the migration and resources like laptops and data were offered later, which means, initially, they had to use their own limited resources. The Pietersburg library branch closed during level 5 of the Covid-19 lockdown, as all their users were medical students who used to be in contact with Covid-19 patients, and their manual services became obsolete because they were not migrated to online platforms. The majority of the library patrons had to get used to accessing manual services online and some claimed that the issue of using data, laptops and mobile devices limited their access to online library services. Most patrons from the Pietersburg library claimed to have accessed library services during level 4 of the Covid-19 lockdown when health sciences students were repatriated, since they mostly preferred manual services that became obsolete during level 5 of the lockdown.

Some patrons from the Pietersburg library accessed manual services virtually through the main academic library and the Mankweng branch. Similarly, in Asia, many libraries adapted by offering online resources and virtual services to ensure continued access during lockdown (Begum, Roknuzzaman & Shobhanne, 2020). Yu and Mani, in Philips, Agbaje and Tripler (2021), highlight that libraries around the world have been negatively affected by the pandemic, as many libraries have either closed their buildings or restricted physical access to library facilities. A sub-Saharan African study by Abdullahi (2023) reported that library events, programmes and services were discontinued until further notice due to the pandemic and that perpetuated more use of technology. On the other hand, some African countries faced challenges due to limited infrastructure, although some successfully implemented virtual services (Shirley, Mawire & Baloyi-Sekese, 2021). According to Chisita and Chizoma (2021), in South Africa, libraries were closed and enforced restricted access, which necessitated the use of virtual services. Furthermore, a study by Monyela (2023) on information provision by public libraries in Limpopo revealed that the library did not provide services during the Covid-19 pandemic because most of their services were manual and there were strict regulations prohibiting library physical visits. Covid-19 did not only bring transformation and a positive use of technologies in the library environment in some aspects, but it also hindered patrons and librarians with provision of, and access to, services.

5.4.2.3 Migration of Library Services from Manual to ICT during the Covid-19 Pandemic

The findings revealed that the library personnel found the manual to virtual migration of library services very challenging at first because they were only provided with laptops and data at the later stages, meaning that they initially had to use their own money to buy data and had to ensure that they had laptops for working remotely during level 5 of the lockdown. At the Pietersburg library, the manual to ICT migration of services never took place; instead, all their manual services became obsolete and were only returned during level 4 of the lockdown. The majority of the library patrons from Pietersburg did not access manual services virtually because the migration did not take place in their library; however, some who claimed to have experienced the virtual migration through the Mankweng and the UL academic library expressed that the transition felt foreign and network instability sometimes limited their access. The

majority of the library patrons from Mankweng library expressed that the migration initially limited their access to library services, especially during level 5 of the lockdown, because some did not have mobile devices, laptops and sufficient data. However, as time went by, the university provided data and devices, but only during level 4 of the lockdown. Similarly, a study by Dube and Jacobs (2023) on academic library service extension during the Covid-19 pandemic mentioned that the both the librarians worked on finding creative solutions to engage patrons, balancing the benefits of virtual access with challenges.

In America, the librarians and patrons adjusted quickly to online services because some of their manual services had already been offered online (American Library Association, 2020). Chakraborty, Kureshi, Gajbe, Upadhayay and Devi (2020) posit that the role of information professionals during the Covid-19 was significant during the Covid-19 pandemic, as it made the digital shift possible, and there was an online supply of credible information by libraries in India and globally. Additionally, Mole (2021) states that some African countries like Nigeria mentioned that the virtual migration facilitated the use of online resources and caused libraries to limit the strength of the digital divide. Chigwada (2022) opines that the manual to virtual shift of library services gave rise to challenging digitisation process for non-born digital resources, library staff's lack of access to a computer, difficulty conducting reference services and BI online. This indicated a need for digital training for library services and the digital divide.

5.4.2.4 Rating the use of ICT for rendering and accessing library services prior and during the Covid-19 pandemic

The findings revealed that the use of ICT for library services by library personnel prior to the Covid-19 pandemic had been minimal, especially in the area of communication among staff members and reaching patrons. In Mankweng, during the pandemic, the use of ICT was extensive because virtual information literacy training, circulation services, renewal of library material and even library staff meetings had to be offered virtually. The Pietersburg library personnel's means of communication and the platform for updates about work-related issues during level 5 of the lockdown were emails. The majority of the library patrons reported that their use of ICT during the pandemic intensified, as they had to rely on online library resources and had no access

to printed materials. Similarly, a study by Alekseeva and Kosachkova (2020) on Russian libraries for young adults revealed that, like others, they globally enhanced their digital presence.

In Indonesia, Nurul et al. (2021) revealed that the general thought of most librarians in Indonesia before the pandemic was to assume that information technology was a competitor that threatened the existence of libraries. However, the Covid-19 pandemic transformed their thinking and generated intensive use of ICT. A study on the ICT-based library services during the Covid-19 pandemic by Sagar and Ghogare (2021) reported that in hindsight, we can assume that the Covid-19 pandemic has highly influenced the use of the ICT-based library among students of various colleges.

In various African countries, the use of ICT for library services became extensive, and initiatives like African Library and Information Associations and Institutions focused on improving digital literacy and online access (Maharana, Amutorine, Sengeh & Nsoesie, 2021). The use of library online services enhanced during the Covid-19 pandemic in South African libraries (Holland, 2021). Therefore, it can be stated that the Covid-19 pandemic unravelled the potential ICT skills, which both the library personnel and patrons always possessed.

5.4.2.5 Training methods used for the effective use of ICT to render and access library services during the Covid-19 pandemic

The findings revealed that the library personnel were trained for the effective use of ICT to render library services through virtual webinars using Blackboard Ultra, Zoom and Google Meet by the University ICT team and e-books vendors. The majority of the library patrons revealed that virtual information literacy classes were offered through Blackboard Ultra and Google Meet. They also mentioned that the library online system added a platform for training, which included details of librarians who offered bibliographic instruction sessions, database access guidelines, library catalogue tutorial videos and a library orientation YouTube link, which were helpful for every information need. However, some did not attend the training because they were not interested, some complained about data costs, a lack of access to laptops and mobile device, while others claimed to have been exposed to face-to-face training prior the pandemic. Moreover, in America, the American Library Association (ALA) played a crucial role by organising workshops, webinars and conferences that focus on ICT

skills, digital resource management and the integration of emerging technologies into library services (ALA, 2021).

During the pandemic, many African libraries likely adopted a range of strategies for training library professionals and patrons in ICT. This included virtual workshops, webinars and online courses organised by local library associations, international organisations and educational institutions. Platforms like Zoom, Microsoft Teams and other online collaboration tools have been utilised to facilitate remote learning (Ameh et al., 2021). Obim (2023) mentions that skills to use technology for library services needed librarians to first be trained so they could be equipped through Zoom, Web 2.0 tools and library system trainings. Shaghaei, Knowles, Morley, Eveleigh, Casaldaliga, Nolin, Tatai, Cohen, Pronk and Ghesquiere (2022) state that some training tools that were used by library professionals during the Covid-19 pandemic included Zoom, Slack and social media pages. Similarly, Iwuchuku and Echedom (2020) found that in-house training, seminars, workshops, conferences, orientation, job rotation and professional library training are ideal means of training for effective library services. The emphasis in these training programmes may have encompassed digital literacy, online cataloguing, e-resources management and strategies for engaging with library users in a virtual environment.

5.4.3 Perceived usefulness of ICT for library services and access during the Covid-19 pandemic

The findings revealed that the library personnel perceived ICT to be useful for library services, although it did not facilitate optimal use by the patrons, especially some from the Pietersburg library branch, because most of them had always used the library for manual services and their manual services were not migrated to virtual platforms during the lockdown.

The majority of the library patrons from Pietersburg used the library for printed textbooks and studying space, they did not prioritise the use of ICT for library services even prior the pandemic. The majority of the library patrons from Mankweng thought the use of ICT for library services was convenient because it allowed them to access library services remotely under the circumstances. During the Covid-19 pandemic, the utilisation of ICT for library services has played a crucial role in adapting to the challenges posed by lockdowns and social distancing measures. People have

generally welcomed the shift towards digital platforms, as it enabled them to access a wide array of library resources remotely (Dube, 2021). The convenience of accessing information from the safety of one's home was particularly appreciated, fostering a sense of normalcy and intellectual engagement during a time of physical isolation (Ocholla, 2020).

A study by Akhtar, Hussain and Ahmad (2021) on the strategies of libraries and librarians during the Covid-19 mentioned that many libraries transformed their traditional services to online, which suggest that they saw the usefulness of ICT during the crisis. Ammigan, Chan and Bista (2022) believe that the use of ICT closed the gap between Covid-19 and education. On the contrary, Iwuchuku and Echedom (2021) state that there were librarians who had nonchalant attitudes towards the use of ICT for library services and that it slowed down the adjustment process under the circumstances, but did not hinder the use. While there may be concerns about the digital divide and access disparities, the overall sentiment reflects an acknowledgment of ICT as a valuable lifeline for sustaining library services and promoting literacy during these unprecedented times.

5.4.3.1 Usefulness of ICT for rendering and accessing library services during the Covid-19 pandemic

The findings revealed that the library personnel thought that the use of ICT for rendering ICT during the Covid-19 pandemic was useful and increased their effectiveness and efficiency. The Pietersburg library personnel also deemed ICT to be useful, irrespective of their patrons not embracing them as much. The majority of the library patrons revealed that they thought ICT was useful for library services during the Covid-19 pandemic and improved their access. Similarly, in the United States, institutions rapidly adopted digital platforms to provide uninterrupted access to library resources. A study by the ALA (2021) highlighted the pivotal role of ICT in maintaining educational continuity during lockdown. Shastri and Chadasma (2021) state that the librarians of the Gujarat state fully embraced the use of ICT for library services during the pandemic, even though there was a need for thorough training. A study by Ishola, Ojokuku, Akpobasah-Amugen and Eluyemi (2022) on library services amidst the Covid-19 pandemic highlighted that libraries deemed ICT as useful for library services because, irrespective of the challenges involved, the use was enhanced. Iwuchuku

and Echedom (2021) express that some librarians were resistant to change and not open to learning and transforming, but were just compelled by circumstances to comply and use ICT for library services. Additionally, a study on academic library services extension during the Covid-19 pandemic by Dube and Jacobs (2023) highlighted significance use of ICT for library services during the lockdown. These instances collectively underscore how ICT has been instrumental in overcoming disruptions and ensuring continued access to library services in diverse geographical contexts during the pandemic.

5.4.4 Attitudes of library staff and patrons towards the use of ICT in rendering library services during the Covid-19 pandemic

The findings revealed that, initially, the library personnel had a negative attitude towards the use of ICT for library services because they felt like they were not well resourced and unprepared, but, over time, adaptation occurred because they were provided with devices, mobile data and offered training. However, the Pietersburg library personnel did not render services virtually but used ICT to attend webinars by vendors, training and also for communication. The majority of the library patrons had a negative attitude towards the use of ICT for library services because they were anxious over the changes that took place quickly, but they developed a positive attitude over time.

The initial attitude towards the use of ICT for library services during the Covid-19 pandemic varied among users and librarians across different regions. In Europe, Breen, Waters and O'Shea (2023) conducted a survey at the Chartered Institute of Library and Information Professionals (CILIP) and found that both users and librarians initially approached the shift to digital services with a mix of enthusiasm and caution, highlighting concerns about digital literacy and equitable access. Shastri and Chadasma (2021) highlight that the application of ICT tools proved to be beneficial, which depicts a positive attitude. In Africa, a report from the International Federation of Library Associations and Institutions (IFLA) (2020) indicated that users were appreciative of the quick adaptation of libraries to online platforms, recognising the necessity of ICT for continuous access to information. Obim (2023) opines that, initially, librarians were concerned about the use of ICT for library services because they knew that for it to be possible, training and the necessary infrastructure had to be

made available. In South Africa, the IFLA Social Science Libraries Section Standing Committee (2020) reported a similar sentiment, with librarians actively embracing ICT to ensure the delivery of library services in compliance with health protocols. Overall, users and librarians globally acknowledged the pivotal role of ICT in maintaining library services during the pandemic.

5.4.4.1 Acceptance of ICT for rendering and accessing library services during the Covid-19 pandemic

The findings revealed that the library personnel accepted the use of ICT for library services and even mentioned that they were open to more advanced technologies in the libraries. The majority of the patrons from Mankweng library accepted the use of ICT for library services; however, in Pietersburg, most users were reluctant because of their preference for manual services. On the contrary, during the Covid-19 pandemic, ICT has been widely accepted for library services. Users and librarians have migrated to digital platforms in multiple countries. A positive shift in attitude has been observed in the United States, according to the ALA (2021), which highlighted the importance of technology in maintaining access to library resources and services. Moreover, Alekseeva and Kosachkova (2020) state the significant use of ICT for library services during the Covid-19 pandemic. ICT was increasingly recognised in Africa as a vital instrument for library services, particularly in rural and underserved areas (Kosciejew, 2021). In a similar vein, South Africa recorded the broad use of digital services by patrons during the Covid-19 pandemic (Holland, 2021). Molepo and Shokane (2021) highlight that the acceptance of the use of ICT for library services transpired before the global pandemic because libraries had embraced ICT before it. This demonstrates an attitude of acceptance globally.

5.4.5 Factors that interfere with staff and patrons while using ICT to render library services during the Covid-19 pandemic

The findings revealed that the library personnel experienced challenges with devices for working remotely; initially, they were not provided with data and they had to use their personal finances; they claimed that working remotely was challenging because when load shedding occurred, there was no back-up and that meant they had to stop working. Training was said to have taken place after the migration of manual services and that meant they had to figure out a way to offer virtual services by themselves and

they complained about the issue of instability of the network. The majority of library patrons reported that they were greatly affected by load shedding, which subsequently caused network instability; insufficient data to access library services was also said to have been a great challenge; the sudden change that occurred quickly also made some patrons uncomfortable and the issue of devices only being issued during the level 5 of the pandemic was reported as a challenge by the majority of the library patrons.

Similarly, in a study on the implementation and use of virtual reference services in academic libraries during and after the Covid-19 pandemic revealed that challenges like the digital divide, privacy concerns and digital literacy were a major concern. Other challenges mentioned were absence of pandemic plans; a lack of mind-set and training to work from home; and a lack of resources, equipment and infrastructure for online working (Harris, 2021). Chigwada (2022) states that policies and procedural issues, financial challenges and infrastructural challenges were big challenges in African libraries. Additionally Iwuchuku and Echedom (2023) opine that inadequate staff training and a lack of funds created obstacles to the use of ICT for library services during the Covid-19 pandemic. A lack of teleworking culture, a lack of policies, digital divide, digitisation and a lack of skilled staff were major concerns affecting academic libraries (Dube & Jacobs 2023). Therefore, libraries need to continue to invest in digital literacy training and resources because there is a need for it.

5.4.5.1 Ways in which the mentioned challenges could have been avoided if the manual to virtual migration of library services was planned

The findings revealed that the library personnel believed that had the migration been planned, the university could have prepared devices, provided data for online services and thoroughly trained both their patrons and library personnel to use online services. The majority of the library personnel also believed that devices and mobile data would have been provided to them before the virtual migration, proper training would have been provided on time and they would have been in a state of mental acceptance and preparedness. Had the transition from manual to virtual library services been planned before to the Covid-19 outbreak, a number of obstacles would have been avoided more successfully.

First, an organised implementation of enhancements to the infrastructure might have guaranteed stable online platforms by resolving server capacity and network bandwidth problems that emerged during the abrupt changeover (Jabeen & Mahmood, 2022). A pre-pandemic plan would have made extensive digital literacy initiatives possible, enabling users and librarians to easily access online resources. It would have been possible to create partnerships with internet service providers in order to close the digital gap and guarantee that everyone had access to virtual library resources (Jabeen & Mahmood, 2022). Zhou (2021) states that the promotion of online content (e-books, exhibitions, tutorials, events, concerts) enhanced communication with patrons, development of new digital paradigms for libraries and distance learning would make the digital shift less challenging. During the change, a carefully planned transition strategy would have included lucid methods of communication to keep patrons informed and involved (Ocholla, 2020). Mbambo (2021) states that willingness and adaptability, promotion of digital library services, breaking down the digital divide, rendering online support, sustaining human contact in a digital environment and making digital infrastructure available were said to be ways to reduce challenges in the usage of ICT. The researcher established that the virtual migration of library services during the Covid-19 pandemic was not a challenge, but the challenge was the migration due to compulsory circumstances; hence, it happened without proper planning.

5.5 CONCLUSION

In conclusion, this study showed how significant the use of ICT was during the Covid-19 pandemic. It shed light on the divergent approaches adopted by the two UL library branches regarding the integration of ICT for their services. The library that embraced ICT demonstrated a proactive stance, leveraging technology to enhance user experience, accessibility and overall efficiency (Zhou, 2021). On the other hand, the library that resisted integration encountered challenges and ran the risk of ending up being a study room, because a library is supposed to be an area for growth, which adapts to changes, especially in the digital revolution (Rangathanan, 2006)

The study highlighted the importance of libraries in disseminating knowledge and emphasised the need for them to swiftly adjust to the changing environments by using ICT as an accelerator of innovation and enhanced services.

5.6 RECOMMENDATIONS OF THE STUDY

The recommendations of the study are based on the objectives, findings and conclusion to enhance the effective usage of ICT for library services. The study recommends the following:

- To ensure comprehensive utilization of ICT tools at UL libraries, it is crucial to expand training programs aimed at both library staff and patrons. These training sessions should cover the diverse array of available ICT resources, including online databases, e-books, virtual reference services, and digital catalogues. By enhancing the digital literacy of patrons and staff alike, libraries can empower individuals to leverage these technologies effectively for their academic and research needs. Additionally, efforts should be made to improve the accessibility and usability of digital resources by implementing user-friendly interfaces and providing clear instructions for navigation and usage.
- In order to further strengthen library services through the use of ICT, it is recommended to prioritize the enhancement of virtual reference services and online tutorials. These tools are essential for giving patrons remote support and direction, especially when physical access to library facilities is restricted. Investing in the creation and promotion of these services will help patrons and library personnel communicate easily, creating a welcoming and approachable learning environment. Moreover, maintaining uninterrupted remote access to library materials depends on the robustness and dependability of the ICT infrastructure, highlighting the significance of regular maintenance and updates.
- To address variations in the perceived usefulness of ICT among patrons, initiatives to raise awareness about the advantages of digital resources for study and remote access should be focused and targeted. Libraries can stimulate increased uptake and consumption of ICT-enabled services among their patrons by aggressively publicizing their benefits. Furthermore, communication initiatives should be customized to target unique issues and

preferences that customers have expressed, especially at the Pietersburg branch. Surveys, focus groups, and other forms of customer interaction can yield insightful information about the requirements and preferences of users, which can then be used to influence the creation of focused interventions aimed at improving ICT usage.

- In order to foster positive attitudes towards ICT adoption, libraries ought to investigate programs like providing prizes or incentives to patrons who engage with ICT-enabled services. Patrons can be encouraged to investigate digital resources and get over any initial resistance or reluctance by acknowledging and rewarding involvement. In addition, continuous training and assistance are necessary to help library employees become competent and confident ICT tool users. Libraries may provide staff members with the information and abilities they need to assist patrons in navigating the digital world by funding professional development opportunities and encouraging a culture of lifelong learning.
- To address barriers to ICT usage, efforts should be made to improve internet connectivity and access to digital devices, particularly in underserved areas. This could entail working with appropriate stakeholders to develop infrastructure and offer reasonably priced high-speed internet access. Furthermore, creating focused interventions to improve consumers' digital literacy abilities is crucial to breaking through technological hurdles. Libraries may enable their patrons to gain the skills and confidence needed to use digital platforms with ease by providing workshops, tutorials, and other educational tools. Furthermore, focused outreach and education initiatives to increase knowledge of the advantages of ICT-enabled services may be necessary to combat deeply ingrained preferences for manual services, especially at the Pietersburg branch. By employing a comprehensive strategy that tackles technological as well as psychological obstacles, libraries can improve the usability and efficacy of ICT integration in bolstering their services.

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APPENDICES

APPENDIX 1: DATA COLLECTION TOOLS

SEMI-STRUCTURED INTERVIEW GUIDE (LIBRARY PERSONNEL)

SECTION A: DEMOGRAPHIC QUESTIONS

- 1.1 What is your age?
- 1.2 What qualifications do you have?
- 1.3 From which institutions did you get your qualifications?
- 1.4 When did you get your qualifications?
- 1.5 How long have worked for this library?

SECTION B: Use of ICT to render library services

2. Do you use ICT to render library services?
3. If yes, when did you start using ICT to provide services?
4. How did Covid-19 affect your service provision?
5. How did you migrate from manual to ICT during Covid-19 pandemic?
6. How would you rate the use of ICT to render library services prior and during the Covid-19 pandemic?
7. Did you receive training for the effective usage of ICT to render library services during the Covid-19 pandemic? If yes, describe the training methods.

SECTION C: Types of ICT used to render library services

8. What types of ICTs did your library use to render library services during the Covid-19 pandemic?
9. Which manual services did you have to render virtually and which ICT did you use for each service?

SECTION D: Perceived usefulness of ICT to render library services

10. What was your general perception of the usage of ICT to render library services during the Covid-19 pandemic?

11. Do you think the usage of ICT to render library services during the Covid-19 pandemic was useful in the sense that it improved your efficiency and the quality of your work?

SECTION E: Attitude towards the use of ICT in rendering library services

12. What was your initial attitude towards the use of ICT to render library services during the Covid-19 pandemic?

13. Irrespective of it being compulsory, did you accept the use of ICT to render library services during Covid-19 pandemic?

SECTION F: Challenges experienced by staff when using ICT to render library services

14. Which challenges affected you as you were rendering library services using ICT during the Covid-19 pandemic? Mention a service and state its challenges.

15. If the manual to virtual migration of services was planned and not done suddenly due to the Covid-19 pandemic, which challenges do you think would have been avoided for each service?

APPENDIX 2: SEMI-STRUCTURED INTERVIEW GUIDE (LIBRARY PATRONS)

SECTION A: DEMOGRAPHIC QUESTIONS

- 1.1 What is your age?
- 1.2 What is your gender?
- 1.3 Which programme are you registered in?
- 1.4 How long have you been the library member?

SECTION B: Use of ICT to render library services

2. Do you use ICT to access library services?
3. If yes, when did you start using ICT to access library services?
4. How did Covid-19 affect your service and your access library services?
5. How would you describe the migration from manual to online services during level 5 of the Covid-19 pandemic?
6. How would you rate your access to library services and the effectiveness of ICT for library services prior and during the Covid-19 pandemic?
7. Did you receive training for the effective use of ICT to access library services during the Covid-19 pandemic? If yes, describe the training methods.

SECTION C: Types of ICT used to render library services

8. What types of ICT did your library use to render library services during the Covid-19 pandemic?
9. Name any manual services that had to be rendered virtually and the ICTs that were used for each service.

SECTION D: Perceived usefulness of ICT to render library services

10. What was your general perception of the use of ICT to render library services during the Covid-19 pandemic?

11. Do you think the use of ICT to render library services during the Covid-19 pandemic was useful in the sense that it improved your access to library services?

SECTION E: Attitude towards the use of ICT in rendering library services

12. What was your initial attitude towards the use of ICT to render library services during the Covid-19 pandemic?

13. Irrespective of it being compulsory, did you accept the use of ICT to access library services during Covid-19 pandemic?

SECTION F: Challenges experienced by staff when using ICT to render library services

14. Which challenges affected you as you were accessing library services using ICT during the Covid-19 pandemic? Mention a service and state its challenges.

15. If the manual to virtual migration of services was planned and not done suddenly due to the Covid-19 pandemic, which challenges do you think would have been avoided for each service?

APPENDIX 3: INFORMED CONSENT

INFORMED CONSENT

Dear participant

My name is Noxolo Ngwenya student number 201818646. I am a master's student in the Programme of Information Studies, Department of Communication, Media and Information Studies at the University of Limpopo. The title of my research is: "The use of ICT for library services at the University of Limpopo during Covid-19 pandemic." The objectives of the study are as follows:

1. To determine how ICT was used to render library services during the Covid-19 pandemic at UL libraries' Mankweng and Polokwane branches.

2. To explore the types of ICTs used to provide library services at UL libraries' Mankweng and Polokwane branches during the Covid-19 pandemic.
3. To establish the perceived usefulness of ICT to render library services during the Covid-19 pandemic at UL libraries' Mankweng and Polokwane branches.
4. To explore the attitudes of library staff towards the use of ICT in rendering library services during Covid-19 pandemic at UL libraries' Mankweng and Polokwane branches.
5. To identify challenges experienced by UL libraries' Mankweng and Polokwane branches when using ICT to render library services during Covid-19 pandemic.

I am inviting you to participate in the study so as to share your experiences on the subject matter.

Please note that:

- ❖ The information that you provide will be used for scholarly research only.
- ❖ Your participation is entirely voluntary. You have a choice to participate, not to participate or stop participating in the research. You will NOT be penalised for taking such an action.
- ❖ Your views in this interview will be presented anonymously. Neither your name nor identity will be disclosed in any form in the study.
- ❖ The interview will take about 60 minutes to complete.
- ❖ The records, as well as other items associated with the interview, will be held in a password-protected file accessible only by me and my supervisor. After a period of five years, in line with the rules of the university, they will be disposed of by shredding and burning.
- ❖ There will not be any monetary gain for those who chose to participate in the study
- ❖ If you agree to participate, please sign the declaration below

I can be contacted at: [201818646@keyaka.ul.ac.za/](mailto:201818646@keyaka.ul.ac.za) noxolopeace99@gmail.com / 0797750506

My supervisor can be contacted at

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

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.

SIGNATURE OF PARTICIPANT DATE

.....

APPENDIX 4: GATE KEEPER'S LETTER



UNIVERSITY OF LIMPOPO

**Faculty of Humanities
School of Languages and Communication Studies
Private Bag X1106, Sovenga, 0727, South Africa
Tel: (015) 268 3083, Email: jane.monyela@ul.ac.za**

The Executive Director
University of Limpopo Library
Private Bagx1106
Sovenga
0727

REQUESTING PERMISSION FOR MS N NGWENYA (201818646) TO CONDUCT RESEARCH AT THE UNIVERSITY OF LIMPOPO LIBRARIES (PIETERSBURG AND MANKWENG) CAMPUSES

This serves to formally introduce the above named as a full-time MIS student in the Department of Communication, Media and Information Studies at the University of Limpopo for the 2023 academic year. Ms. N. Ngwenya has proposed to conduct a study on a research project titled "The use of information and communication technology for library services at the University of Limpopo, during the Covid-19 pandemic era".

Ms. Ngwenya's research proposal has been approved by the Turfloop Research Ethics Committee (TREC/1540/2023: PG). She would like to collect data for the research project by interviewing the librarians and patrons at the Pietersburg and Mankweng campuses. You are kindly requested to permit Ms. Ngwenya to conduct the interviews.

The researcher will share the findings of the study with the Library and provide some recommendations. For any further information about Ms. Ngwenya's study, please do not hesitate to contact the undersigned.

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

Your assistance would be highly appreciated

Yours sincerely

Date: 08-10-2023

.....|.....

Dr MJ Monyela

APPENDIX 5: ETHICAL CLEARANCE CERTIFICATE



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

TURFLOOP RESEARCH ETHICS COMMITTEE
ETHICS CLEARANCE CERTIFICATE

MEETING: 26 SEPTEMBER 2023

PROJECT NUMBER: TREC/1540/2023: PG

PROJECT:

Title: The use of information and communication technology for library services at the University of Limpopo during the Covid-19 pandemic era
Researcher: N Ngwenya
Supervisor: Dr MJ Monyela
Co-Supervisor/s: N/A
School: Language and Communication Studies
Degree: Master of Information Studies

PROF D MAPOSA
CHAIRPERSON: TURFLOOP RESEARCH ETHICS COMMITTEE

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

Note:

- i) This Ethics Clearance Certificate will be valid for one (1) year, as from the abovementioned date. Application for annual renewal (or annual review) need to be received by TREC one month before lapse of this period.
- ii) Should any departure be contemplated from the research procedure as approved, the researcher(s) must re-submit the protocol to the committee, together with the Application for Amendment form.
- iii) PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES.

Finding solutions for Africa

APPENDIX 6: EDITOR'S REPORT

LETITIA GREENBERG
LANGUAGE SPECIALIST

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

31 Aland Road
Valhalla
0185

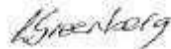
6 February 2024

To whom it may concern:

With this letter, I confirm that I have language edited the dissertation titled *The use of information communication technology for the library services at the University of Limpopo during the Covid-19 pandemic era* by Noxolo Ngwenya.

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

Yours faithfully



Letitia Greenberg