PUBLIC LIBRARIANS' PERSPECTIVES OF DIGITAL LIBRARY FOR RURAL AREAS OF CAPRICORN DISTRICT MUNICIPALITY, LIMPOPO PROVINCE

by

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Public librarians' perspectives of digital library for rural areas of Capricorn District Municipality, Limpopo Province

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I declare that the above dissertation is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

I further declare that I submitted the dissertation to originality checking software and that it falls within the accepted requirements for originality.

I further declare that I have not previously submitted this work, or part of it, for examination at Unisa for another qualification or at any other higher education institution.

12/12/2022

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SIGNATURE DATE

DEDICATION

This work is dedicated to:

- My late father (Mmamatiane Mamabolo), for having faith in me. It keeps me going. You might be gone from us physically but your teachings are never forgotten. May you continue to rest in peace Kolobe.
- My mother (Makoma Mamabolo), for her undying love and support. You chose your kids over your education, having attended university for a short period of time and came back to us. This degree is for you Mahlako.
- My wife (Kagiso Mamabolo), for her unconditional love and being my motivator. With your support, the stars shall wish to reach me Skat. I love you so much.
- My beautiful daughters (Mashadi and Makoma), for keeping Papa on his toes. I will do anything and everything for you banyana baka.
- My siblings (Molau and Mantji), for keeping the 'Big-brother' on his toes, for I strive to be exemplary so you can follow.
- All the Mamabolos and Motloutsis, this is to you.
- All people who experience all sorts of adversities accessing Library and Information Services, here is a tribute to you.

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ABSTRACT

Even after two decades of a constitutional democracy that is prized as one of the most progressive achievements, public libraries and information services remain scarce in rural South Africa. This is despite the fact that Library and Information Services (LIS) are important to build and develop communities and foster enlightenment among citizens, but in direct contradiction to the rights of free education and the right to information enshrined in the Constitution. On the one hand, the establishment of new libraries in rural areas moves at inexcusable slower pace, while in the same vein, the population and communities continue to grow rapidly, with consequent demand for LIS. However, Information and Communication Technologies (ICTs) have positively impacted the library landscape and society at large. This transformation requires a shift from traditional ways of information provision to modern library services, namely, digital libraries. This study intended to investigate public librarians' perspectives of digital library for rural areas of Capricorn District Municipality (CDM), Limpopo Province. Moreover, to understand the nature of digital libraries and requirements for access and effective use of such libraries. A further objective is to ascertain whether digital libraries could be a solution for inaccessible LIS in rural areas. The study employed qualitative research approach through interpretive paradigm to investigate the perspectives of public librarians. The study adopted phenomenological research design. DeLone and McLean's Information System Success Model was adopted to frame the study. The population of the study was a total of the twenty-three public librarians with various titles from the CDM employed by the Department of Sport, Arts and Culture and the Local Municipalities. A purposive sampling technique was employed. The sample of the study included five librarians from various public libraries. Data was collected through semi-structured interviews and was analysed thematically. The study findings revealed that the digital libraries are not to replace the physical libraries, but to improve the LIS. It was found that digital library users require ICT tools of which some rural users may not afford. Moreover, users have varying preferences on the format of the information source, some may need printers to convert the digital information to print format adding financial implications on the rural user. The study indicated that basic computer literacy skills are central for access and use of digital library services, no advanced training is necessary. However, self-training might be sufficient for the use of digital library system, denoting expectation of a usable digital library system. The study revealed that the youth are expected to use the digital library services than other age groups, as youth are arguably conversant with internet technologies. The study found out that some librarians do

digitise some of their heavily used materials to cater many users as they flock to the library, for instance, curriculum books. However, copyright laws might be overlooked or not taken cognisance of. Based on the findings, it was recommended that the current traditional libraries should operate as hybrid to provide LIS to enable users with no gadgets and other access challenges. Digitisation equipment, reliable internet, well-trained personnel are seen to be aspects of significance for digital library system. Moreover, it is encouraged that the digital library system should be inclusive of people with disabilities and other services beyond library services. It is further advised that the digital library system should provide services of traditional libraries which are possible digitally and subscribe to online information resources. This study shall serve as a guideline on implementation or establishment of digital libraries in a rural context. Therefore, other researchers can investigate the attitudes of digital library users and the likelihood of rural users on acceptance of digital libraries.

Keywords: Public Librarians; Digital library; Rural digital library user; Public library and information services; Information and communication technologies; Digital librarianship, rural areas.

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS AND ACRONYMS

CDM:	Capricorn District Municipality
CDs:	Compact Discs
D & M ISS:	DeLone and McLean's Information System Success Model
DBMS:	Database Management System
DLMS:	Digital Library Management System
DSAC:	Department of Sport, Arts and Culture
ETDs:	Electronic Thesis and Dissertation repositories
HOD:	Head of Department
ICT:	Information and Communication Technology
ICTs:	Information and Communication Technologies
IT:	Information Technology
JAWS:	Job Access With Speech
LIS:	Library and Information Services
NDLTD:	Networked Digital Library of Theses and Dissertations
OPAC:	Online Public Access Catalogue
PDF:	Portable Document File
SMS:	Short Message Service
UDHR:	Universal Declaration of Human Rights
UNISA:	University of South Africa
WI-FI:	Wireless Fidelity

CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 INTRODUCTION

Ever since Johann Gutenberg invented the printing press by printing his bible, substantial changes have been seen by society over the spread of information around the world through the evolution of Information Technology (IT). The changes let the world witness the first-ever e-book by Michael Hart of Project Gutenberg in 1971. In our post-modern world, accessing information digitally is possible due to the widespread use of IT. Demand for digital information increases rapidly, while the traditional library format is becoming way more expensive and complex to maintain. Digital libraries progressively enable remote access to various information sources (Xu & Du, 2018). Libraries must remodel their operations to improve services for easier dissemination of information and satisfy the user needs (Thaker & Vaghela, 2017). Developments in IT have impacted the information society landscape globally. Adebayo, Ahmed and Adeniran (2018) note that IT promotes adequate library operations and timely information provision and access of library services to users. Moreover, they stress that global information access and knowledge resources are attainable through IT facilities in libraries. This changing environment requires the Library and Information Services (LIS) to keep pace with innovations such as digital libraries.

Digital library concept can be described as technology based resource for collecting information, storing in electronic format and making information available and accessible remotely through the use of end-user interface. This resource requires specialised library system, skilled personnel, digital literate end-users and internet connectivity. Moreover, terms such as virtual library and electronic library are synonymous to the digital library concept. It is therefore pivotal that LIS gather knowledge and skills for effective utilisation of IT resources for diversifying access to LIS. The change will go a long way in ensuring that the rural areas without physical libraries are provided a fair chance of LIS access.

It is evident that traditional/physical libraries are uncommon in remote rural communities of South Africa as much as they are available in urban areas. Molawa, Eister, Ntombela, Sagtoor, Senyolo, Matlotle and Goosen (2015) acknowledge that in Limpopo Province, there is still an increasing

need for library and information services in many communities, including those in remote rural areas. Hart, Nkondo, Brown, Dick, Molawa, Nassimbeni, Seleti and Teffo (2014) and Durodolu (2018) indicate that a public library is crucial for modern democracy, and the enduring organisation expected to provide opportunities for the growth of education, culture, literacy, and information provision to reach all citizens cost-free. Da Rosa, Shmorgun and Lamas (2012: 502) share the view that "traditional distribution mechanisms failed tragically", and digital libraries are the best alternative. This shows that digital libraries have no physical limits, offer around the clock access to information, permit multiple access to an information source, enhance search and retrieval of information resources by using keywords, preservation and conservation data. Many South Africans still experience challenges accessing information that could have transformational effects in the quality of their lives (Molawa *et al.*, 2015). Therefore, people without access to public library services, especially in rural areas, also have to be provided with public library services to better their living conditions and increase their ability to participate in developmental aspiration of the government.

In recent years, the use of Information and Communication Technology (ICT) tools has enabled libraries to develop viable strategies for improved service delivery (Igwe, 2010). Digital library is amongst the other ICT tools available which enable library access and usage in the 21st century (Bhoi, 2017). The purpose of a digital library is to promote efficient provision of information economically to all users. Other benefits of a digital library are no physical boundary, provision of twenty-four-hour services on any given day, multiple accesses of a source, enhanced information retrieval, preservation for some print material and universal accessibility (Trivedi, 2010). Moreover, digital libraries have a user-friendly interface, hypertext links for navigation, client-server architecture, advanced search and retrieval, integration with other digital libraries, comfortability and convenient usage (Bamgbade, Akintola, Agbenu, Ayeni, Fagbani, Abubakar, 2015). The digital library makes it easier for people to access LIS. It can eliminate the challenges for those residing far from physical libraries, some with physical challenges and those who do not find the library operational times convenient.

The digital library concept is linked with the prominent writings of Vannevar Bush (1945) and Joseph Licklider (1965). Their works identified and pursued the goal of innovative technologies and approaches towards knowledge sharing as critical instruments for progress. Bush (1945)

invented a device in which someone can store their books, records, and communications. Due to the lack of digital support, he then identified improved microfilm as means for content storage and exchange. The contents were purchased on microfilm, ready for insertion. They included books, pictures, periodicals and newspapers. With the realisation that computers were getting powerful to support the automated library systems that Bush had described, in 1965, Joseph Licklider wrote a book titled *Libraries of The Future*, in which he looked at how a computer could provide an automated library with simultaneous remote use by many varying individuals through access to a common database. He established the connection between the internet and the digital library. This contributed to research and development activity on digital libraries, which took off in the 1990s. Their works were catalysts for systems such as 'e-print' known as 'arxiv' and Electronic Thesis and Dissertation repositories (ETDs). The Networked Digital Library of Theses and Dissertations (NDLTD) was established due to stimulation from the system, which offered services for submitting, browsing, and searching ETDs in Portable Document File (PDF) format (Candela, Castelli & Pagano, 2011). These foundations paved the way for deliberations and the establishment of digital libraries and information services over the internet. Despite these initiatives to enable access to LIS, the rural communities continue to live without access to LIS. The rural dwellers are denied services which will enable themselves to participate in the economy of the country, for instance, education, day to day national developments, employment opportunities, and active citizenry.

Therefore, this study investigates the digital library perspectives of public librarians in the Capricorn District Municipality for the prospect of using the digital library as means of accessing LIS. The requirements, benefits, potential digital library users, the readiness of public librarians, challenges, and recommendations on the implementation of digital libraries in the rural context are investigated. The investigation of these issues is to discover remedies for inaccessibility and the lack of libraries in rural areas. It is through the perspectives of public librarians that this study believes that the purpose will be fulfilled.

1.2 STATEMENT OF PROBLEM

Before democracy in South Africa which was attained in 1994. The black people were excluded from access to information, which is currently a democratic right of all citizens. Provision of libraries was restricted to Blacks during apartheid era since access to information was used as a

social control to frustrate radicalization of the oppressed Black people (Cobley, 1997). To date most libraries are mainly found in white-dominated communities in the form of towns and cities where the population is less than the large numbers of people residing in rural areas (Mokgaboki, 2002). Developments have been made to build public and school libraries and upgrade traditionally less equipped library facilities throughout the country (Ntsala & Mahlatji, 2016). However, the noticeable inadequate provision of LIS remains a challenge even after more than 200 years since the establishment of the first public library in South Africa. The National Library of South Africa (2016) realises that providing libraries in rural communities is a significant challenge for the government.

The Universal Declaration of Human Rights (UDHR) of (1948) gives access to information and views it as a fundamental human right. In Article 21(2) it is stipulated that everyone has the right to equal access to public service in their country. Article 19 of the UDHR states that everyone has the right to receive, impart information and ideas through any media regardless of frontiers. Focus should be placed on the innovative and transformative ways of information provision for the benefit of the users to enjoy the library and information services fully especially in the remote rural areas. Digital libraries are, thus, a product of digital information aimed at satisfying users' information needs through collections of documents to which value-added services are provided (Tramullas, Sanchez-Casabón & Garrido-Picazo, 2013).

The South African Public and Information Services Library Bill (2012) enshrine the principles that apply to establishing public libraries and information services. Those principles are that: the services must encourage a culture of reading to create a reading nation; the public library services must be provided equally to everyone irrespective of their geographical areas; measures must be taken to guarantee equitable access to public library services, taking into consideration people with disabilities and other vulnerable categories; services must be provided in a manner that is user friendly and accessible to the library users; the services must be provided in a way that eases, stimulates and grows the information literacy and the ICT skills of library users, predominantly vulnerable groups; services must promote the consciousness of South African distinctiveness, South African symbols, cultural heritage, appreciation of the arts, scientific achievements, innovation, application dialogue, cultural diversity and community history; and finally, services must endorse and advance South African publishing and writing.

The problem that led to this research study was that most of the villages are without libraries. Library users have to travel long distances to reach a physical library or to accept the unavailability of library and information services. Another challenge is that villages are situated far from one another, making it difficult to rely on the library provided to the centrally located area. The Department of Arts and Culture (2014) admits there is a tremendous demand for library and information services in remote and rural communities of Limpopo Province.

The absence of digital libraries will further exacerbate the challenges of rural access to LIS since the communities continue to grow and the government fails to keep up with the demand. Moreover, the researcher view the advent of digital library as hope for minimising shortage of physical libraries while in the meantime continuing to offer some LIS services remotely. Meaning, e-books, e-journals and other library services will be accessible to the rural users. Suppose the lack of digital libraries is to continue existing in rural areas. In that case, the challenges of illiteracy, poor academic performance, minimal interaction with government, an uninformed society, and minimal social cohesion might be associated with the communities. Therefore, the residents in rural areas will be deprived of services that are their own right to access, like people with access to physical libraries. Through this study, the perspectives of public librarians are investigated and evaluated to measure whether or not digital libraries could be suitable to address the inaccessible LIS in rural areas of the CDM.

1.3 AIM OF THE STUDY

The study aimed to investigate public librarians' perspectives of digital library for rural areas of Capricorn District Municipality, Limpopo Province.

13.1 Objectives of the study

- To determine the requirements for the use of digital library services in rural areas of Capricorn District Municipality.
- To find out the benefits of accessing digital libraries in rural areas.
- To identify the potential digital library users in rural areas.
- To ascertain the public librarians' readiness to provide digital library services to rural dwellers.
- To find out the challenges of accessing digital library services in rural areas.

- To make recommendations for the provision of digital library services in rural areas.

1.3.2 Research questions

The following questions serve as a guide to the study:

Table 1: Illustration of research questions

Research questions	Research approach	Source of data	Data analysis
1. What are the requirements for the use of digital library services in rural areas of Capricorn District Municipality?	Qualitative	Semi-structured Interviews	Thematic analysis
2. What are the benefits of accessing digital libraries in rural areas?	Qualitative	Semi-structured Interviews	Thematic analysis
3. Who are the potential digital library users in rural areas?	Qualitative	Semi-structured Interviews	Thematic analysis
4. Are public librarians ready to provide digital library services to rural dwellers?	Qualitative	Semi-structured Interviews	Thematic analysis
5. What are the challenges of accessing digital library services in rural areas?	Qualitative	Semi-structured Interviews	Thematic analysis
6. What are recommendations for the provision of digital library services in rural areas?	Qualitative	Semi-structured Interviews	Thematic analysis

1.4 SIGNIFICANCE OF THE STUDY

When writing the significance of the study, the researcher has to present the motives for conducting the study. The motives include what the researcher hopes to achieve by completing the study (Leedy & Ormrod, 2016). Kothari (2004) opines that the study should relate to the long term issues and persuasive rationale to justify the reason for the study. This study was motivated by the

inaccessible physical libraries for rural inhabitants, who suffer from accessing library and information services. Moreover, the pace at which physical libraries are built is noticeably slower as compared to the demand. The backlog in the provision of library services through physical libraries and the growing population also shows that it might take forever to realise inclusive library and information services for all. With the rise of 'the internet way of things' by Rifkin (2014), the researcher was motivated to investigate if the internet and computer technologies could be used as a medium for access to LIS.

This study should contribute to the existing body of knowledge on digital libraries. The Capricorn District Municipality should directly benefit from this research because the findings shall guide the adoption and implementation of digital libraries as the study is conducted within its jurisdiction. The government policy-makers and public managers will have reference material that will guide making informed decisions on adopting and implementing digital libraries. The outcomes may be used by the prospective researchers in their research endeavours. The library users may have an alternative mode of LIS access if digital library is properly implemented hence their expectations are researched and incorporated into the digital library system. Those users who have never accessed a library before might have access to library and information services. Lastly the LIS schools could incorporate the digital library in their LIS curriculum for preparing the students to provide library and information services through the digital platform.

Research findings should provide numerous recommendations on provision digital library services. This research will ultimately lead to reasonable suggestions that would change existing policy without bureaucratic limitation. Finally, the findings should guide future research pertaining to digital libraries and access to libraries.

1.5 ORIGINALITY OF THE STUDY

The previous studies have been conducted in the area of digital libraries. However, no research has been conducted on the topic “public librarians' perspectives of digital library for rural areas of Capricorn District Municipality, Limpopo Province”. The existence of a literature gap in digital libraries for remote rural areas makes this study unique. Therefore, this study will make a valuable contribution to knowledge in digital libraries.

1.6 SCOPE AND LIMITATION OF THE STUDY

The study 'Public Librarians' Perspectives of Digital Library for Rural Areas of Capricorn District Municipality, Limpopo province' investigated the views of public librarians associated with the requirements for the use of digital libraries, the benefits of digital libraries, identification of potential digital library users in rural areas, and challenges of accessing of digital libraries in rural areas of Capricorn District. The study participants are limited to a sample of public librarians employed in the Capricorn District Municipality. The data collection method is limited to face-to face semi-structured interviews conducted through interview schedule.

1.6.1 Subject coverage

This study is narrowed to the public librarians' perspectives on the digital library for rural areas of Capricorn District Municipality, Limpopo Province. The perspectives of public librarians regarding digital libraries are explored in the context of rural areas. This covers the requirements for the rural users to be in a better position to access digital library services; the benefits which the rural user can derive from digital libraries; identification of potential digital library users in the rural context; evaluation of public librarians' readiness to provide digital library services; challenges of accessing digital library services in rural areas; and recommendations by the public librarians on provision of digital library in the rural context are investigated.

1.6.2 Research environment

This study explored the viewpoints of librarians serving the public libraries of Capricorn District Municipality. These libraries are under the authority of the National Department of Sport, Arts and Culture, and are managed by the Provincial Department of Sport, Arts and Culture and the Local Municipalities under their jurisdiction.

The Local Municipalities in Capricorn District Municipality are Blouberg, Lepelle-Nkumpi, Molemole and Polokwane, with 113 wards and 16 public libraries. The study is limited to the population and sample of public librarians under Capricorn District Municipality, Limpopo Province.

Below is the map of Capricorn District Municipality:

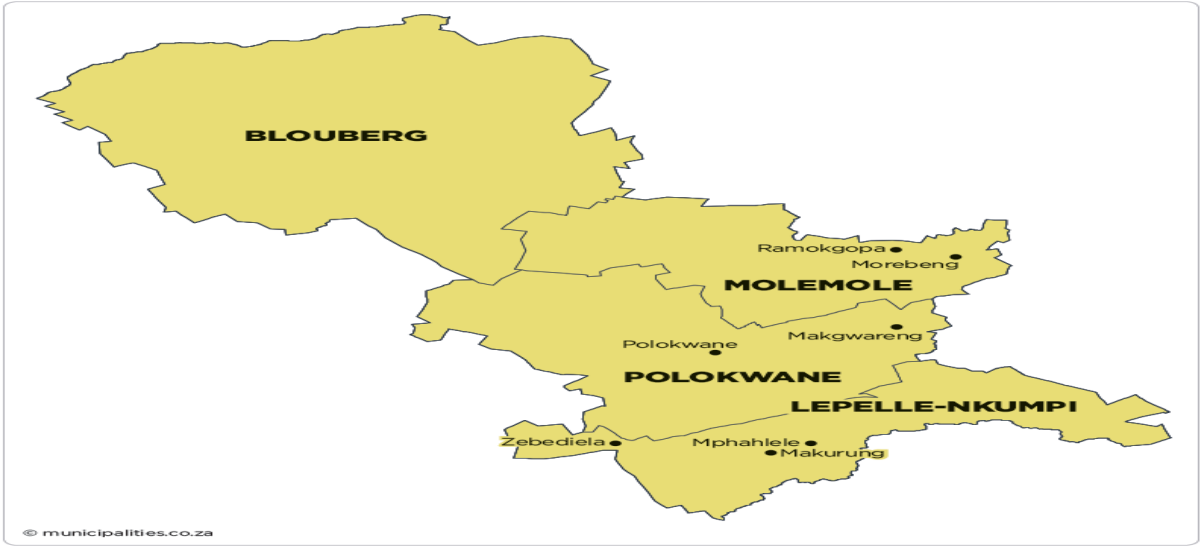

Figure 1: Map of Capricorn District Municipality (Source: Municipalities of South Africa, 2022)

1.6.3 Methodological scope

Research methodology is defined by Creswell and Creswell (2018) as a strategy involving several decisions and procedures for research that specifies the orderly steps of research from broad assumptions to detailed methods of data collection, analysis and interpretation. There are three approaches to social research, namely, qualitative, quantitative and mixed-method research. This study adopted the qualitative research approach. Qualitative approach to research is described by Denzin and Lincoln (2011) and Creswell and Poth (2018) as a study focusing on variables in their natural settings to make sense or interpret phenomena in terms of the meanings people bring to them.

The qualitative research approach enables the researcher to produce a detailed description of participants' feelings and opinions, and further interpret the meaning of their responses on digital libraries for rural areas. The study adopted an interpretive paradigm as well as the phenomenological research design.

The participants were chosen through purposive (non-probability) sampling. Data was collected through semi-structured interviews with the assistance of an interview schedule. Thematic analysis (deductive) was employed to analyse the data.

The researcher has carefully applied and followed procedures that are familiar to the research methodology chosen.

1.6.4 Limitations of the study

The general ethics principles of the University of South Africa on the research conduct advocate for integrity, transparency and accountability. It is stipulated that the research should be honest, fair and transparent (UNISA, 2016). Therefore, this current study was limited to time constraints as the population of 23 people could not be interviewed, and the data collection limitation was experienced. The data collection limitation was experienced when the researcher could not get permission to collect data under jurisdiction of one (1) municipality and reluctance by one (one) of the sampled participants to take part in this study. The researcher could not interview all the public librarians in Capricorn District Municipality due to time constraints in this current study.

1.7. DEFINITION OF CONCEPTS

This section defines the concepts used in this study.

1.7.1 Public librarian's perspectives

A public librarian is an information professional working for the government to facilitate access to library and information services. The minimum requirement of practice is a Bachelor's degree or Postgraduate Diploma in information science/studies. "Perspective" is defined by Collins Online Dictionary as "a particular way of thinking about something, especially one that is influenced by your beliefs or experiences." Therefore, the beliefs or experiences of the information professionals working for the government are termed 'public librarians' perspectives' in this study.

1.7.2 Digital library

Sun and Yuan (2012) and Nazim (2009) admit that there are many definitions of digital library and terms such as 'electronic library' and 'virtual library' are often used synonymously and interchangeably. Nazim (2009) describes it as the use of technology by libraries to acquire, store, conserve and make available their content to remote users. The Digital Library Federation in Cleveland (1998) defines it as an organisation that provides the resources, including the specialised staff, to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of, and ensure the persistence over time of collections of digital works so that they are readily and

economically available for use by a defined community or set of communities. Irokwe (2001) cited in Ogunsola (2011) defines it as a library that connects digital technologies as infrastructure to search, collect, organise, store and distribute cultural, historical and scientific information irrespective of text, images, or sound.

The elements common to the term are a collection of digital objects such as text, video and audio, and methods for access and retrieval and selection, organisation, and maintenance. Therefore, digital library can be described as a computer-based system for acquiring, storing, organising, searching and distributing digital materials for end-user access through a browser interface, virtual space and society. It is summarised as involving the three components: people, information resources and technology.

The definition by Nazim (2009) suits this study as the digital library is presented as a digital technology system used by libraries to acquire, store, conserve and make the content available to remote users.

1.7.3 Digital library user

Digital library user is a client of a digital library who uses its interface to search, locate and ultimately use the digital library services.

1.7.4 Public library

The public library is a government owned institution of learning tasked with providing services to meet the informational needs of the local community. It serves as an entrance to knowledge and provides means for lifelong learning, community development and independent decision making (Handa, 2012).

1.7.5 Library and information services

Library and information services are the services that the library staff render in a quest to meet the information needs of their patrons.

1.7.6 Rural areas

Rural areas in this study refer to remotely and scattered dwellings characterised by poverty, uneven distribution of essential services and lack of proper infrastructure. People in these areas have to

travel to urban or semi-urban areas to access basic services such as libraries, shopping and health care.

1.7.7 Information and Communication Technology (ICT)

Adebayo, Ahmed and Adeniran (2018) define ICT as a term used to refer to computers and other technologies used for library practises such as acquisition, storage, organisation and dissemination of information.

1.8 OUTLINE OF CHAPTERS

This study is presented in six chapters. They are as follows:

Chapter one - Introduction and background to the study

This chapter provides the introduction, background, statement of problem, purpose, significance, scope, definition of concepts, and limitations of this study.

Chapter two - Literature review

The chapter focuses on identifying literature on related works to digital libraries. It identifies the literature, analyses it and tries to justify the gap that was filled by the study. In addition, the chapter discusses the theoretical framework adopted for the study. The review of literature was compiled in accordance with the objectives of the study.

Chapter three - Research methodology

In this chapter, the researcher presents the research design and research approach employed. Furthermore, the researcher discusses the data collection instruments used, the data analysis strategy, the target population, and ethical considerations. The researcher also justifies why the selected design, approach, instruments, and sample were suitable for the study.

Chapter four - Data presentation, analysis and interpretation

The chapter presents and analyses the data collected.

Chapter five – Discussion of findings

In this chapter, the findings are compared and contrasted to against literature.

Chapter Six - Summary, conclusion and recommendations

In Chapter six, the researcher provides the summary, conclusions and recommends improvements to the study's findings. The suggestions for further research are also covered.

1.9 SUMMARY

This chapter introduced the study and provided its background. Moreover, it highlighted the statement of the problem, aim of research, research objectives and questions, originality, scope and limitations. Lastly, the concepts central to the study were defined. The next chapter discusses the theoretical framework and literature review for this study.

CHAPTER TWO

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1 INTRODUCTION

The previous chapter introduced this research study and provided its background. The statement of the problem, aim of research, research objectives and questions, originality, scope and limitations were discussed. The concepts central to the study were also defined. This chapter discusses the theoretical framework which guides the study, followed by literature reviewed for this study. Literature was reviewed in relation to the objectives of the study. It includes the requirements for the use of digital library services and the benefits of accessing the digital libraries, literature which predicts the prospective digital library users, literature in relation to the readiness of public librarians for providing the digital library services, the challenges associated with accessibility of the digital library services, and information on provision of digital library services.

According to Kumar (2011), one of the critical preliminary tasks when undertaking an investigation is to go through the existing literature to know the available body of knowledge in the researcher's area of interest. For a researcher, a comprehensive literature review shows familiarity with existing knowledge and establishes the researchers' credibility in the field (Walter, 2013). Du Plooy-Cilliers, Davis and Bezuidenhout (2014) emphasise that literature review should put the research study into perspective, determine what previous scholars have written on the topic, and identify the main relevant models and theories to the research study. Mavodza (2010) asserts that it is challenging to research without any reference to other scholars.

The researcher explored and collated knowledge from an array of studies to gain a comprehensive understanding of the digital library. While there were numerous international studies regarding digital library, the researcher found that there were limited studies pertaining to South Africa and rural areas. Therefore, this study should make a valuable contribution to the knowledge base regarding the perspectives of public librarians on digital library in the context of South Africa for LIS provision.

2.2 THEORETICAL FRAMEWORK

The theoretical framework provides structure, direction, and appropriate methods to address the research questions. It is defined by Creswell and Plano Clark (2011) as a perspective that provides a lens through which the entire study might be viewed. Similarly, Bertram and Christiansen (2020) acknowledge that a researcher may employ a theory for structuring a study and that has an effect on study design, and how data is collected and analysed. Therefore, this study is based on DeLone and McLean's Information System Success Model (D & M ISS) theory to frame the study.

Researchers such as Lwoga (2013), Samadi, Masrek & Yatin (2014), and Yan, Zha, Zhang & Hou (2014) have used the D&M ISS in their studies in the field of a digital library. Lwoga (2013) tested the D&M ISS in measuring the intention to use the Web 2.0 system in Africa. The purpose was to examine the suitability of the information systems success model in adopting library 2.0 technologies. The findings confirm the validity of using the D & M ISS. Samadi, Masrek and Yatin (2014) investigated the effect of individual characteristics and digital libraries effectiveness. They conducted a research survey to compare the quality of digital libraries and virtual communities from the perspective of e-quality. Delone and McLean's model is frequently used for research because of its reliability. Literature review showed that various researchers from different countries had used this model to measure IS success of digital libraries (Alzahrani, Mahmud, Ramayah, Alfarraj & Alalwan, 2017).

Therefore, the researcher views the D&M ISS as a model suitable to guide the study.

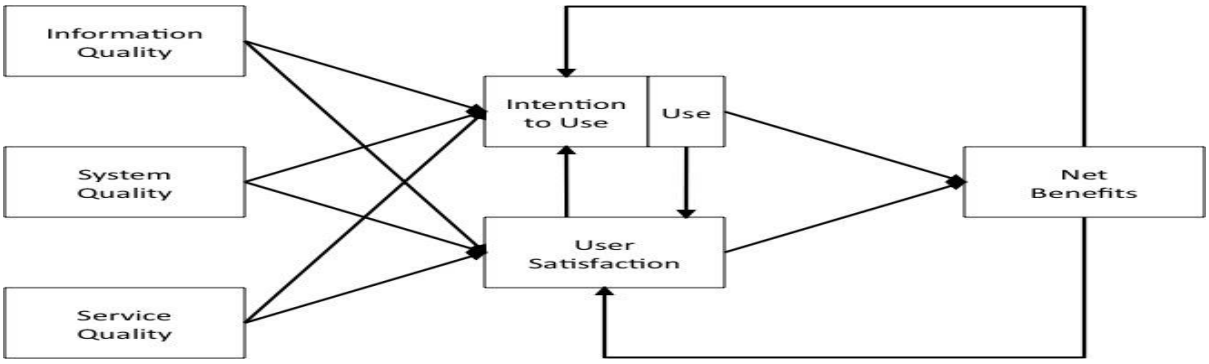

Figure 2: Updated DeLone and McLean IS success model (2003).

The DeLone and McLean's Information System Success Model (D & M ISS) enabled the researcher to construct and design the research questions, provided guidance on selection of relevant data and interpretation of data. Moreover, it explained the relationships between variables which are central to this research study. As it were, D & M ISS will prove its efficiency and reliability around the information dissemination systems.

The proposed model uses independent variables of *information quality*, *system quality* and *service quality* which have a direct influence on dependent variables (*intension to use* and *user-satisfaction*) which influence the ultimate utilisation (*use*) of the digital library. The user will therefore gain the benefits (*net benefits*) of using the digital library system, which might result in the user being satisfied (*user-satisfaction*) by accessing the required digital library resource/s. Moreover, net benefits influence the intension to use. The study aimed at investigating the public librarians' perspectives of digital library for rural areas of Capricorn District Municipality. This was to find out if digital libraries could be a solution for inaccessible library and information services in rural areas. Therefore, *system quality*, *service quality*, *user-satisfaction* (digital library user in rural areas), the *intension to use*, the actual *use*, and *net benefits* were used to frame the research questions to reach the objectives of this study. The components of this model are discussed below:

2.2.1 Information quality

Information quality has been seen to be a noticeable success factor when investigating overall information system success, particularly in the context of web-based systems (Schaupp, Fan & Belanger, 2006). Delone and McLean (2004) corroborate that information quality affects information satisfaction. Relevance, understanding, accuracy, conciseness, completeness, currency, timeliness and usability are determinants of information quality (DeLone & McLean, 2016). For a digital library service to be regarded as of good standard, it has to provide information sources that satisfy the end-users demands. Its value can directly attract or detract the users from using or relying on the digital library. This construct was used in this current study to frame the sub-questions which aimed to find out the public librarians' recommendations on how to provide digital library services for rural areas.

2.2.2 System quality

System quality is often assessed under the dimensions of flexibility, reliability, functionality, ease of use, data importance, integration, and quality (DeLone & McLean, 2003).

DeLone and McLean (2016) add the system features of intuitiveness, sophistication, and response time as contributors to the quality of the information system. Chen (2015) reported that system quality is related to behavioural usage intentions and user satisfaction. Measuring variables to system quality are accessibility, ease of use, navigation, reliability, efficiency and flexibility (Alzahrani, Mahmud, Ramayah, Alfarraj & Alalwan, 2017). The digital library system has to be accessible with ease and meet the expectations of users. For it to be accessible there should be requisites from the users in order to match the provisions of the information system. Therefore, this construct aligns with the research objective that sought to determine the requirements for the use of digital library services in the rural areas of Capricorn District Municipality.

2.2.3 Service quality

The quality of support that the system users get from the information system organisation and IT support personnel, for instance, responsiveness, accuracy, reliability, technical competence, and empathy of IT personnel staff, determine the service quality of information systems. The digital library personnel has a role to play in ensuring that the system and client management are in the best position to ensure that the users feel free to utilise or ask queries about the digital library. This ensures that the digital library services of good value might be provided to the rural users. This construct aligns with the research objective that sought to ascertain the public librarians' readiness to provide digital library services in rural areas. The research question aimed to determine if the current public librarians can be relied on to provide the digital library services.

2.2.4 Use

It is the degree and manner in which the users of the digital library utilise the services of the digital library system. It can be measured by the amount of use, frequency of use, nature of use, appropriateness of use, the extent of use, and purpose of use. This concept aligns with the research objective that sought to identify potential digital library users in rural areas. These users are those who are possibly believed to benefit and be satisfied with the digital library services.

2.2.5 User-satisfaction

According to DeLone and McLean (1992), user satisfaction and use of the system are interlinked. The use of an information system directly affects whether or not the user will be satisfied. User satisfaction triggers the user to utilise the system for the future use or the next project, while non-satisfaction may discourage future use.

Alzahrani, Mahmud, Ramayah, Alfarraj and Alalwan (2017) outline variables such as adequacy, effectiveness, enjoyment, information satisfaction, system satisfaction and overall system as the determinants of user satisfaction. This concept aligns with the research objective that sought to find out the challenges of accessing digital library services in rural areas. If the challenges of accessing the digital libraries are provided solutions, the users will be content with the use of such libraries, and the probability of using them for future information need is likely.

2.2.6 Intension to use

The user-satisfaction and net benefits trigger the intention to use an information system. The experience on usage and satisfaction from using the system of information directly guide the user if it is worthwhile utilising the system. In addition, the lesser the challenges, the more the digital library is likely to be used as means of information access. This construct aligns with the research objective that sought to find out the challenges of accessing digital library services in rural areas.

2.2.7 Net-benefits

Net-benefits are the extent to which information systems are contributing to the success of information system users. Contributions may be in the form of improved decision making, improved productivity, increased sales, cost reduction, improved productivity, enhanced profits, market efficiency, consumer welfare, creation of jobs, and economic development (DeLone & McLean, 2016). This concept aligns with the research objective that sought to find out the benefits of accessing digital libraries in rural areas.

2.3 LITERATURE REVIEW FOR THE STUDY

This section reviews the literature related to the study objectives. Bertram and Christiansen (2020) advise that literature review should discuss the significant previous studies or research which was done in the similar field to the current study. Therefore, the literature in this study discuss the requirements for the use of digital libraries, benefits of accessing digital libraries, potential digital library users, librarians' readiness to provide digital libraries, challenges of accessing digital libraries and aspects for provision of digital library services.

2.3.1 REQUIREMENTS FOR THE USE OF DIGITAL LIBRARY SERVICES

In general African countries are poor as compared to the western countries in terms of their capacity to produce and use knowledge resources. With lack of financial resources, African countries cannot afford to buy the necessary information materials to support quality education and research programmes (Juma, Wamukoya & Wekullo, 2014). However, digital libraries in developing countries are a great hope for so long as computers and internet are available (Da Rosa, Shmorgun & Lamas, 2012). Juma, Wamukoya and Wekullo (2014) add that digital libraries have potential towards offsetting knowledge deficit particularly in Africa.

2.3.1.1 Internet access

Digital libraries depend heavily on the digital media particularly the internet. For the African continent to make a meaningful impact on generation and dissemination of digital content and reduction of the knowledge gap between citizens, libraries and the rest of the world, their internet connectivity must in good condition (Juma, Wamukoya & Wekullo, 2014). The internet is an essential resource for accessing information from various platforms and a cheaper way of communication across all regions, regardless of location. Furthermore, it can enable human rights, empower communities, and facilitate sustainable development (Ayeni, 2019). Nazim (2009) points out that the digital library contains a digital representation of the objects found in it and are accessible through the internet, even though not accessible by everyone. Briggs (2021) notifies that by the year 2019 only 1.2% of the rural population had access to internet at home, with metropolitan areas at 15.4% and the urban areas at 7.2%. Moreover, data costs in South Africa are revealed to be 22 times expensive than the cheapest

data cost average in the world. However, the internet generates prospects for individuals to access information and communicate inside and outside formal institutions (Goldie, 2016).

Modiba (2016) investigated users' perspectives towards the role of public libraries in bridging the digital divide in Ngaka Modiri Molema District. On the importance of free access to computers and internet, he revealed that 3% of the respondents found it not important at all to have free access to computers and the internet, none of the respondents found them not important, 2% of the respondents found free access to computers and the internet moderately important, while 23% found free access to computers and the internet important, and 72% of the respondents found free access to the library computers and the internet very important. This study signifies that internet access is a necessity for library and information services. By the end of 2019, Internet World Stats (2020) shows that internet usage by South Africans is at 55%, denoting that 32, 615, 165 of the citizens have access to the internet.

2.3.1.2 Mobile gadgets

Recently, more and more libraries are embracing mobile technologies to deliver innovative services and presenting ways for users to incorporate library services into their daily lives (Wang, Ke & Lu, 2012). Mobile phones are becoming more popular and becoming almost indispensable in people's day-to-day lives. People are adapting to mobile technology more easily than other technologies. Moreover, improvement in mobile communication technology will significantly facilitate the library and information services. Library mobile services are an extension of the digital library in the mobile communication network. Their services rely on mobile communication technology, mobile phone users and digital library systems (Kumar, 2013). Therefore, Da Rosa, Shmorgun and Lamas (2012) suggest that if computer access in developing countries is a real challenge, a potential alternative is making digital libraries accessible on mobile phones. Contrary to that, West (2015) believes that smartphones are above the affordability of many people. However, user needs and requirements and issues related to the use of mobile phones for online activities have to be fully understood. Moreover, Da Rosa, Shmorgun and Lamas (2012) mention the challenges of accessing digital libraries through mobile phones as: reduced screen space, content inadequacy, input constraints, and device limitations. The small screens are not easy to work on, the contents of a digital library require adjustment of the small screen size, the mobile

phones are usually limited to the keypad with small keys and no pointing device and some mobile devices have limited processing power, as well as working and storage memory.

Despite the assumed challenges of access to digital libraries through mobile phones, Da Rosa, Shmorgun and Lamas (2012) guide that (1) it is important to understand the potential users in advance of their information needs, what functionalities they want, and kinds of mobile devices they possess, (2) the mobile site should have distinguished interfaces for all kinds of phones, (3) the mobile site should have all the functionalities found in the full desktop site, (4) offline access is a critical necessity or some mobile-specific features are needed; therefore, a mobile application is recommended over the mobile site and (5) attention should be given to usability and interaction design to accommodate specificities of mobile environments and equipment.

2.4 BENEFITS OF ACCESSING DIGITAL LIBRARIES

The benefits of digital libraries have been widely recognised in many countries (Kim & Lee, 2015). Zirra, Ibrahim and Abdulganiyyi (2019) concur that African countries can have the capacity of filling the information gaps in its various sectors if digital libraries are put in place to facilitate proper information gathering, processing, distribution, access as well as its application. Leedy and Ormrod (2010) indicate that libraries may eventually exist with the advances in telecommunications, literally without limits. Leedy and Ormrod (2010) further express the convenience which the digital libraries bring by highlighting that one can access the books from all available sources and through a familiar language in spaces such as homes, offices, classrooms, cars or a remote mountain cabin.

Libraries are significant social institutions in communities worldwide. They provide people with valuable information resources, including books and other informative media (Dasgupta & Pieterse, 2009). Digital libraries have the potential to enormously increase access as challenges of mobility and physical impediments have no ground to hamper access to information (Witten & Bainbridge 2003). Johnson and Magusin (2005) agree that digital libraries are developed to make it easier to access valuable information in a more relaxed and time-saving manner. Digital libraries provide immediate access to many information sources without physical obstacles, making learning an independent process (Abbasi & Zardary 2012). Zha, Zhang, Li and Yang (2015) support that, with digital libraries, users can be freed from temporal and spatial limitations to enjoy the ubiquity and convenience of digital libraries. Moreover, digital libraries can deliver

information resources and associated services to their users through various ICTs (Zha, Xiao & Zhang, 2014).

Sun and Yuan (2012) agree that digital libraries require very little office space to contain information compared to traditional libraries, where information storage is limited by space. They further outline major advantages of digital libraries: (1) The digital library user need not go to the library physically; (2) People from all over the world can have access to the same information as long as the internet connection is available; (3) People can gain access to information at any time, night or day; (4) The same resources can be used at the same time by an unlimited number of users; (5) Digital libraries provide access to much richer content in a more structured manner. For example, one can easily move from the catalogue to a similar book, then to a particular chapter and so on; (6) Patrons can use any search term such as word, phrase, title, author, and subject to find the information material from the entire digital collection. Additionally, digital libraries can provide very user-friendly interfaces, giving access to its resources through click-able links; (7) Digital libraries are good for the preservation of digital information. (8) A particular digital library can provide a link to any other resources of other digital libraries very easily, thus a seamlessly integrated resource sharing network can be achieved; (9) Cost of maintaining a digital library is lower than that of a traditional library. Chore and Salwe (2010) cited in Sun & Yuan (2012) add the advantages of digital libraries as follows: (10) Digital library helps to locate both physical and digitised versions of scholarly articles and books through a single interface; (11) Digital library preserve the valuable documents, rare and special collections of libraries, archives and museums; (12) It provides facility for downloading and printing; (13) The chain from author to user is minimised; (14) Save preparation or conservation cost, space and money.

On education, digital libraries have a considerable impact. They enable resource sharing for distance education, on-campus learning and discovery-based learning (Fox, Gonclaves & Kipp, 2002) cited in (Owusu-Ansah, Rodrigues & Walt, 2019). Pal (2015) articulates that digital libraries are playing a vital role on online learning education systems. Most of the digital libraries are dedicated to supporting higher education and research. The institutions of higher learning justify their investment in digital development as a powerful means of realising the larger institutional goals of the academic community they serve. Motive for using digital libraries in e-learning is that it can store and manage large amounts of digital content such as full text, course materials,

bibliographic databases, library catalogues, images and audio clips. Therefore, it provides an environment to bring together collections, services, and people to support the full life cycle of creation, dissemination, and preservation of data, information, and knowledge. Another reason to use digital libraries is that using various electronic tools enables learners to search text materials and images easily and quickly, which can be applied broadly across all kinds of institutions. Advance intercommunication technology, refined search engines, large storage of digital content at affordable cost are the other reasons to implement a digital library in modern education.

Pal (2015) lists the benefits of digital libraries in distance learning as follows: (1) The library allows a learner to use electronic resources without geographic limitation or even knowing where it is stored; (2) A single document could be viewed by many users simultaneously; (3) Study materials never go out of print, and new editions can easily be produced; (4) Users can carry several titles at once on a portable reader and eventually build a personal library; (5) It is easy for a non-specialist to use it due to the simplicity of operation; (6) It provides links to publisher's sites for full-text journals; (7) Digital library provides and facilitates online and on-demand enrolment, study and examinations; (8) Search result can be sent to an e-mail of the user's choice; (9) Protection of rare books that are rapidly deteriorating due to over use and poor storage conditions; (10) It is cost-effective and cost-efficient for its ability to reuse; (11) It provides faster learning, increased access, clear accountability and equal education for everybody; (12) It provides timely information and helps in research work.

2.5 POTENTIAL DIGITAL LIBRARY USERS

Digital libraries are aimed at satisfying users' information needs through collections of documents to which value-added services are provided. To ensure the correct functioning of digital libraries and their services, it is essential to adequately understand the needs of users and their behaviour in the design and creation processes (Tramullas, Sanchez-Casabón & Garrido-Picazo, 2013).

Several user studies on the digital library subject have been conducted around the world. A study by Ekere, Omekwu and Nwoha (2016) investigated the perception of users towards digital library facilities, resources and services and found that users are highly satisfied with it. Users are highly aware and satisfied about the digital library resources such as World Wide Web, WI-FI and search engines compared to online databases, portals, video CDs, and online indexes and abstracts. Ahmad and Sohail (2017) add that e-resources and services are very important in the current era.

On the other hand, Khan and Qutab (2016) investigated the factors that influence the adoption of digital libraries among research students. The findings revealed that interface characteristics influence cognitive response, which predict student's intention of using the digital library. Navigation, individual differences and system characteristics significantly affect the ease of use. Usefulness has the highest impact on the intention to use the digital library and it is directly affected by system characteristics and system quality.

Zha, Zhang, Li and Yang (2015) worked on the flow experience with respect to mobile libraries, and compared the perception of users with mobile libraries and web digital libraries with respect to flow experience. Flow experience is defined as the best experience about an activity that can be achieved by comparing perceived skills and challenges. The study revealed that more users experienced flow in using web digital libraries than mobile libraries.

Amankwah (2014) investigated the use of electronic resources by undergraduate students of Ghana Institute of Management and Public Administration to find out if students utilise electronic resources. Awareness, usage, training, access, usefulness, importance and problems of use were explored. The findings revealed that, though students are aware of electronic resources, they do not fully utilise them to support their academic pursuits, due to the poor level of information literacy skills. However, few students have not participated at all in information literacy skills training organised by the library. Results from the study have shown that most of them do access electronic resources. Most of them used electronic devices such as laptops, iPad, desktop computers, and mobile phones.

Lai and Zeng (2014) investigated user attrition rate, which is the rate of customer discontinuation with digital library services. The study found that customer's churn rate of the given library is very high, and it is the same with churn hazard during the initial three months after the customer's registration on the library's web site. The effects of the user's perception towards print and digital resources in terms of usage, usefulness and ease of use were studied by Zha, Zhang and Yan (2014). It was found out that there is a significant effect of the characteristics of users such as gender, age and experience have a significant effect on users' perception concerning usefulness, usage and ease of use. However, Yan, Zha, Zhang and Hou (2014) revealed that digital libraries provide better information, systems, and service quality based on the user's perception. Moreover, Chen and Wu (2012) articulate that research scholars are frequent users of libraries' digital

resources. Their study investigated usage patterns, graduate students' search behaviour, and perceptions towards digital resources. The study revealed that students compared to other disciplines consider these resources to be very important for their research. Tammaro (2008) indicates that users have a positive attitude towards the digital library. Nevertheless, most of them are unaware of the various services offered by the digital library. However, satisfaction with respect to the digital library is still the area where improvement is required (Frias-Martinez & Chen, 2005).

It is significant to identify the skills which are necessary for the digital library users to access the digital library. There are various skills of which users should possess for accessing and using the digital library services. Those skills define the kind of users which are capable for efficient utilisation of the services of a digital library. Hepworth (2010) outlines digital literacy skills which are recognised as important to facilitate access to information in both domestic and organisational domains as: (1) To develop critical and creative thinking, including the ability to analyse, evaluate and synthesise information and data; (2) To organise and manage information; (3) To be effective at seeking, communicating and sharing data, information and knowledge; (4) To be aware of the etiquette and ethical issues that surround the processes and to be able to motivate oneself, manage time and continuously learn independently.

2.6 LIBRARIANS' READINESS TO PROVIDE DIGITAL LIBRARIES

Information technology was not considered a necessary skill for library professionals until the last decades of the 20th century. The current library professionals are duty-bound to learn and absorb the changes that come with information technology developments as information technologies have permeated all professions, and almost all office works are performed through computers (Usman & Gopakumar, 2018). The web based library services changes the mode of LIS provision (Martin, Murugiah & Nandhini, 2016). Therefore, the librarians' roles are affected by these changes which force a modification of roles. On the other hand, the new roles require the training of librarians on the skills required to provide effective digital library services.

2.6.1 Roles of a digital librarian

Mandalia and Parekh (2017) indicate that the primary role of LIS professionals is to provide information to the users. For librarians to fulfil their tasks and obligations they should subject

themselves to persistent self-renovation by facing the challenges of technological developments (Usman & Gopakumar, 2018). The digital librarian is viewed as a hypertext engineer because the librarians' job consists mostly of packaging and repackaging electronic information sources. Rathee and Kaushik (2010) mention that new atmosphere of digital libraries is challenging, and the librarians' work requires the ability to differentiate between authors, publishers and users.

Among others, the duties of a digital librarian involve digital publishing, reference purposes, and advising users on strategies to identify relevant information sources (Rathee & Kaushik, 2010).

2.6.2 Training and skills requirements

Ranganathan (1963) points that library is a growing organism. Therefore, training of librarians become essential as the library grows. Moreover, it is important for librarians to obtain skills essential for running the digital libraries as librarians are the custodians of libraries (Mandalia & Parekh, 2017). Wangila (2014) investigated the implementation of digital library technologies in higher learning institutions. It was found that over 70% of the respondents agreed to have been trained to adopt digital library technologies. Mutula (2004) notes that it is significant for organisations to prepare for the implementation of information systems as they directly affect the success of organisations.

Sun and Yuan (2012) posit that LIS professionals must acquire IT knowledge and skills as the digital library is a highly IT influenced service. According to Compton's Britannica (2008), a librarian must keep up with the computer technology trends and know the human-computer relationship and management of databases. To run a library, the librarian must learn the techniques for analysing and improving a system, as librarians are currently called information scientists, librarians should move with the times and perceive themselves as information scientists.

Library professionals require the skills or ability to do LIS work with perfection. General, specific and professional skills are essential to carry out librarian duties (Usman & Gopakumar, 2018). Sherpa (2017) confirms that a successful digital library requires well-trained librarians who possess fundamental knowledge and skills for operating a digital library. Those skills are technological capacity, which encompasses gathering, storing, retrieving, and disseminating information and working together with computer specialists and other informational professionals. Moreover, Sherpa (2017) adds that the skills required are for handling information technology and

other related fields such as computer operations, telecommunication media, creating online databases, designing websites, and searching information from the internet.

On the skills to use technological tools, the librarian ought to be familiar with handling information technology products such as keyboards, operating systems, handling of gadgets, telecommunication products, Database Management System (DBMS), data and file management, desktop publishing, word processing and generation of reports. Usman and Gopakumar (2018) add that librarians should have the ability to manage data using the DBMS and the areas of IT such as hardware, software and web applications.

Digital librarian skills outlined by Kenchakkanavar (2014) are of greater importance in the selection of digital resources for the users. They require the digital librarian to recognise user needs; know content and scope of digital resources; examine quality of digital resources and search facility among them; maintain cost effectiveness; check and verify whether the digital resource is subscription based or web based at the time of purchasing; check the license copy; evaluate educational support and training; check the compatibility and technical support. Additionally, Wertheimer and Asato (2018) suggest that transformation to digital librarianship require law skills. Digital librarians need to understand intellectual property law, know the materials that are for public use and those that are still owned by others. However, modification of the curriculum becomes important to attain new skills.

2.7 CHALLENGES OF ACCESSING DIGITAL LIBRARIES

Libraries of the world have been working on mitigating the challenges of digital libraries (Mishra, 2016). The developing countries face many problems in establishing and using digital libraries, such as lack of financial resources, low level of digital literacy, poor ICT infrastructure and low computer and internet penetration rates. However, it is noted that digital libraries are a good alternative in providing library and information services (Da Rosa, Shmorgun & Lamas (2012). If attempts are made to overcome them, there is no doubt that digital libraries will greatly benefit the users and the entire LIS.

Ayeni (2019) lists the challenges that affect internet connectivity access: (1) Affordability appears to be one of the biggest challenge to internet usage; (2) Satellite connectivity is a challenge as many communities are isolated in terms of network infrastructure; (3) Sentiments: gender issues

of patriarchy and power relations between men and women harm internet use and are in some cases perceived as interfering with relationships; (4) Demographics: population, income, population density, literacy, education, consumer habits are indicators in a population that affect demand and supply of internet access. West (2015) mentions that challenge for older people is lack of digital literacy. Many of them do not access the internet because they do not understand its benefits or fear its risks; (5) Power outages: electricity supply bears a direct effect on the consumption of the internet. In rural South African villages, internet use is limited by the inadequate sources of power to charge mobile phone batteries. The devices need to be taken to a different location, in most cases overnight to be charged. Moreover, network coverage is also affected by the outages, making it difficult to use gadgets even though users may have sources of power in their homes; (6) Market environment: the regulatory indicator creates the environment in which internet access services are made available and thus are in the control of policymakers seeking to lower barriers to internet access; (7) High cost of internet service: the internet is debatably the preserve for the rich who in most cases, access it from their homes. One of the reasons for the high cost of connecting to the internet is the costs involved in using satellites due to a lack of cable infrastructure; (8) Poverty: the affordability of data and devices is another barrier to internet users and non-users. West (2015) adds that smartphones are above the affordability of many people; (9) Lack of local content: the lack or limited availability of local content is a barrier to internet consumption; (10) cyber-attacks: cyber-crime limits users of the internet to use it freely. This is due to a developing digital economy. It includes fake news, telemarketing fraud, disinformation, credit card fraud, advance fee schemes, ransom-ware and identity theft; (11) Low speed and time-consuming internet: internet users through broadband are fewer as high-speed internet connectivity requires fibre optic cables; (12) ICT-based school curriculum: ICTs are hardly taught at schools, especially in public schools. Sometimes they are taught by educators who do not have a background education in computer-related courses; (13) Lack of coherent and comprehensive policy often leads to redundancy, waste of resources, ineffective ICT diffusion and development, and the inability to keep up with global trends and opportunities.

The challenge of digital divide has an impact on access and use of digital library. Digital divide is defined by Craig, Damodaran, Gilbertson, Olphert and Sandhu (2015) as a gap between those who enjoy the benefits of internet access and those who do not. Over 3.1 billion people have access to the internet, while 4.2 billion people are outside the digital revolution with internet usage growing

at +/- 9% a year across the globe. Those left out cannot enjoy social, economic, and civil benefits that derive from digital connectivity.

In some places, policy barriers take the form of censorship from the government or civil society which puts information behind a firewall or makes it difficult to access helpful content. Moreover, poverty, expensive devices, and high telecommunications fees are barriers to internet access in developing countries. Even people with higher incomes do not afford it, as devices and data costs make it impossible to access digital services. Users find themselves covering device prices, connection fees, call costs, text messaging expenses, and broadband access. Policy, taxes, and operational barriers play a role as many countries in the developing world have barriers that constrain internet usage. This includes monopoly telecommunications providers, technology sector taxes, lack of digital content, the absence of local language content, and censorship by civil or governmental authorities (West, 2015). Poverty is, therefore, a major catalyst of the digital divide as it cuts across all the demographics.

Getting online, especially for many older and disabled people, is a challenge. Older people have the challenge of learning how to use computers which require significant effort, time and patience. Therefore, they demand considerable help and support. Craig, Damodaran, Gilbertson, Olphert and Sandhu (2015) agree that digital literacy is fast becoming a fundamental requirement for full participation in the digital world. Other than that, they are vulnerable to capability challenges associated with cognitive and physical changes in the later life. This leads them to forget the sequential processes, negatively affecting their confidence levels in using ICTs. The design of ICTs also continues to pose many problems for older and disabled people, particularly relating to the speed of change and unnecessary complexity of software and products. Keyboard operating challenges caused by age-related conditions and sicknesses; the software updates, licenses agreements and their implications; and invisibility of accessibility features are other challenges posed by the design of ICTs (Farooq, Taylor, Gire, Riley, Caton & Husain, 2015).

Copyright poses a threat to access and management of informational resources for digital libraries. Pal (2015) articulates that the development of digital learning has thrown up new hitches due to the copyright implications of electronic text. Users affiliated with digital libraries should print-on-paper extracts of digitally available works under the same conditions. The library authorities should take the initiative to develop some solution on this aspect, which may benefit learners,

publishers, and authors. For libraries to qualify for the copyright exemption, they must meet three requirements: (1) The reproduction and distribution must not be for direct or indirect commercial advantage; (2) The library must be open to the public; and (3) The copies must contain a notice of copyright. Other major challenges are that there is no mechanism available to establish standards for internet materials, instruction, design and quality of interaction; lack of awareness about the use of electronic equipment; access to the internet in developing countries may not be easy or widespread compared to developed countries.

In Africa, libraries were not quick to embrace digital technologies as compared to the developed parts of the world. This could be attributed partly to the perennial problems of technological infrastructure and requisite ICT knowledge and skills. Furthermore, digital library initiatives in Africa largely revolved around university libraries whose efforts in this area were made possible by the need to transform and beef up their print collections which were highly inadequate (Juma, Wamukoya & Wekullo, 2014)

There are unpredictable changes in library and information services, which are facilitated by the advancement of information technology, posing challenges to the field as libraries have to accommodate the evolution. The evolution is caused by the advent of digital resources and computer-aided library management systems (Usman & Gopakumar, 2018). Siddiqui and Khan (2017) identify some of the challenges of the digital library establishment as IT infrastructure, electricity problems, computer literacy, technical skills, maintenance of digital resources and equipment, government funding, lack of social awareness, lack of readers and lack of correct information acquisition. They are discussed as follows:

- Digital literacy

Van dijk (2006) notifies that when digital media substitutes and surpasses analogue print media, people will be illiterate to operate and use digital media. The challenge of having a larger pool of illiterates is unavoidable in rural areas as most people cannot afford to buy smart mobile gadgets.

- Age

Age influences the perception of an individual towards new technologies, and that older people have higher levels of cyberphobia (Meso, Musa & Mbarika, 2005). This leads to digital library services being used by the younger generations compared to the older generations, causing it to be under-utilised.

- Costs

Internet costs are higher in Africa as compared to other continents of the world. Furthermore, poverty and low human development are barriers for people to own computers and afford internet costs (Holmner & Britz, 2011). As much as the internet costs and computers remain unaffordable, the digital library may suffer and become inaccessible. Moreover, Goldfarb and Prince (2008) assert that the internet and internet literacy are influenced by education and income.

- Governance and policies

Wilson and Corey (2011) note that access to information through broadcasting, telephone or internet is subject to regulation. The threat for users is that publishers will adopt technical and legal means to implement restrictive policies governing access to the information they sell, for example, by restricting access to the purchaser i.e. 'no lending to friends' or imposing expiry dates. The net result could easily damage the flow of information far beyond the current status quo, taking note that having a copy does not constitute ownership in terms of copyright law. Mishra (2016) suggest copyright protection to accommodate digital libraries.

- IT infrastructure

IT setup is essential for digital library establishment and a backbone to it as well. The computers, internet, e-content subscription, power backup and gadgets are important components for a digital library. Chukwuere, Klopper, Lubbe and Seretse (2018) state that most rural dwellers do not have computers connected to the internet. To access computers and the internet, they have to travel long distances to urban areas for internet cafes.

- Electricity problem

In recent times, the main provider of electricity in South Africa has not always been able to meet the electrical power demands of the country, implementing various stages of power outages and load shedding. Lack of maintenance of existing power stations, failure to successfully introduce new infrastructure, poor management and allegations of corruption are some of the suggested reasons (Laher, Aardt, Craythorne, Welie, Malinga & Madi, 2019). Without a reliable electricity supply for both the digital library and the Users, there will always be problems of encoding and decoding information.

- Computer literacy

For the entire operation of the digital library, the basic knowledge of computer operation is required, but handling a computer system requires optimal knowledge of computers. Furthermore, the logical and analytical skills are required to avoid some unsolicited malfunctioning of the computer (Siddiqui & Khan, 2017).

- Technical skills

Technical skills contribute to the effective operation of the digital library's resources. With the poor level of computer education, it is not promising to handle the technical problems of a digital library. A digital library having a strong IT infrastructure requires some logical and analytical intelligence. Many technical and non-technical issues may arise during the operation and handling of a digital library. For a small technical problem, an expert may charge a considerable amount of money to resolve it. This charge increases the maintenance cost of the library. In this way, a negative image of the handling of digital libraries may arise. This negative image is sufficient to decrease the popularity factor of digital libraries (Siddiqui & Khan, 2017).

- Maintenance of digital resources and equipment

Internet connectivity is vital for the proper utilisation of electronic resources. It is directly affected by computer viruses and out-dated software capable of disrupting and modifying the computer operation, therefore limiting the use of the internet (Mosha & Bea, 2014). For optimal functioning of a digital library regular software updates, hardware maintenance should be done to keep the digital library in good condition.

- Lack of social awareness

Siddiqui and Khan (2017) advise that social awareness plays an important role in the effective utilisation of resources of a digital library, and unfortunately, there are very few digital library social awareness programs that are organised around communities. Moreover, many people believe that students and other skilled people have sufficient knowledge to handle the digital library, but the picture is totally different in practice. Opening the computer and accessing the various resources using the internet do not guarantee the quality information access.

2.8 IMPLEMENTATION OF A DIGITAL LIBRARY

Sun and Yuan (2012) postulate digital library to be the digital face of a traditional library and its services are improved through the evolving service structures of a digital library. Sun and Yuan (2012) and Ranganathan (1963) depict the evolution of traditional/classic library to digital library. Sun and Yuan (2012: 14) rephrased (Ranganathan, 1963) five classic laws of library science in architecting organisation of digital library system as:

Table 2: Classic library science and Digital library laws

Ranganathan's classic library science laws	**Sun & Yuan's digital library laws**
"Books are for use	"Digital resources are for use
Every reader, his book	Every user seeks digital resources
Every book, its reader	Every digital resource needs its user
Save time of the reader	Save time of the user
A library is a growing organism"	Digital library is a growing organism world-wide"

The main difference between the traditional library and a digital library is that informational resources of a digital library are assembled in a digital format and accessible by computers as opposed to print format of a traditional library (Tochukwu, Nwachukwu-Nwokeafor & Henrieta, 2015). The assembling of a digital library is not shying away from the roles and practises of the traditional libraries, but the improvement of the services in the library and information sector. They both share a common view of the library as a dynamic information service entity. However, the under-developed countries have not embraced the digital libraries (Martin, Murugiah & Nandhini, 2016). It is assumed by Cleveland (1998) that digital libraries are "libraries first and foremost." Cleveland (1998) further describes digital libraries as:

- The digital face of traditional libraries that embrace both digital collections and print collections.

- They include digital materials that exist and are available over the internet.
- Digital libraries' processes and services are guided by the normalities of a traditional library, but for accommodating the differences in format and access mode the processes and services need to be revised.
- Digital libraries ideally provide a clear view of all of the information contained within a library, no matter its form or format.
- Digital libraries serve the particular sets of communities or constituencies as traditional libraries do, but with digital libraries those communities and constituencies may be widely dispersed throughout the network.
- Digital libraries require both the skills of librarians as well as those of computer scientists to be viable.

The planning of a digital library includes IT Infrastructure, digitisation process, accessibility, staffing, furniture, equipment, space, services and funds (Trivedi, 2010). For a digital library to be up and running, lots of funds are required to establish it. A digital library can be built by collecting and organising a Digital Library Management System (DLMS) and then loading it and diffusing the content. The DLMS makes it simpler to erect a digital library, and it guarantees quality of service. The main characteristics that distinguish the DLMSs are the class of functionality, the type of information object model supported and the openness of architecture (Candela, Castelli & Pagano, 2011). For the digital library to function well it requires a management system that is efficient to upload and retrieve information, therefore, the assembling has to be conducted in a manner that will yield positive results (Trivedi, 2010). Ntlotlang (2019) supports the view that libraries must adopt a new culture through the development of IT infrastructure, digital library development projects and digital collections to assist users with digital information access. Restructuring of the libraries is vital for them to remain relevant as Chad (2009) in Ahmat & Hanipah (2018) recognises that there are innovative services outside the domain of traditional libraries that have grown the library services, resulting in market share taken away from the traditional library. Furthermore, they assert that libraries need to examine the trend changes within organisational behaviour comprehensively based on the following key factors:

- People

People's mind-set can be strenuous for libraries in order to implement the digital era's working trends. The leaders in libraries need to influence and instil a belief upon their staff that a need for

change is needed for libraries and also demonstrate that change is not a bad thing. However, networking systems have failed due to lack of effort and good will (Martin, Murugiah, & Nandhini, 2016).

- Organisational structure

It is recommended for the libraries to assess the suitability in adapting other types of organisational structures instead of remaining with the traditional hierarchy structure. Morgan (2014) warns that the traditional hierarchy structure will face a great deal of challenges as it opens doors for competitors and new incumbents to take over the libraries.

- Environment

To assess the overall views of risks of environmental changes, there is a need to analyse external and internal contexts (Cadle, Paul & Turner, 2010). Assessment of the opportunities and threats from external environment as well as the strengths and weaknesses within libraries need to be evaluated.

- Technology

Recommendations to libraries are made for them to take appropriate actions in choosing the best among available options during the process of buying or subscribing multiple types of hardware and software. According to Tucker and Kimbrell (2013) in (Ahmat & Hanipah, 2018) the library should avoid bringing in the technology tools that are under-utilised and under-valued technologically.

2.8.1 Policy effect on implementation

Policies have an effect on implementation of digital library services. Wangila (2014) investigated the implementation of digital library technologies in institutions of higher learning. On the importance of policies and strategies, the researcher found out that there were policies and strategies in place to guide with the implementation of digital library technologies. Similarly, Martin, Murugiah and Nandhini (2016) add that in India, there is national policy for web based library services but there is no intention of implementation. Furthermore, according to Ngimwa and Adams (2011) on the impact of policies in the outcomes of digital libraries within Africa's Higher Education, it was established that existing information related to policy frameworks at all levels have a direct or indirect impact on design, development and implementation of digital libraries. This means that existing policy frameworks play a significant role in shaping the positive

or negative outcomes of digital library services. Therefore, it is of paramount importance to create and adopt policies which advocate for the establishment and utilisation of digital library services.

2.8.2 Digital resources in library and information services

The library and information services are changing rapidly. Speedy development of electronic publishing drives libraries to acquire reading materials such as printed books and journals whilst arranging for the provision access to various learning resources in electronic form. The presence of digital resources enables librarians to improve library and information services. This is possible because of the following: Digital resources can be searched quickly; access to one information source by more than one user; easier retrieval by the user; digital resources can be stored in huge amount; limitless time a user can use the resource; knowledge of different types of resources commonly used; collection, storage, organise information in digital form and its enables librarians to analyse the purpose of using digital resources by the users; promotes efficient delivery of information economically to the users and to encourage co-operative efforts to save and share the investments in research resources, computing and communication network (kenchakkanavar, 2014).

2.9 SUMMARY

The purpose of this chapter was to present theoretical framework which guided the study and to review literature in relation to the objectives of this study. It includes the requirements for the use of digital library services and the benefits of accessing the digital libraries, literature which predicts the prospective digital library users, literature in relation to the readiness of public librarians for providing the digital library services, the challenges associated with accessibility of the digital library services, and the literature on provision of a digital library. Based on the literature reviewed, digital library has the ability to reach users irrespective of their geographical location. However, there are various challenges especially in developing countries and rural areas. Furthermore, there are major responsibilities which need to be taken into consideration by the LIS authorities, users, librarians and various stakeholders to realise digital libraries for rural areas. The next chapter presents methodological procedures followed in conducting this study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

The preceding chapter presented theoretical framework for this study and literature review on users' requirements to access the digital library, the benefits, the potential digital library users, readiness of librarians to provide digital library services, the challenges of accessing digital library services and literature on provision of digital library services. This chapter discusses the procedures followed in conducting this study. Research paradigm, research approach, research design, sampling procedure, data collection procedure, trustworthiness, validity and reliability, and data analysis are covered.

A research methodology is an approach to solving problems. It covers the specific procedures used in identifying, selecting, processing, and evaluating information about a particular subject matter. Research is expected to be based on logical reasoning, reliable, and in conformity with systematic and careful examination of facts anchored on evidence on a particular subject matter (Rajasekar, Philominathan & Chinnathambi, 2006).

3.2 RESEARCH PARADIGM

Willis (2007) defines research paradigm as a comprehensive belief system, world view, or framework that guides research and practise in a field. Guba (1995: 7) in Creswell and Creswell (2018: 5) terms it to be “a basic set of beliefs that guide action”.

Bertram and Christiansen (2014) list three research paradigms as post-positivism, critical theory and interpretivism. Furthermore, Willis (2007) attests that these research paradigms are the dominant guiding frameworks in the research literature in social sciences. The fourth paradigm which combines some elements of the interpretivism, post-positivism and critical paradigms is pragmatic paradigm. Therefore, the four paradigms are discussed below:

3.2.1 Interpretive paradigm

Bhattacharya (2008) describes interpretive research as a structure and a way interested in guiding social science researchers to find out how people see the world around them. It is stipulated that social researches are interpretive as they are steered by the researcher's aspiration to understand and then interpret the social reality. The main focus of interpretive research is understanding and meaning-making, not an explanation of phenomena. Interpretivists belief that the nature of reality should be socially constructed and the purpose of the research is to reflect contextual understanding. Thus, the goal of interpretive research is an understanding of a particular situation or context much more than the discovery of universal laws or rules (Willis, 2007). Interpretivists are interested in what the world means to the person or group being studied and is deemed significant to social science research. According to Denzin and Lincoln (2011) interpretivists use varying methods, tools and techniques to secure rich understanding of phenomenon under investigation. Moreover, Henning (2004) attest interpretivist realises that observation has the capabilities of being wrong, and theories are revisable. Interpretive research does not initially focus on causal and effect relationships between variables, but on the process of unearthing the way people see the environment around them (Kaplan & Maxwell, 1994). Interpretivism is the philosophical framework which this research study is based on.

3.2.2 Post-positivism

Bertram and Christiansen (2020) agree that post-positivism is a philosophy of constructing and genaralising natural and social reality through collection of data from large scale survey with the aim of describing, controlling and predicting social phenomena. Creswell and Creswell (2018) add that post-positivism is more applicable for quantitative than qualitative approach to research. The post-positivists are invested in “understanding regular causality” (Bertram & Christiansen, 2020: 30). One can attest that post-positivism is in contrast with interpretivism as interpretivists are of the belief that social reality is constructed through understanding of how people make sense of their own surrounding.

3.2.3 Critical paradigm

The view of critical paradigm is based on the reality that people come from different demographic backgrounds. Moreover, it is considerate of the imbalances and “discriminatory ways in which the

social world is organised". Therefore, those backgrounds influence their perceptions of life in general (Bertram & Christiansen, 2020: 32). This implies that everyone, in the society is subjective to their own views of the social reality based their situations and social groupings they ascribe themselves to. For example, according to this world view, it is only fair to gather data from the poor when investigating poverty and the elite ones cannot be part. Cohen , Manion and Morrison (2018) point that the goal of critical paradigm does not end with understanding social phenomena from the affected groups or individuals, but also strives for change and contribute to fair and just society. Kivunja and Kuyini (2017) support that critical paradigm is concerned with seeking social justice on issues that relates to political, social and economic matters which lead to social oppression, conflict, and struggle.

3.2.4 Pragmatic paradigm

Kivunja and Kuyini (2017) state that the pragmatic paradigm arose from the philosophers who believe that reality or absolute truth cannot be attained through one scientific method advocated by neither the positivist nor interpretivist paradigm. Therefore this paradigm framework encourages the usage of the some elements found in the three paradigms (Interpretivism, Post-positivism and critical paradigm). Pragmatic paradigm is used for mixed-method research approach.

3.2.5 Justification for selecting interpretive research paradigm

This study adopted interpretive philosophical framework to research. The intention was to have a deeper understanding of the views of public librarians about digital libraries for rural areas. This is avowed by Henning (2004) when arguing that knowledge is constructed not only by observable phenomena, also through the description of people's intentions, beliefs, values and reasons, meaning-making and self-understanding. Moreover, Cohen, Manion and Morrison (2018: 19) affirm that the interpretive paradigm is intended to "understand the subjective world of human experience." Interpretive research was employed to bring digital libraries to the rural context, not to generalise digital libraries as situations of communities and countries differ. It was suitable for this study to allow the researcher to investigate a context-specific topic and interpret the views and experiences of the participants.

3.3 RESEARCH APPROACH

In this section, the research approaches are discussed and the researcher selects the one appropriate to the current study.

3.3.1 Discussion of research approaches

There are three approaches to research, qualitative, quantitative and mixed-method (Creswell, 2014). Creswell and Creswell (2018) define the qualitative research method as an approach that seeks to explore and understand people's perspectives on their attribution to a social problem. It is described by Creswell (1997) as ethnographic, interpretive, critical, or postmodern research. On the other hand, the quantitative research method is defined as an approach for testing objective theories by examining the relationship between variables. The variables in quantitative research can be measured typically on instruments, so that numbered data can be analysed using statistical procedures. Quantitative approach is often termed empirical, positivist, or objectivist (Henrickson & McKelvey, 2002) cited in Willis (2007). Mixed methods research is therefore an approach involving the collection of both qualitative and quantitative data, combining the two sets of data and using different designs of which may involve philosophical assumptions and theoretical frameworks. The choice of utilising both of them in a single study is called 'mixed-methods approach' or triangulation. In using a triangulation approach, a researcher is guaranteed additional insight beyond the information provided by either qualitative or quantitative data only (Creswell & Creswell, 2018). Furthermore, Wisdom (2013) believes that mixed methods are particularly significant in understanding various contradictions that exist between quantitative outcomes and qualitative findings in research. Mixed methods allow the participant to voice their opinion and guarantee that findings are based on the participants' experiences. The Author adds that mixed methods are more flexible and adaptable to many research designs and they provide complete information than either qualitative or qualitative would alone.

The researcher should choose between qualitative and quantitative methods or opt to apply both of them. Creswell and Creswell (2018) state that the choice of research method should be guided by the philosophical assumptions of a researcher, research design, data collection methods, analysis, and interpretation of data. Moreover, they allude that the nature of the research problem

also influences the choice. Qualitative and quantitative methods are useful in answering different kinds of questions and solving different types of research problems (Leedy & Ormrod, 2016).

3.3.2 Justification for selecting qualitative research approach

This study sought to gather the perspectives of public librarians on digital libraries for rural areas. Due to lack of observable digital libraries in rural areas, the researcher chose qualitative research approach to guide this study. Creswell and Creswell (2018) describe it as an approach for exploring and understanding the meaning which individuals or groups ascribe to a social or human problem.

Qualitative research is framed in terms of using words rather than numbers and applies open-ended questions rather than using closed-ended questions (Creswell & Cresswell, 2018). Therefore, qualitative research approach is appropriately chosen for this study as it is a method used to describe life experiences, cultures, and social processes from the perspectives of the persons involved. Qualitative method helps to improve comprehension of a phenomenon without measuring concepts or statistical relationships (Gray, Grove & Sutherland, 2017). This approach was used for its efficiency on the ability to delve deeper into the participants' perspectives, especially that the study participants are not working from digital libraries. Leedy and Ormrod (2016) notes that qualitative approach enables the researcher to carry on with the study in cases where lack of sufficient information exists on a topic. This allows free flow of communication between the interviewer and the interviewee. Moreover, they both can ask for clarity from one another, unlike in closed ended questions. Qualitative research makes provision for reasoning unlike in quantitative studies where one can be left eyeing for the reasons behind generated figures.

3.4 RESEARCH DESIGN

This section explains the selected research design for the study and makes justifications for its choice. Research design is described as a type of inquiry within qualitative, quantitative and mixed methods approaches that provide specific direction for procedures in a research study (Creswell & Creswell, 2018). Research design is a structured strategy of investigation which the researcher uses to obtain answers for research questions (Kerlinger, 1986) as cited in Kumar (2011). Leedy and Omrod (2016) assert that it is an essential aspect of solving a research problem as it provides the general procedural structure for the researcher to follow. Designing research is essential for "smooth sailing of the various research operations" (Kothari 2004: 32). Gray, Grove and

Sutherland (2017) add that research design includes a plan for data collection, measurement and data analysis.

Creswell and Poth (2018) mention the narrative, phenomenological, grounded theory, ethnographic, and case study as the research designs under qualitative approach. The research designs to inquiries are discussed below:

3.4.1 Narrative research design

Narrative research is a study based on exploration of the lives of individuals through collection of data from their stories. Data is collected from interviews, observations, and documents. It is from their stories, researcher's observations and documents where the researcher analyses data and make conclusions and tell stories about the individual under investigation (Creswell & Poth, 2018).

3.4.2 Phenomenological research design

Phenomenological research study emanates from the fields of philosophy and psychology and focuses on understanding the essence of the participants' experiences about phenomena (Creswell & Creswell, 2018). It is through phenomenological research design where the participants express their perspectives about a phenomenon.

3.4.3 Grounded theory research design

Babbie (2010) describes grounded theory research as an effort to develop theories from analysing patterns, themes, and common categories revealed through observation. Creswell and Poth (2018) concur that grounded theory research is an inquiry whereby data collected from participants are utilised to develop a theory.

3.4.4 Ethnographic research design

In ethnographic research, a researcher studies the common patterns of behaviours, language and actions of a particular cultural group in a natural setting over a long period of time. Data collection methods used by ethnographic researchers include interviews and observation in a natural setting (Creswell & Creswell, 2018). Babbie (2010) states that ethnographic inquiry focus on detailed and accurate description of phenomena rather than explanation.

3.4.5 Case study research design

Case study research is designed in a manner which allows the researcher to develop an in-depth understanding of a case. It is used in many fields but mostly in evaluations which might be programs, events, activities, processes, or individuals (Yin, 2014). Babbie (2010: 309) shows that the focus of case study is paying attention to a single instance of a social phenomenon, which might be a "village, a family or a juvenile gang"

3.4.6 Justification for selecting phenomenological research design

This study sought to investigate the participants' views surrounding the requirements, the benefits, the potential digital library users, public librarians' readiness, the challenges of accessing digital library and recommendations for the provision of digital library services to rural dwellers. A phenomenological research design was adopted for this study because this study was qualitative in nature. Moreover, the phenomenological designs allow the researcher to investigate the perspectives of the participants about a phenomenon, in this case digital library for rural areas.

3.5 POPULATION OF THE STUDY

Wild and Diggines (2013) define the population as the entire group of people or entities from which information is required. According to Bless, Higson-Smith and Sithole (2013), population is an entire set of people which the researcher wants to determine some characteristics. It is stated as all people that would fit into the group that is being considered by a particular study. It is from the population where a sample is drawn (Bertram & Christiansen, 2014). The population of the study was a total of the twenty-three (23) public librarians with various titles: (1 City Librarian, 4 Senior Librarians, 17 Librarians, and 1 Assistant Librarian) from four local municipalities employed by the Department of Sport, Arts and Culture and Local Municipalities.

Capricorn District Municipality has four Local Municipalities, Blouberg, Lepelle-Nkumpi, Molemole and Polokwane. Its public libraries and librarians are distributed as follows:

Table 3: Distribution of Public libraries under CDM

Capricorn District's local Municipalities	Public Libraries	No. of librarians
Blouberg (22 wards)	Alldays	1
	Eldorado	1
Lepelle-Nkumpi (30 wards)	Lebowa-kgomo	1
	Seleteng	1
Molemole (16 wards)	Fedile	1
	Mogwadi	2
	Morebeng	1
	Ramokgopa	1
Polokwane (45 wards)	Mankweng	1 senior librarian
	Matlala	0
	Molepo	1
	Moletji	1
	Nirvanna	1
	Polokwane city	1 City librarian 2 Senior Librarians 3 Librarians 1 assistant librarian
	Seshego	1 Librarian 1 Senior Librarian
	Westenburg	1
Total wards: 113	**Total libraries: 16**	**Total librarians: 23**

3.6 SAMPLING PROCEDURE

Sampling is the process of selecting a sample from the study population to become the basis for estimating the prevalence of information of interest to a researcher (Kumar, 2011). Bless, Higson-Smith and Sithole (2013) believe that sampling means abandoning certainty in favour of probability. There are two main sampling methods: probability and non-probability sampling. According to Bless Higson-Smith and Sithole (2013), probability sampling is when the likelihood of including each population element can be determined. Similarly, Connaway and Powell (2010) opine that probability sampling enhances the possibility of accomplishing the objective of selecting elements that accurately represent the total population from which the elements were drawn. Probability sampling comprises simple random sampling, stratified random sampling, cluster sampling and systematic sampling. In non-probability sampling, the researcher has no way of assuring that each component of the population will be presented in the sample (Leedy & Ormrofd, 2010). A sample is selected based on the researcher's intuition that the members will be able to provide valuable information to the study and have a higher chance of being selected than others (Leedy & Ormrod, 2016). Non-probability sampling comprises accidental sampling, quota sampling, purposive sampling, snowball sampling, self-selection sampling and convenience sampling.

The participants should have gone to LIS School, qualified and working from a public library to provide LIS in their respective communities. The reason the researcher chose this criterion was to "access knowledgeable people" who were likely to provide "in-depth knowledge about particular issues" (Ball, 1990 cited in Cohen, Manion & Morrison, 2018: 219).

Non-probability sampling is adopted in this study. Purposive sampling is about choosing which people, groups, or objects to be included in the sample. In purposive sampling, the researcher targets a particular group without bearing in mind if the entire population is represented (Bertram & Christiansen, 2014). Researchers within the interpretive paradigm are often not concerned with statistical accuracy or whether their data represents an entire population. Their focus is on collecting detailed, in-depth description and analysis (Bertram & Christiansen, 2014; Leedy & Ormrod 2016).

3.6.1 Sample of the study

In this study, the sample consists of qualified public librarians who provide LIS to library users under Capricorn District Municipality, Limpopo Province. In purposive sampling, the researcher makes specific choices on the kind of people, groups, or objects to include in the sample (Bertram & Christiansen, 2020).

The researcher excluded the city librarian, senior librarians and Assistant librarian from forming part of the sample. The reason was that the senior librarians and the city librarian often delegate the responsibility of providing LIS to the librarians and are understood to hold management positions of the libraries.

The assistant librarian was removed for the reason that his or her responsibility involves assisting the librarians and the duty of LIS provision is not entirely their responsibility but librarians'. Therefore, the sample was limited to 17 public librarians.

3.6.2 Sample size

The sample of seventeen (17) public librarians was purposely chosen for this study. The researcher could not get permission to conduct interviews from one (1) municipality which had eight (8) librarians who purposely qualified for being part of the sample. Furthermore, one (1) Librarian from other municipality denied to be interviewed. Therefore, five (5) public librarians were interviewed, and the remaining three public librarians were not interviewed as the researcher realised repetition of responses or data saturation was reached. Jensen and Laurie (2016) attest that the researcher reaches saturation point when the cases in the data collection are no longer expanding or changing the depth of relevant ideas that have already came up. Sample size in qualitative studies is not a necessity; instead, the researcher collects data until the saturation point is reached (Kumar, 2014). Moreover, the Author defines this to be a point in data collection whereby the researcher is no longer getting new information from participants, or the information gets repeated like in previous interviews.

As the optimum sample size is the one that fulfils requirements of efficiency, representativeness, reliability and flexibility (Kothari, 2004), the researcher gathered data from five public librarians representing their local municipalities under the CDM.

The table below depicts the sample of this study:

Table 4: Sample for the study

Public librarians	Public Library	Highest Qualification
L1	Alldays	Bachelor of Information Studies
L2	Fedile	Bachelor of Information Studies
L3	Seleteng	Bachelor of Information Studies
L4	Lebowa-kgomo	Post-Graduate Diploma (Information Studies)
L5	Mogwadi	Bachelor of Information Studies

3.7 DATA COLLECTION INSTRUMENTS

There are different data collection instruments used for gathering information for research studies. Those are document analysis, focus groups, questionnaires and interviews. Bowen (2009) describes document analysis as a form of qualitative research tool in which documents are interpreted by the researcher to provide meaning around the issue under investigation. Merriam and Tisdell (2016) refer to document analysis as a valuable approach which is under-utilised by researchers. It is not possible to conduct this kind of research without documents or where records. Sathiyaseelan (2015) articulates that questionnaires are frequently used data collection instruments, which comprise of open-ended or closed-ended questions. Silverman (2017) define a questionnaire as a data collection instrument enclosing an orderly set of questions for the purpose of collecting information from the respondents (Silverman 2017). Focus group is a form of group interview usually with ten (10) to twelve (12) participants, and it is a better way of gathering participants from similar backgrounds or experiences to discuss a specific topic of interest (Mishra, 2016). It is a challenge to conduct focus group in situations where the participants are not at a common place, however modern technologies can be used to break those barriers. Matthews and Ross (2010) define an interview as a data collection method that enables the interviewer to elicit interviewee's information, feelings, and opinions using questions and interactive dialogue.

3.7.1 Selected data collection instrument

Data was gathered through interviews and the interview schedule was prepared for collecting data. The interview was the appropriate data collection method for collecting qualitative data; it helped the researcher to stimulate participants' opinions. Face-to-face interviews have the advantage of enabling the researcher to establish a relationship with potential participants and therefore gain their cooperation (Henning, 2004). In this study, data was gathered through semi-structured interviews. In semi-structured interviews, the researcher follows standard questions which are tailored to probe the participant's reasoning (Henning, 2004). The researcher used both audiotaping and wrote notes to collect information.

There are three common types of interviews: unstructured, semi-structured, and structured interviews. Unstructured interviews seek to achieve a holistic understanding of the participants' points of view. Semi-structured interviews are a type of interview whereby the researcher wants to know specific information which can be compared and contrasted with information gained in other interviews. The same questions need to be asked in each interview to achieve this. However, the researcher remains flexible so that other information can still arise. Lastly, structured interviews are quantitative interviews whereby the researcher asks a series of questions and ticks boxes with your response. They are frequently used in market research (Dawson, 2002). In a structured interview, the researcher asks a prearranged set of questions, using the same arrangement of words and order of questions as specified in the interview plan (Kumar, 2011).

Advantages of interviews

Creswell and Creswell (2018) mention the advantages of interviews as:

- Useful when participants cannot be directly observed
- Participants can provide historical information
- Allows researcher control over the line of questioning

The interviews enabled the researcher to conduct face to face engagement with the participants, which allowed follow up questions and clarity seeking questions. Moreover, detailed information was elicited from the participants.

Disadvantages of interviews

Creswell and Creswell (2018) mention the weaknesses of interviews as:

- Provides indirect information filtered through the views of interviewees
- Provides information in a designated place rather than the natural field setting
- Researcher's presence may bias responses
- Not all people are equally articulate and perceptive.

For minimising the shortcomings of interviews, the researcher allowed the interviewees to ask clarity on questions they do not understand. To avoid biasness, direct quotations were extracted for objective analysis. Moreover, the interview schedule was used without any deviation from the research questions. Lastly, the researcher interviewed the qualified librarians and therefore, minimised the weakness of interviews.

The audiotape was used with the interviewees' permission. According to Creswell and Creswell (2018), a researcher records information from the interview by making handwritten notes, audiotaping, or videotaping.

3.7.2 Data collection procedure

Interview schedule was prepared for data collection. According to Kumar (2011: 384), an interview schedule is a "written list of questions, open-ended or closed-ended, prepared for use by an interviewer in a person-to-person interaction." It is a tool used to collect data through the interview method. This further explains that interviews allow the researcher to find clarity and again get a better understanding of issues. The interview schedule was employed to introduce the interviewer to the interviewee; prepare the interviewee on the purpose of the study and its significance; the estimated time which the interviews may consume; and for the interviewer to avoid deviating from the questions and ensure that all questions are asked in each interview to obtain credible results.

Therefore, data for this study was gathered through semi-structured interviews. Semi-structured interviews allow the researcher to prepare questions beforehand and keep the interview process on shape. They encourage a two-way communication between the interviewer and interviewee.

Moreover, they allow for open-ended responses from participants. Interview schedule was chosen as data collection instrument for this study because if allows the researcher to set questions in a predetermined manner. This ensures that the researcher does not deviate from the research questions which might lead to research objectives not fulfilled.

In qualitative research, data is typically collected in the participant's setting. Researchers collect qualitative data by examining documents (content analysis), observing behaviour, or interviewing participants. They indicate that the data collection procedure involves setting boundaries for study through sampling and recruitment, collection of data through unstructured or semi-structured observations and interviews, documents, and visual materials, as well as establishing the protocol for recording information (Creswell & Creswell, 2018). Interpretivists use qualitative methods such as case studies, interviews, and observations since they are better ways of getting at how humans interpret the world around them (Willis, 2007).

The interviewer introduced himself to the interviewees. The study was presented to the interviewees together with its purpose. This was to create an atmosphere that will accommodate the open and flow of ideas between the interviewee and the interviewer. The title was introduced as “Public librarians' perspectives of digital library for rural areas of Capricorn District Municipality, Limpopo province.” The purpose was presented to gather the perspectives of public librarians under Capricorn District Municipality. It was further stated that their responses answers to the interview questions and could assist in assessing whether the digital libraries can help in enhancing accessibility of library and information services in rural areas.

The interviewer presented the interviewees with the following instructions to answer the interview questions:

- Where the interviewees do not understand the question, they should ask the interviewer to repeat the question.
- Answering of every question with honesty as possible.
- Answering of all questions accurately.
- Interviewee should feel free to elaborate after answering, where possible.

- Code switching from English to any official language of South Africa is allowed, for better answering.
- Avoiding to remain silent, the interviewees are requested to respond with 'not sure'

The interview schedule (Appendix B) enlists the research questions.

At the end of the interviews, the interviewer thanked the interviewees for participating in the interviews and promised he would send them an electronic copy of the dissertation once it is completed.

3.7.3 Pretesting

Pretesting is an effective process for improving validity, reliability and rigour in qualitative data collection and for interpreting findings (Hurst, Arulogun, Owolabi, Akinyemi, Uvere, Warth & Ovbiagele, 2015). Pretesting allows the researcher to revise and edit the interview questions prior to actual interviews. This enables quality data collection and easier data analysis process. Moreover, it prepares the researcher for the actual data collection. The researcher's aim of pre-testing the interview schedule was solely based of eliminating errors, ambiguity and unclear questions.

Three interviews with qualified public librarians from Waterberg District, Limpopo Province were conducted. Three of them are qualified Librarians and they work for the public libraries of Northam, Regorogile and Vaalwater. The weaknesses found from the interviews were eliminated. Some questions were found to be ambiguous by the participants were edited for better comprehension. On the list of instructions to answer the interview questions, the instruction was changed from "Code switching from English to Sepedi is allowed, for better answering" to "Code switching from English to any official language of South Africa is allowed, for better answering. The researcher was advised that anyone should feel comfortable in the language of their choice. The researcher then realised that it was his duty to find someone qualified to translate from any language to English when the neeed arises, fortunately all participants responded in English throughout the interviews.

3.8 DATA ANALYSIS

According to Neuman (2011) to analyse data means systematically to organise, integrate, and examine; as we do this, we search for patterns and relationships among the specific details. The qualitative data collected was analysed through thematic analysis.

The researcher reviewed interview transcripts and identified, grouped and re-grouped the distinct units. The recorded interview data was then transcribed, analysed and coded into categories. Qualitative researchers frequently include dialogues and participants' statements to illustrate their findings (Leedy & Ormrod, 2016).

There are two broad approaches to qualitative data analysis, inductive and deductive. Inductive works from specific observations to broader generalisations and theories. Creswell and Creswell (2018) concur that data analysed inductively build from particulars to general themes, and the researcher makes interpretation of the meaning of data. Deductive analysis works from more general to more specific. It might begin with a theory about a topic of interest; categories are developed for organising or classifying the data. Thus, the difference between the two approaches is that in inductive analysis, categories emerge from data. At the same time, in deductive, the researcher starts with a set of categories, which are then used to categorise and organise data (Bertram & Christiansen, 2020). Data was analysed deductively in this study, since researcher requires to accomplish the objectives of the study through consistent structure (Zalaghi & Khazaei, 2016). Data was analysed thematically through the following phases: familiarising with data collected from interviews, generating codes, search for themes, review of themes, defining and naming of themes, and producing report.

3.8.1 Thematic data analysis

The initial step in data analysis was to reduce and organise data to see the emerging themes. An advantage to using thematic analysis is that it is extremely flexible, and can be adjusted to suit many studies (Nowell, Norris, Deborah, & Moules, 2017). Moreover, Braun and Clarke (2006) add that thematic analysis is easier and relevant for new researchers as it does not require detailed theoretical and technological knowledge unlike other qualitative analysis methods. King (2004) states thematic analysis guides the researcher to a well-organised data handling method and helps produce a pure and well-organised report. Delahunt and Maguire (2017) state that there are various

ways to approach thematic analysis. This makes confusion about the nature of thematic analysis (Vaismoradi, Turunen & Bondas, 2013). Braun and Clarke' (2006) six-phased structure is perceived by Delahunt and Maguire (2017) as the most dominant thematic analysis approach.

This study adopted the phases of thematic analysis as mentioned by Braun and Clarke (2006): Familiarising with data, creating initial codes, searching for themes, reviewing themes, defining and naming themes and generating the report. Therefore, data was analysed through these phases:

Phase 1: Familiarising yourself with your data

Braun and Clarke (2006) argue that irrespective of whether the researcher collected the data him or herself, it is important to read the data repeatedly to familiarise themselves with the entirety of the contents. By so doing, it enables one to find meanings and patterns from the data. During this initial phase, the researcher may take notes on ideas for coding (Guba & Lincoln, 1985).

The researcher interviewed the participants on his own, audio-taped and took handwritten notes and got familiar with the data while interviewing. The researcher transcribed the data from the audio-tape to a written form. Again for data analysis, the researcher read data and listened to the audio-tape regularly and grasped the meanings of data from the participants.

Phase 2: Generating initial codes

This phase comprises the initial production of codes from the data researcher familiarised himself with (Braun & Clarke, 2006). Coding allows the researcher to simplify and focus on specific characteristics of data; again, the researcher will move from data without structure to meaning finding from the data (Morse & Richards, 2002). King (2004) advises that during coding, the researchers should identify the important sections of text and attach labels to index them as they relate to the theme or issue in the data.

In pursuit to generate the initial codes, deductive/selective coding was employed. The researcher attached labels on the text awaiting analysis based on research objectives, with codes beside the original text. Some texts or extracts were underlined for the next phase.

Phase 3: Searching for themes

This phase starts when data is initially coded and collated. Codes are organised according to different themes (Braun & Carke, 2006). Searching for themes involves identifying patterns that emerge from data. Themes are used to answer the research questions and ultimately attain the objectives of the study. Therefore, the researcher had the themes beforehand and searched the codes that relate to the themes. Creswell and Creswell (2020) confirm that it is possible to have a clear theoretical framework or set of concepts beforehand, and use that framework to analyse data.

Phase 4: Reviewing themes

The fourth phase starts after a set of themes have been devised, and they now require refinement (Braun & Clarke, 2006). Delahunt and Maguire (2017) advise that the themes should be coherent and distinct from one another. They further suggest that when reviewing the themes, the researcher should consider the following: if the themes make sense; if the data support the themes; if the researcher is not trying to fit too much into a theme; in case the themes overlap, are they isolated themes; if there are subthemes under the main ones; and if there are other themes within data. The researcher reviewed the themes with reference to Delahunt and Maguire (2017).

Phase 5: Defining and naming themes

In this phase, the researcher clearly defines and names each theme, and which aspect of data each theme is going to capture (Braun & Clarke, 2006).

The researcher extracted stories relevant to each theme from data by participants. The themes were named for easy understanding of what the themes are about, as suggested by (Braun & Clarke, 2006). Moreover, all themes or sub-themes were described for better comprehension of what they entail.

Themes for data analysis were:

- **Theme 1:** Requirements for the use of digital library services
- **Theme 2:** Benefits of accessing digital libraries
- **Theme 3:** Potential digital library users in rural areas
- **Theme 4:** Public librarians' readiness to provide digital library services

- **Theme 5:** Challenges of accessing digital library services
- **Theme 6:** Recommendations for the provision of digital library services in rural areas

Phase 6: Producing the report

This is the final phase where the researcher has the themes in good order and is ready to start with the final analysis and write a report (Braun & Clarke, 2006). Production of the report is considered the final step in thematic analysis. This phase allowed the researcher to have a comprehensive data awaiting thorough analysis.

3.9 TRUSTWORTHINESS, VALIDITY AND RELIABILITY

Leedy and Ormrod (2016) argue that validity is a term not necessarily used by qualitative researchers. Neuman (2011) opines that all researchers seek validity and reliability, which are the central concerns in all measurements. They are ideas that help establish findings' truthfulness, credibility, or believability. Reliability means dependability or consistency, whereas validity means truthfulness.

Winter 2000 cited in (Bertram & Christiansen, 2014:188) advise that researchers in the interpretive paradigm need to conduct “some kind of qualifying check” on research works. Guba and Lincoln (1994) define trustworthiness as a concept used in interpretive research to conduct a quality check on the works of research. They further, suggest the concepts of credibility, transferability, dependability and confirmability to reach trustworthiness of research. De Vos (2011) emphasises that trustworthiness is the point to which study findings can be relied on and be trusted.

3.9.1 Trustworthiness

Trustworthiness of a study refers to the extent of the credibility of data, its interpretation, and methods to collect data to ensure the quality of a research and its findings (Polit & Beck, 2014). Amankwaa (2016) warns that researchers should observe the ethical practices and processes required for a study to be considered worthy of consideration by readers.

To ensure trustworthiness of the interviews (semi-structured), the researcher pre-tested the interview questions with assistance of three public librarians from Waterberg District, Limpopo

Province. The aim was to review the interview questions and where possible the researcher to consider amending the interview questions.

The researcher ensured that this study conforms to the four pillars of trustworthiness. Those pillars are credibility, transferability, dependability and confirmability (Guba & Lincoln, 1985):

(i) Credibility

Credibility of a study is equivalent to internal validity in quantitative research. It signifies a situation where the results of a study are truthful to the participants of that study (Kumar 2014). For a research study to be considered credible, it must reflect the participants' reality (Bertram & Christiansen, 2014).

In ensuring the credibility of the study, the researcher used audiotape to record the interviews, and interviewees had a choice to code-switch to any official language of South Africa.

(ii) Transferability

Transferability is equivalent to external validity in quantitative research, it is described by Kumar (2014) as the degree to which the results of the qualitative study can be generalised to other context or setting. Anney (2015) states that transferability is achieved when the researcher provides the full description of the study and how the sample was chosen.

To achieve transferability, the sample was chosen through purposeful sampling technique, ensuring that the participants are best to answer the interview questions. The study was introduced and the aim was communicated to the participants. The method used to collect data was defined and described. The instructions or guidelines of the interview process were also communicated to the participants.

(iii) Dependability

Dependability is similar to reliability in quantitative research; it is concerned with whether the same results will be produced if the same phenomenon can be studied twice (Kumar 2014). Moser and Korstjens (2018: 121) define dependability as “the stability of findings over time”.

In ensuring dependability, the researcher accounted for all the research decisions and activities though the detailed description of how data was collected, recorded and analysed. Data analysis was conducted through themes which are mostly used in interpretive research.

(v) Confirmability

Confirmability is similar to reliability in quantitative (Kumar, 2014). It refers to a degree to which research findings of a study could be verified by other researchers (Moser & Korstjens, 2018). To accomplish confirmability, the interview schedule was used and questions were asked consistently without deviating from the interview schedule. The handwritten notes, as well as the audio-tape, were used frequently to avoid misinterpretation of data. The direct quotations from participants were used in data analysis stage, and the researcher interpreted data based on data provided by participants. The participants were free to talk or code switch to any official language of South Africa.

3.9.2 Avoiding biases

Purposive sampling, as well as interview method has a possibility of bias from the interviewer. Interviewer bias refers to the extent to which an answer is altered in meaning by some action or attitude on the part of the interviewer (Kothari, 2004). To avoid biases, the researcher applied the following regulations:

- The researcher conducted interviews through the interview schedule, without deviating from it. All interview questions were asked to all individual participants.
- The researcher captured and analysed data as it is from the participants; direct quotations were captured.

3.10 ETHICAL CONSIDERATIONS

UNISA’s College of Human Science's ethics committee ethically cleared the study, allowing the researcher to collect data. As it is of great importance to gain access to the study area, the researcher asked permission from the gatekeeper, in this case, the Head of Department (HOD) of the Department of Sport, Arts and Culture, to collect data from the public librarians. The permission was granted. Neuman (2011, 429) defines gatekeeper as a person with authority to control access to a site. Flick (2014) perceives ethical principles as a cornerstone in social research. Additionally,

research ethics emphasises the caring and delicate treatment of research participants, who may be placed at varying degrees of risk by research procedures (Bless, Higson-Smith & Sithole, 2013). In the process of collecting data, the researcher has to uphold specific ethical codes and protect the participants from any form of abuse that may result from participating in the research study. The researcher observed the following ethical conducts:

(i) Ethical clearance

Ethical clearance to conduct the research was obtained from the College of Human Science's ethics committee.

(ii) Anonymity and Confidentiality

According to Oliver (2010), anonymity is a cornerstone of research ethics, its essence is that the participants should be offered an opportunity to have their identity hidden in a research study. Confidentiality is defined by Bertram and Christiansen (2020) as the responsibility of the researcher to protect the identities of research participants when the results or findings of the study are published. To maintain anonymity and confidentiality of the participants, all participants were protected by the researcher throughout the study. The researcher ensured that the identities of the participants are not part of analysis as the participants were referred to as L1, L2, L3, L4 and L5.

(iii) Informed consent

Informed consent involves providing participants with clear information about what participating in a research project will involve and allowing them to decide whether or not they want to participate (Wiles, 2013). The researcher informed the participants that their participation is voluntary. Furthermore, the researcher explained the study's aims and how the findings of the study will be used. All research participants have signed the consent forms before data was collected. The signing of the consent forms was voluntary.

3.11 SUMMARY OF THE CHAPTER

The purpose of this chapter was to report on the research methodology which guided this phenomenological study. The research paradigm, research approach, research design, sampling and data collection procedure for the study were discussed. This study adopted qualitative approach and motivated with reasons for the choice of methodology employed. In addition interviews were used to collect data. Ethical considerations taken to ensure the protection of participants were also discussed. The next chapter reports the findings of this study.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 INTRODUCTION

This chapter presents, analyses, and interprets the research findings gathered through face-to-face, semi-structured interviews from five participants (Librarians working in public libraries of Capricorn District, Limpopo Province). The research participants were asked to identify venues where interviews can be conducted and the dates suitable to them. All of the interviews were conducted in the library buildings. Three of the libraries were brick and mortar, and the other two were modular. The participants/librarians are labelled as L1, L2, L3, L4, and L5.

The interview schedule was tabled in the form of main questions and sub-questions. The main questions were clarified to the participants on what the sub-questions are aimed to achieve. The duration of between 30 to 60 minutes was used in each interview. The exact words of participants were quoted to support analysis as this study employed a qualitative data analysis method. The themes were prepared in line with the objectives of the study. Given that there are no digital public libraries in Capricorn District, the librarians' perspectives were on how they envision the digital library on the requirements for access, the benefits, potential digital library users, public librarians' readiness to provide the digital library services, the challenges and recommendations for the provision of digital library services in rural areas.

4.2 RESEARCH FINDINGS

In this section the research findings are presented through extracts from the interview transcript.

4.2.1 Theme 1: Requirements for the use of digital library services

This theme captures the requirements needed by the rural users to be in a position to access digital library services. These requirements range from ICT tools, the resources needed to operate the ICT tools, the skills required, and the ways in which those skills can be attained.

4.2.1.1 ICT tool requirements

In order to find out about the ICT tools which are required from the users to access digital library services, the following questions were asked "What kind of Information and communication technology (ICT) tool would be needed for a digital library?

What are the additional resources needed to utilise that ICT tool? In responding to the questions the participants are quoted below:

- L1 "The users need smart phone, access to internet and maybe user training to access digital library".
- L2 "I think they should have a phone and a laptop. They should be able to have network coverage & internet access."
- L3 "Computer and maybe smartphone. Internet will be needed or Wi-Fi".
- L4 "Computers with internet. Personal laptops and smartphones with access to internet".
- L5 "They will need computer, internet, scanner and printing." She further mentions that "Maybe the e-mail and the tablet" will be needed for accessing a digital library.

The participants provided variety of ICT tools required to capacitate users in order to access services of a digital library. Those tools are computers, laptops, smartphones, phone, tablets, internet, Wi-Fi, email, scanning and printing devices.

There is a difference between the types of ICT tools mentioned by the participants. A smartphone is defined by Chmielarz (2020) as a multimedia device that possesses the functions of both a mobile phone and a fully portable computer and functionalities of other devices such as electronic cameras, voice recorders, and GPS navigation notebooks, computer game consoles and health sensors controllers. A mobile phone with no advanced applications as a smartphone can be used to call the digital library when the users experience difficulties accessing materials and other related queries, and it's limited to calls, Short Message Services (SMSes). Smartphones can do both computer tasks as well as all mobile phone tasks. A tablet is defined by Burford and Park (2014: 622) as a "lightweight, flat and portable computing technology that can be connected to the internet". A laptop is described by Foti and Mendez (2014) as a portable mobile computer with a

large screen and keyboard known for taking notes. L5 mentioned a printer as a necessity for accessing the services of a digital library. A printer is a device that converts electronic information to the paper form. It will be necessary for those who prefer reading from paper than on computer/smartphone screens or from a smartphone. Some users may print the information and use it. This shows that users have varying preferences on the format of information sources they need. The format in which information is found may influence the use of the information source. She further mentions a scanner.

A scanner is a device that converts paper-form information sources to electronic format. Users may use the scanner to send information out to their study buddies or wherever they want information or documents. L5 regards email as a tool that may be needed for engaging with the digital library. It may be useful for receiving notices and communication between the user and the digital library. Access to the internet remains basic to accessing digital information services. Without internet there is no realisation of digital libraries.

The users are spoilt to choose from the devices mentioned above, but may be limited by financial costs as well as usability of the devices. For instance, smartphones cost less than laptops or desktop computers, while in terms of screen size, users may need laptops or desktops for bigger screen sizes which display information adequately. People earning lower salaries may be bound to access digital library from a smartphone, while other people with better financial standing may use laptops and desktops. Also with printing devices, the less salary earners may be forced to read from screen and not from paper as paper format requires more money. In terms of information sharing with peers, the digital library users may scan documents using their smartphones; a scanner may be a surplus.

4.2.1.2 Computer Skills required for accessing a digital library

To find out the ICT tools required of users to access digital library services, the following questions were asked: What level of computer literacy do they require to utilise that ICT tool? *(the one stated in question 4.2.1.1*) What could be done to acquire computer literacy?" The responses from participants were as follows:

- L1 "They just need basic or entry-level computer literacy. Just basic to navigate on the drive and utilise the internet. Most people are using cell phones and if you are able to utilise

a cell phone you will be able to access a digital library". "Training could assist to those who cannot self-educate themselves."

- L2 "For one to be able to utilise the ICT tool one has to know basics of a computer. Be able to know how to access websites." "They can go to Computer colleges or visit traditional libraries so the librarian can assist in teaching how to use the computer."
- L3 "They should just have basic computer skills, does not have to be advanced." "Through institutions, us we do offer basic computer training for users… computer academies."
- L4 "Basic computer literacy or internet search skills." "Basic computer literacy programs at schools and library."
- L5 "Users should be computer literate to use the ICT, if someone does not know how to use or does not have computer literacy will not be able to use the digital library." "We can do online training and also the awareness, to educate on how to acquire computer literacy."

The participants demonstrated that basic computer literacy is fundamental to the user on the ability to utilise the ICT tools mentioned in 4.2.1.1. They further provided that basic computer literacy can be acquired through self-training, librarians in public libraries, computer colleges, and schools. Fezaa (2013) articulates that computer literacy can be acquired through various means. The participants signalled willingness of library professionals to teach and transfer computer skills. L5 adds that online training and awareness can be inserted to the course of teaching computer skills. Raju and Raju (2010) confirm that librarians offer the opportunity for the public to develop skills for accessing information in diverse forms for effective use.

ICT tools are needed for accessing a digital library, including internet. Those are a gadget used to access internet, for instance, computer/laptop and a printer for those users who prefer reading from paper. Moreover, a scanner may be used for sharing paper-form information between users. However, digital library users need basic ICT literacy skills. Anyim (2018) attests that ICT literacy is an unavoidable element of a digital library as users must access and evaluate information. The user may self-educate, receive training form public libraries and form computer academies. However, it is noted that most people are able to use cell-phones which they can use to access digital library services. This means that the public librarians perceive the digital library interface to be easier and friendly to use.

4.2.2 Theme 2: Benefits of accessing digital libraries

An improvement in organisations or a change of doing things emanates from goals anticipated. Therefore, there are various benefits which users can derive from accessing the digital libraries, some of those are mentioned in section 2.4. The benefits in the context of rural areas are covered under this theme.

4.2.2.1 *The benefits of digital library*

To find out about the benefits of digital libraries, the following question was asked: What can be benefited from digital libraries? The responses were as follows:

- L1 “They can access library resources at their own time, at their own space, in a moment which is convenient to them. In that case library opening and closing times will not matter to them. Now it is during Covid, users are not allowed to come to the library so if we had digital libraries users will still be able to access library materials without having to come and gather in the library. So they will benefit users a lot”
- L2 “They will be able to access info wherever they are, it will save them time, money in case where one has to travel since they are in rural areas and libraries are scarce.”
- L3 “You can get immediate access to resources at any time remotely without having to purchase a book or an item. You can get access even if disabled because it has audio and video resources that people with physical disabilities can use. It has the ability to direct users to relevant resources.”
- L4 “It will limit the scarcity of libraries. Instead of going 20 kilometres to access a physical library you just access it where you are.”

From the above quotes it was indicated that there are numerous benefits which users can derive from digital libraries. For instance, the libraries' operational times can no longer affect the users as users will access LIS remotely at their own convenience. Money and time will be saved on the part of users as taxi fares, or travelling will not be necessary. The users are assured of information access wherever possible, as distances no longer dictate information access. The various formats of information sources ensure that every user is provided according to their preferences. The shortage of physical libraries will not matter as most people will have improved access to LIS

services. To sum up their views, the participants are of the view that digital library encourages maximum access to library and information services. Moreover, it limits hindrances such as distance, while users enjoy convenience and saving finances. Ilahi, Widiaty, Wahyudin and Abdullah (2019) agree that digital libraries can be easily accessed by users from anywhere they might be located. Moreover, people with mobility challenges will be served.

It can be drawn that digital libraries offer better access opportunities to resources with minimised financial costs. This means an increased number of people might utilise the services of libraries than before.

4.2.2.2 *Significance for* accessing *LIS by rural dwellers*

The following question was asked in order to find out the importance of accessing LIS by the rural inhabitants: Why is it essential for rural people to have access to Library and Information Services? The responses were as follows:

- L1 “People who reside in rural areas sometimes cannot afford the costs of accessing information. Institutions like libraries offer information free of charge.”
- L2 “It is important so that they can check for updates for those who are job hunting. For those who are studying with UNISA, maybe distance learning it is important to access LIS especially at home where they will have a quiet moment as you can see the library is too small and we will be having kids from primary plus secondary and they always make noise and are uncontrollable.”
- L3 “We all know that rural areas were previously disadvantaged most of the rural dwellers are from poor backgrounds, they cannot afford resources or other necessities to better their lives so library is able to provide access to information and information resources to empower the communities and that will eventually foster socio-economic development in the country.”
- L4 “On most things, they get information late. They do not have access to newspapers. They can get timely information from the library. For example, vacancies, school applications and sending out assignments.”
- L5 “It is essential for informal and formal learning.”

The above quotes indicate the reasons that support rural dwellers' access to LIS. Libraries offer information for free and rural inhabitants cannot always afford the information costs. All their challenges of lack of LIS access can be attributed to their poor backgrounds and the previous marginalisation by the apartheid government. For example, they can access job hunting and LIS support learning (both formal and informal). Moreover, digital libraries provide support for formal and informal learning as it does offer basic and secondary educational sources of information (Hemlata & Meena, 2013) in Adamou and Ntoka (2017). From the means they make to reach information, rural dwellers in most cases get irrelevant information due to late access; they do not have access to periodical information sources like newspapers. Akpokurerie and Nina-Okpousung (2019) reveal that digital libraries provide better retrieval and faster communication.

The participants displayed that rural inhabitants have a need or motive to access information from libraries. This means they are denied participation in the economy and other activities to better their lives. Therefore, the initiatives to meet their information needs are necessary to this course.

4.2.2.3 *Core needs of rural dwellers from LIS*

The following question was asked in order to capture the fundamental needs of rural citizens from the LIS: What are the core needs of rural dwellers from LIS? The responses were as follows:

- L1 “They need Books to read and refer. So, Library is offering book circulation services; they also need internet services, ICT services such as photocopying, scanning and typing.”
- L2 “Access to information that will enable them to apply for universities, jobs and revamp their CVs.”
- L3 “We all know that libraries support learning and school curriculum so most of them come and we provide books that will help complete tasks and assignments. Some just come for ICTs they do not have computers where they can do their assignments or type their CVs.”
- L4 “For study, for employment searching, general information such as self-empowerment, taking care of livestock, they have livestock but they don't have sufficient information to take care of them.”

- L5 “They need books and the internet to make copies; some also use resources like newspapers to access the vacancies.”

The above quotes assembled the central needs of rural dwellers from the LIS. Those needs are books, the internet, photocopying, scanning, typing, university applications, job hunting, learning support, general information and specific information (i.e. L4 'taking care of livestock'), and newspapers. Most of the needs can be provide by the LIS, although the digital library cannot make copies, typing and scanning remotely. This shows that physical libraries, though not found in closer proximity by all citizens, have the upper hand over the digital libraries.

All information supplied shows that users need information. A fully functional library can provide the services perceived as essential by the users, even though some can be provided only by the physical library. Libraries should consider the information needs of its users and consequently strive to cater them fully.

4.2.2.4 *Digital materials which users would like to access*

In order to find out about the digital materials which users would like to access, this question posed was: What kind of materials would users like to access from the digital library? The responses are shown below:

- L1 “Reading materials, books, reference materials like dictionaries, encyclopedias, study guides for school learners, storytelling for young children.”
- L2 “Mostly e-books and e-newspapers.”
- L3 “I would say E-books, newspapers, journals. Those are the main ones.”
- L4 “Normally they need books, newspapers, magazines, e-government services.”
- L5 “It can be books, journals, and also the newspapers or periodicals.”

Participants indicated that the users are likely to access reading materials and services from other organisations, for instance e-government. Their needs are gathered as follows: books, reference materials, study guides, storytelling platform, newspapers, journals, magazines, and e-government services. Akpokurerie and Nina-Okpousung (2019) provide that digital libraries safeguard access to books, historic records, archive films and museum objects. Mugwisi, Jiyane and Fombad (2016)

recommend that supplying the services of the library to the public should include varying current users' needs and those of the potential users. The effectiveness of a digital library is linked to its resources being relevant to and usable by its patrons (Bishop, Van House, & Buttenfield, 2003). Therefore, it is pivotal that the development of a digital library for rural users should include the services of both the physical library users and those projected to be of digital users.

4.2.2.5 B*enefits of 24-hour access to information resources*

The following question was asked in order to grasp the benefits of 24hour access to information resources: What would be the benefits of 24-hour access to information resources?

The following were the participants' responses:

- L1 “The matter of time will no longer be a matter on a digital library platform. So they do not have to be here in time during opening hours for them to access materials but they can access materials from their cell phones, laptops & computers during the time which is convenient to them.”
- L2 “The users will be able to access the information at any time they want, and anytime they feel like studying.”
- L3 “It will mean that everyone will get access at any time convenient to them without time constraints.”
- L4 “School learners will be able to do assignments in their own time.”
- L5 “We have problem of school learners in accessing the library, the library closes the same time as the school (16h30) Monday to Thursday. If its digital they can access it at any time. They only access the library on Fridays because the school closes at 13h00, they come in large numbers and we cannot provide all with computers and on Saturday we are closed.”

From the quotes above, it is noticeable that opening and closing times will not affect users on retrieval of information sources and time will be extended and that will ensure continuous access. Rathee and Kaushik (2010) concur that the benefit of a digital library is that it is always open 7 days a week for 24 hours a day. This means that library users can access the services of libraries

at any moment and location of their choice. School learners will be able to complete assignments and homework on time. Moreover, overcrowding can be dealt with and resources in the physical libraries are likely to be used by the needy or those without technological gadgets at home.

4.2.2.6 *Multiple accesses to information resources*

The question was formulated in the following manner to establish how multiple access to information resources would enhance library services: How would multiple access to information resources enhance library services? The participants answered as follows:

- L1 “Those who cannot make it during the opening hours can still access information. Library will reach more users than before.”
- L2 “There are those who prefer paper than online, so having others who choose online access will give others a chance to come to library personally. That could increase the usage of the library.”
- L3 “It means Librarians can be able to respond to queries quickly. Because they are able to send direct links in order to fulfil the user's needs.”
- L4 “It will create space for libraries. It will afford library staff more time as we will be less needed to offer books physically. We will have time for organising programs and training and so on.”
- L5 “a large number of people can access one book at the same time.”

The participants indicated that library services will attract many users as users will gain access both during operational times and after library working hours as well. In terms of the format of information sources, users are ensured that their preference is catered to either visiting a physical library or online access. In addition, the library will enhance its services on quick response to queries, spacious public libraries, and ample time for running library programs and lastly, users are guaranteed access to information sources irrespective of numbers accessing the same copy at that moment. Akpokurerie and Nina-Okpousung (2019: 173) allude that “Digital libraries offer a wide range of new access opportunities that are absent in the traditional environment, including remote access, 24-hour access and multiple users for single sources.”

4.2.2.7 *Management of physical space*

In order to find out how digital library would manage the physical space, the following question was asked: How would digital library help in managing physical space? The participants' answers are quoted below:

- L1 “It will reduce overcrowding in the library especially in small libraries like this one.”
- L2 “As you can see we are in a container with no space so if other users are able to access at their own space it means we can be able to accommodate those that prefer reading in paper or coming to library. So in this way people can be able to access the library and have space.”
- L3 “Materials can be weeded away from shelves to save some space. It's not everyone who has smartphones and laptops at home. Even if there was a digital library that you can be able to access at home they will still come because they don't have the ICT equipment.”
- L4 “Digitally, in order to read a book you do not need to go to shelves, you just open your open your laptop even outside the library and access your book.”
- L5 “In a normal library you find there's no enough space, as u can see our library is very small, u find there are more books that users need and the challenge is the space where we can put it, but if we use digital library we will save the space.”

All participants made it clear that physical libraries will be afforded space. Some of the users will access LIS in their own places rather than having a single mode of access. Moreover, other users will still visit a library physically because not everyone from the community or public has required ICTs to access the digital library. Perdana and Prasojo (2020) allude that when users want to use a book in a digital library, they do not need to search over the bookshelf but they only need to search it in the computer that the libraries provided. The library spaces created will be used by those users with no means of accessing at home, this will make the library accessible by many users.

4.2.3 Theme 3: Potential Digital library users in rural areas

This theme is about identifying users who are most likely to use the digital library services.

4.2.3.1Potential age groups to use digital library

The following question was asked to find out about the age groups that are more likely to use the services of a digital library: Which age groups are most likely to use the digital library? The responses were as follows:

- L1 “I think the youth, including school learners, those looking for employment, the employed. Adults will use but not more than youth & students.”
- L2 “Mostly its youth, and seasoned teachers, politicians who like to read of less than 40 years.”
- L3 “Learners 14-18 who are in high school. Students at varsity level from 18-35 and also researchers.”
- L4 “11-18 for studying, high school and primary school. 18 – 40 for studying and job searching.”
- L5 “Between ages of 6 and 30 they can use it for school work. 6 – they can access children's books. 30 – access books for their studies and read for pleasure.”

From the data presented above it shows that the youth are mostly anticipated to be the digital library users. The participants further exhibited that users will be using the digital library for employment seeking, studying and reading for pleasure. Anyim (2018) asserts that users are very important in the library because it would be useless and a waste of resources for establishing a library without them. Hart *et al.* (2014) in Bopape, Dikotla, Mahlatji, Ntsala and Makgahlela (2017) support that public libraries are harmless public spaces with prospects for general youth growth. Since it’s mostly the youth who are likely to use the digital library services, well-informed societies may be built.

4.2.3.2 *The physically challenged*

To assess if digital library could accommodate people with disabilities, the participants were asked the following question: What could be done by the digital library to cater the physically challenged? The responses were:

- L1 “If they can include things like Audiobooks, for those who cannot see. For those who cannot listen, they should include video materials. Eish… It is a challenge to cater to the physically challenged; those who the library can cater they will cater. It will be an unfortunate part for those libraries that cannot cater.”

- L2 “Obviously, we are going to be looking for those who can't hear and those who can't see. I'm not really sure, but maybe if they have software on their gadgets that will help them access the digital library. If they don't have those software, it means they have to come to library physically, or the librarian can take the info to them, if they not staying far.”

- L3 “They should have audios, videos, if possible they can install software called JAWS, it guides visually impaired people how to go through the digital library or whatever you busy with.”

- L4 “This needs to start with community leaders identifying those physically challenged. If we have a large number of those in a certain area, we can teach them how to access the digital library, especially if they need information. To assess that, we have to research so that we know which one needs what. If they can use a smart-phone, we can do online programs with them. But if we have one person in a village, we can do home visit and show how to access information.”

- L5 “I do not think it will be a challenge for the physically challenged (those who cannot walk/mobility challenges) to access the digital library, braille can be provided for those who cannot see. Those who cannot hear but see we can show them whatever they want to access.”

The participants provided a variety of thoughts on how digital library can be organised in order to cater people with physical challenges, most of them spoke about formats of information which could assist, with some describing the kinds of software that might help. They admitted that serving the physically challenged is not simple. Ekwelem (2013) study found out that libraries were established to service people with no physical challenges. The study further advised that web-based library services should be introduced to cater the physically challenged users.

4.2.3.3 *Users and digital content usage*

The questions were formulated as follows to find out about usage of digital contents: Did library users ever use the digital content or services before? What are those digital content or services? In responding to the questions above, the participants answered as follows:

- L1 “Yes, internet. They search information digitally, print, some copy the information within the library.”
- L2 “I can't say they did since we do not have those e-books. They only access the internet when they are here.”
- L3 “I would say mostly Google books. We scan and make print-outs to create information files that we store on computers so when they come in large numbers, we can take a copy and they can be able to access on the laptop or computers, say maybe we have one copy on the shelve. I do not know if they downloaded once, but we also have that.”
- L4 “Yes they did on the books we don't have in the library. We access book chapters and books from 'Bookboon'. For previous question papers and memos, we use Oliverhouse.”
- L5 “Yes, searching for information on the internet, and also books using Limpopo Brocade/OPAC to see where they can find the book.”

Four participants approved that library users are using digital sources of information accessed from the internet and the digitised or scanned information from books prepared by the library. L2 was uncertain on whether the users access electronic informational sources. However, acknowledged that users are provided with internet, which is a medium to access information. Asogwa, Ugwu and Idoko (2016) perceive the internet as a prerequisite for sourcing information. L3 showed that her library creates digital content from the books and share information with the library users.

Moreover, some participants mentioned that they get those from Bookboon, Olivershouse, Google books and are using OPAC (Online Public Access Catalogue) to locate books. It is shown above that some users access electronic information and convert it to tangible paper format.

4.2.4 Theme 4: Readiness of librarians to provide digital library services

The above theme evaluates the readiness of public librarians to perform duties that are expected in the provision of digital library services.

4.2.4.1 Readiness to perform tasks of the digital library services

In order to assess the readiness and willingness of the public librarians, the following question was asked: Are you ready to provide the digital library services? The responses were as follows:

- L1 “Yes, I am ready. Yes, I'm ready.”
- L2 “More than ready. With the library that I am working, I'm more than ready. I will be avoiding congested library, at least I will have space.”
- L3 “Yes, as long as there's a proper training. They are already familiar with the services.”
- L4 “Yes there is no much difference on whether the book is on a computer system or shelves. The only thing it needs management on how we are going to operate.”
- L5 “No, training is not provided on how to operate a digital library. If training is provided, I would not be ready because we do not have enough equipment. If enough equipment was to be provided, I think I will be ready.”

From the quotes above, it was evident that the participants (public librarians) are open to the advent of digital libraries and are ready to provide library services on a digital platform. However, L3, L4 and L5 identified the importance of training, with L4 pointing that management should advise on how the digital library will operate. Moreover, L5 advised that sufficient equipment together with training will make her ready to be part of the digital library. Fezaa (2013) adds that for a digital library system to be fully functional, it requires trained staff to effectively utilise information technologies.

4.2.4.2 Requirements for librarians to provide the digital library services

The question was posed to unearth the requirements of public librarians to provide on a digital platform. The question was formulated in the following manner: What do you require to provide the digital library services?

The responses were a quoted below:

- L1 “I require a Smartphone to be able to take videos. The laptop we do have and reliable access to the internet.”
- L2 “We need an app for sending out SMSes, Online databases, we also need electronic books, a stable Wi-Fi and more of ICT tools like telephone.”
- L3 “Having the resources or equipment like computers, scanning devices, and internet.”
- L4 “Extra computers.”
- L5 “It require trained staff, funds, more equipment like scanners, internet, computers and printing devices.”

The participants mentioned the requirements for librarians to provide the digital library services. Those necessities are presented as follows: a smartphone, laptop, access to internet, application to send SMSes, online databases, electronic books, telephone, additional computers, scanning devices, training, funds and printing devices.

4.2.4.3 Vital Skills required for providing the digital library services

In order to gather the skills required, the following question was asked: Which skills do you think are important to librarians for catering the digital library services? The responses to the question were as follows:

- L1 “Computer literacy, digital literacy, online communication skills and presentation skills.”
- L2 “Obviously you have to be computer literate, good communication skills, customer care, you have to be web literate, also the marketing skills.”

- L3 “I would say digital literacy, digital information management, technological skills, advanced searching skills.”
- L4 “We need to know how to use computers, and other electronics, especially in the student curriculum they should come up with a module if not available to teach digital library. Those already working should be trained.”
- L5 “IT skills, computer literacy, and also the managing skills.”

The information presented above confers important skills required by the library staff to provide the digital library services. Those skills are gathered as follows: computer literacy and overall digital literacy, communication skills, presentation skills, customer care, web literacy, marketing skills, digital information management technological skills, advanced information searching skills. L4 suggested that the academic curriculum should include training on the features of digital library. Sreenivasulu (2000) indicates that information science schools have been teaching activities on developments of information technologies for decades. Appiah, Konlan and Asiedu (2018) also attest that staff working in library should attain high level of ICT literacy as it is essential to their working environment. Okiy (2010) suggests a need to train librarians to fully equip themselves with ICT skills continuously.

4.2.5 Theme 5: Challenges of accessing digital library services in rural areas

This theme captures the challenges that could make accessing digital library difficult or impossible.

4.2.5.1 *Accessibility hindrances to the use of digital library*

The question was formulated in the following manner to find what might hinder the use of a digital library: What could make accessing digital library services difficult? The responses were as follows:

- L1 “I think Challenges such as internet, network problems, load shedding.”
- L2 “Poor network coverage, not having a smartphone. Being Without data bundles.”

- L3 “Illiteracy, not being able to read instructions or not being able to read at all. Lack of basic computer skills. Lack of resources, not having computers or smartphone or any ICT that can be used to access the digital library.”
- L4 “Budget, infrastructure.”
- L5 “If you do not know how to operate a tablet or computer it's going to be difficult. Network, if maybe you're staying in rural areas and having network problems it's going to be difficult.”

The participants highlighted challenges of internet access, network coverage, electricity outages, lack of gadgets, illiteracy, computer skills, budget, and infrastructure, which are seen to hinder the accessibility or use of a digital library. Perdana and Prasojo (2020) show that in the situation of electricity outages, a digital library cannot optimally operate. A failure in each role player will result in failure for the digital library to perform its duties accordingly. For an effective digital library to run it requires funds on both the library body and its users. The users need skills, the gadgets and internet while the library requires infrastructure. In a situation where one of the requirements is not met the digital library cannot fulfil its role. Therefore, the network providers, power suppliers, library users, and government have a role to play in reaching a digital library goal.

4.2.5.2 *Skills for accessing digital library*

The question posed was in this manner to discover the skills needed for accessing a digital library: Which skills are essential for accessing the Digital Library? The responses were:

- L1 “Basic computer skills. Basic cell phone navigation skills.”
- L2 “Computer literacy skills, they should be able to access online services, be able to access databases. Have knowledge of databases.”
- L3 “Basic computer skill.”
- L4 “Computer literacy.”
- L5 “Computer literacy skill.”

All participants ascertained that without the computer skills digital library may not be accessed. Others add by mentioning the cellphone operating skills, online services access skills and knowledge of databases are critical for accessing digital library.

The subsequent follow-up question was asked in order to capture how the skills mentioned above could be acquired: How can they be acquired? In response to the question, the participants are quoted below:

- L1 “Exhibitions where the librarians or library staff can show users out there where to go, how to go and how to do it over the phone. Like user orientation training on the phone even on the computer.”
- L2 “I think one should visit the library, speak to the librarian so that they can teach about databases, how to access online materials and also to give them basic computer lessons.”
- L3 “Our library will offer free training for computer skills. If you have resources (money) you can advance by going to a certain institution.”
- L4 “Government should introduce computer literacy as a subject at schools. Librarians should go to schools and conduct computer literacy programs or the learners should come to library in groups.”
- L5 “As librarians we can do the online training and educate users on how to operate our digital library.”

The participants expressed that the skills that enable one to access a digital library can be acquired from the library, exhibitions, computer lessons, or training. They further believe that the schools should include computer literacy as part of the curriculum. Moreover, users with financial resources can utilise the services of other institutions for learning the computer skills.

4.2.5.3 *Digital literacy as a requirement to use a digital library*

The question was formulated as follows to find out if digital literacy is necessary for using a digital library: Would digital literacy be required in using the digital library?

The responses were as follows:

- L1 “Yes. It would be required.”

- L2 “Yes, because you'll find that some users never used a laptop or be online, as a librarian you have to give them lessons so that they can be able to access it whenever they want and wherever they are without having to always come to a library.”
- L3 “Yes.”
- L4 “Yes, digital literacy comprises of many things like information searching; you need to use the ICT tools. They must know how to use ICTs irrespective of age.”
- L5 “Yes.”

All the participants shared a view that digital literacy would be mandatory for users to be able to utilise the digital library. As digital literacy is a combination of all skills required in the technological era, users need to have skills of locating and utilising information, creating digital content and communicating digital content (Khosrow-Pour, 2018) and others related to technologies around digital libraries.

4.2.5.4 *Library professionals' readiness to manage digital libraries*

The question was formulated as follows in order to find out about the readiness of public librarians to manage the digital libraries: Would it be a challenge for library professionals to manage the digital library services? The responses were as follows:

- L1 “I cannot say it could be a challenge per se. I guess isn't it that when we move to digital library services training will be offered for professionals to be readily equipped to offer digital library services. Even if there could be challenges training will assist with dealing with those challenges.”
- L2 “No, I don't think it will be difficult as long as you have skills and knowledge you can be able to manage the digital library services. It's not really a big challenge.”
- L3 “I think with proper training it will be managed. With relevant training, the librarians will manage.”
- L4 “At the beginning it will be a challenge. If they do workshops or trainings it will be better. Operational plan will help. It will be a challenge because the librarian will have

many queries to attend to which we never had before especially if we use system based digital library."

- L5 "Yes, it can be a challenge because we need training to manage the digital library. Without training, it's going to be a challenge."

The participants were of the view that library professionals can manage the digital libraries given that they are adequately trained. They believe that with training, all challenges will be resolved. According to Sreenivasulu (2000), digital libraries pose many challenges and opportunities. Moreover, digital librarians are required to digitally manage, organise knowledge and information, distribute, and provide reference and information services. Minniti, Salazar and Vega (2019) acknowledge that in the rural context, training on the use of digital libraries is vital and is central to rollout of digital libraries. Therefore, training should accommodate all aspects of their daily duty demands for effective and efficient digital library services. Public librarians' responses showed that they are willing and ready to be manage digital library services.

4.2.5.5 *Copyright issues and digital library*

In order to find out about copyright and its implications on digital library, the question was asked as follows: Are copyright issues going to hinder digital library services? The responses were as follows:

- L1 "I do not think so because the thing of saving the whole book or downloading the whole book could be managed digitally and the thing like sharing a book or maybe reading a book online, the person will acknowledge the author. Library professionals can manage that."

- L2 "I think as a librarian you have to sit down with your users and teach them about copyright so that it won't hinder the services of the library."

- L3 "In my opinion even if you were busy reviewing an e-book and it comes to a point where it does not review certain info that you were required, you can get it from other sources. When you read something, especially the ones from Google books, they don't reveal the whole information just to protect the copyright thing you can always get the rest of the info from other sources who wrote about the same topic or subject."

- L4 “I am not sure. How are we going to consult the owners? I think copyright should come up with a plan on how authors and publishers are going to benefit. When an owner sold five books they expect money for five books, with digital library it's not going to be just five books, it's going to be number of copies as accessed or downloaded by the users at home. I think LIS/NLSA should pay extra money to the authors or publishers.”
- L5 “Yes, I think it's very important to protect our authors' work. The librarians should protect copyright act. It's going to be a problem. I don't know how we are going to overcome that issue.”

Participants rendered varying answers in this regard. All of them acknowledge the importance of protecting the copyright, with three of the participants confident that the librarians can manage and protect the copyright.

Tripathi and Jeevan (2011) express that library professionals should educate and manage the legitimate use of digital sources of information. L3 advised that when users are denied access to a specific book they can get alternative books that are available for use. L4 and L5 remained unsure on how the issue of copyright can be tackled. L4 further mentioned that copyright, the library and information services or National library of South Africa as bodies that can resolve the issue at hand. Furthermore, it is suggested that the library bodies can compensate the authors for the works accessed online by digital libraries. However, they remain optimistic that there will be a solution.

According to Fezaa (2013), the digital library establishment requires clear policies on handling intellectual property rights. However, this issue remains gloomy as there is no clarity on digital sharing of digital resources through computer networks (Ilahi *et al.*, 2019). Without the issue of copyright on digital sources being addressed and solution found, digital library will be haunted, which could lead to mismanagement of this kind of a library.

4.2.6 Recommendations for provision of digital library services in rural areas

The participants offer advises on how digital library should be instigated.

4.2.6.1 The public librarians' description of an effective digital library

In order to find out about the description of an effective digital library, the following questions were posed: What is your description of a practical or effective digital library? The responses were quoted as follows:

- L1 “A library which is reliable in terms of access, easy to use and always available.”
- L2 “Should have internet, ICT tools that are working, the environment should be of accessible and users should be able to access digital library without coming across any problems, up to date and accessible at all times.”
- L3 “The one that has a relevant collection, it has to be user friendly, offer information in various formats, has to have effective communication during reference service, proper management system, be accessible remotely for 24/7.”
- L4 “Reliable internet, enough computers, backup electricity.”
- L5 “Ability to reach library users far from the library, there will be no need for them to travel long distances.”

The participants envision a functional digital library as a library that should be accessible, user-friendly, reliable and always available for users. Additionally, reliability of the internet, functional ICT tools, up to date and proper management system, back-up electricity, relevant collection, ability to offer information in various formats, effective communication, and ability to reach users residing far from the library are viewed to be essential building blocks of an operative digital library.

In order to find out which services should a digital library include, the following question was asked: What should the services of a digital library incorporate? The answers were as follows:

- L1 “All information services such as access to reading materials, reference, story hours. Everything that libraries can do or provide online. All possible services of user groups should be incorporated into a digital library.”

- L2 “I think the library should have a way of communicating with the users telephonically or through email. So they should have information or the contact details of the librarian to use when they cannot be able to access the services to be able to call in.”
- L3 “OPAC, digital reference service, library chat rooms, for example, the famous one '*ask a librarian*'. Virtual library tours like library orientation on a virtual platform. Bulletin board for the community.”
- L4 “E-government, newspapers, current jobs on one website, public and private jobs should be uploaded on one website not to go to Google and search for jobs.”
- L5 “I think a digital library should offer services like library materials online, newspapers, and municipal services.”

The participants further suggested the services which a digital library should include. Those services are reading materials, reference services, OPAC, storytelling, communication through telephone and email, library chat rooms, virtual library orientation, bulletin board for community, e-government, newspapers, and jobs corner.

4.2.6.2 Libraries' benefits from serving digital library services

The question asked to find out about the benefits of serving the digital services was as follows: What will your library benefit from offering digital services?

The responses were as follows:

- L1 “The library will manage overcrowding through digital libraries. Participation in digital environment as we are now moving into 4IR. The library will be competing with other libraries out there, which will be beneficial and increase access to library materials, so most people will be accessing digitally so the library will benefit.”
- L2 “I think since we don't have a large number of users. The library will benefit more of users and then it will be recognised by donors/funders as far as they could be.”
- L3 “It would save time for shelving, unlimited space for the collection, able to handle requests remotely. Find relevant info faster when requested.”

- L4 “Avoid overcrowding. Librarians can work anywhere they are. I can work from your library. Illiteracy, jobs, and pass rate will be improved.”
- L5 “It will benefit space; you can see our library is so small. Every time they bring new books, we are forced to weed the old ones because we don't have enough space.”

The answers provided by the participants are similar. The digital library will enable access to information materials and most people will have access to the services of the library, and library users will be increased. Therefore, public libraries will be free from overcrowding as most people will be accessing the library services remotely and digitally. Digital library will help in the eradication of illiteracy, a fair chance of getting jobs will be granted and the pass rate will be improved. The library will be up to date with the trends and development in the library sector and will be recognised. Information can be retrieved faster and lastly the librarians can work from other libraries or remotely to offer services. Perdana and Prasojo (2020) show that the main benefits derived from a digital library are simpler access, unlimited space, unlimited access time and preservation of digital collections.

4.2.6.3 *Information sources important for users*

In pursuit of finding out about the sources of information the public librarians recommend to be important for users in a digital platform, the following question was asked: Which library sources are important for users in a digital library?

The responses were recorded as follows:

- L1 “All sources are important because users are different, and they are using library resources differently.”
- L2 “Electronic Books are more important, online newspapers, online databases.”
- L3 “E-books, databases, journals, newspapers & magazines, just to mention a few.”
- L4 “Books, journals, newspapers, previous question papers.”
- L5 “Books and periodicals.”

In terms of information sources the users should be granted access to, the participants show that books, journals, newspapers, and magazines are significant to user needs. Moreover, the

participants add the databases for provision of access to a wealth of those useful books and periodicals.

4.2.6.4 *Requirements for setting up a digital library*

In order to get the public librarians recommendation on the requirements for creating a digital library, the question was formulated in the following manner: What are the requirements needed for setting up a digital library? The responses were as follows:

- L1 “Digital library system, like the setting of Johannesburg libraries, uses an overdrive, where users can log in and access materials there. A reliable internet will promote a network system wherein users do not struggle to access information. The system should not be down because of the internet.”
- L2 “Cabling should be proper, Wi-Fi always should be fine, digitisation machinery.”
- L3 “First of all, you need to have digital collections like books, audios. Have ICT resources, computers, scanning equipment. Human resource. Digital rights like copyright.”
- L5 “Proper planning, the funds, and proper equipment. Also the trained staff.”

From the participants' viewpoint, the following are required for erecting a digital library: digital library system, digital collection, digital rights, reliable internet, proper cabling, digitisation equipment, computers, trained personnel, and proper planning.

To set up a digital library, the training of library staff for effective utilisation of IT and funding for is of critical importance (Fezaa, 2013). Moreover, lack of ICT facilities, finances, and reliable networks can be problematic for digital library implementation.

4.3 SUMMARY

The purpose of this chapter was to present and analyse the responses from the public librarians on the requirements for utilising digital library, the benefits, identification of people who are likely to use the digital library, the readiness of public librarians to provide the digital library services, the challenges and lastly the recommendations on how digital library should be implemented. The next chapter discusses the findings of this study.

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.1 INTRODUCTION

The previous chapter presented, analysed and interpreted the research findings from the interview data collected by the researcher. Five public librarians from Capricorn District participated in the study by responding to the interview questions. This chapter presents the discussions based on the findings presented in chapter four.

5.2 DISCUSSION OF FINDINGS

The following discussion was presented based on the research findings as presented in the previous chapter.

5.2.1 Requirements of users to utilise digital library services

This section covers discussion of the findings based on the requirements for the use of digital library services. The concept of *system quality* was borrowed from the DeLone and McLean IS success model (2003) to elucidate the requirements needed for accessing information from the digital library system.

The findings presented in the last chapter revealed the ICT tools and computer skills required to access a digital library. The overall view on ICT tools is that laptop, desktop, smartphone or tablet with internet connectivity enable access or is a minimum requirement to access the digital library. Mnkeni-Saurombe and Zimu (2013) in (Mugwisi, Jiyane & Fombad, 2016) postulate that access to information and communication technology is important for users. However, according to Elahi and Islam (2014), users prefer online information through mobile gadgets (for example, mobile phones, laptops, and tablets) over desktop computers. A study by Tella, Olawuyi and Durodolu (2021) has arrived at similar findings as it found out that smartphones are used to access library materials and services. Their sentiments support the findings as all of the participants mention mobile gadgets such as laptops, smartphones and tablets. The advantage of mobile gadgets is that they are portable and rechargeable devices from which every user can access digital materials

wherever they are so long they have internet access. Therefore, the library authorities have a duty to ensure that all the ICT tools mentioned are supported for accessing the digital LIS.

Access to the internet is fundamental for accessing remote digital information services. Olaewe, Akinoso and Achanso (2019) assert that the user of a digital library and people all over the globe can gain access to digital library so long as internet connection is available. Without internet there is no realisation of an effective digital library. Also, the printing devices are significant as they support those users who prefer reading from paper rather than on screens. The study by Jeong (2012) showed that printed text have an upper hand over digital text as reading from screens is associated with eye fatigue and strain. Singer and Alexander (2017) remark better comprehension of read texts from printed sources than e-sources. In relation with this scenario, the users can access digital materials from a digital library and print for their convenience. In the view of Perdana and Prasojo (2020) many people still prefer to read printed books than the e-books and the demand of printed books in academic libraries surpasses the demand for e-books. In contention, Connaway (2015) stresses that users are not interested in the format of information source but on convenience to access it. Therefore, the library systems and user interfaces should be familiar and easily accessible and should require no training or less training, as convenience is an important factor in all user demographics (Connaway, 2015).

On the Computer Skills which are essential for accessing a digital library. It is established that basic computer literacy is important for the users to access digital library. For them to acquire those skills they may self-train, attend training from public libraries, computer colleges, and the scholars can be trained in schools. Mugwisi, Jiyane and Fombad (2016) acknowledge that most libraries have computer rooms in which users are trained to search information. Rather than that users can self-train as a study by Taskin and Tuzun (2015) shows positive results on self-training. Taskin and Tuzun (2015) observed children between 6 and 10 years of age who never used a computer before, they were left on computers on their own, after several days they learned to start and play games, browsing the internet, opening and closing MS Office documents, typing through MS-Word and drawing through paint. Mitra and Dangwal (2017) confirm that several studies have found out children can learn computer skills on their own regardless of their demographics. The review mentioned above support findings of this current study bacause library users may “self-educate” themselves. A study by Fambaza (2012) reported that schools have a shortage of

computers and where computers are available they are not always working. From the findings of this study, schools may not be relied on for the transfer of computer skills to learners for digital library use.

The users need ICT tools, and computer skills to access digital library. The users may prefer to utilise the ICT tool suitable and compatible to them. Most of the tools mentioned have a similar goal of enabling access internet which will in turn assist in access to digital library services. Unless there are challenges to access a digital library that's where the tools like email and mobile phones may step in to assist in reaching the library staff and settle the queries.

5.2.2 The Benefits of accessing digital libraries

The discussion under this section covers the benefits which digital libraries provide as alluded by the study participants. The benefits of accessing digital libraries are framed from the *Net benefits* concept of the DeLone and McLean IS success model (2003) which point that the benefits expected from information system contribute hugely to the success of those information systems. Therefore, the digital library system should yield the benefits which the participants anticipate would be derived from the digital library.

The participants highlighted various benefits which digital library users can benefit from accessing the digital libraries. Those are: accessing the digital library at their own time without hindrances of operational times; time and financial costs are saved; accessibility irrespective of location; immediate access to information resources without purchasing a book; openness to various formats of information sources; and the disabled people can get access. Perdana and Prasojo (2020) and Bamgbade *et al.* (2015) corroborate that there are several benefits which one can deduce from digital library. Those benefits are that digital libraries can be accessed anywhere, it improves the ability to search information, it provides ease of sharing information, it helps users get the latest information, and information can be accessed at lower costs.

From the response of participants, the rural dwellers should access library services as they are free (Anie, 2014) and the costs associated with information access outside the library are not affordable to them, given their previous exclusion from economic participation. It is deemed necessary for them to access information for job hunting, to access distance learning support, formal and informal learning and lastly timely information retrieval. The findings are supported by (Trivedi,

2010) by pointing out that libraries offer information for free. Vrana (2017) agrees that digital libraries are offering variety of services to the public including support of formal and informal learning. Moreover Anie (2014) mentions that libraries for rural areas should support rural development activities cater the different groups such as farmers, artists and cultural groups and promote government programmes. Akpokurerie and Nina-Okpousung (2019) converse that digital libraries provide better retrieval and faster communication ensuring that rural areas will get timely information. On job hunting a digital library may have a job corner where public and private sector vacancies are posted for the public to access, making it easier for them to access opportunities for employment. It may be of paramount importance that the digital library implementation looks in to the services which users are more likely to use from the digital library system and prioritise on them. Those needs are books, internet, photocopying, scanning, typing, university applications, job hunting, learning support, general information, and newspapers as mentioned by the participants.

From an online student survey Dhamdhere (2012) found out that 88.9% of the respondents use a digital library for searching information, and a further 61.1% for accessing e-books and e-journals, 66.7% for online applications, and while 55.6% accessed current news, 50% of them uses digital library for searching opportunities in the field, lastly 38.9% use it for educational videos and programs. The study by Dhamdhere (2012) shows similar needs which the participants of this current study deem to be core to the needs of rural inhabitants. However, it is evident that digital library and its remoteness cannot fulfil certain needs of the rural communities. Therefore, it shows that digital library has its own weaknesses though it can be accessed for some other services by many people regardless of location. The services mentioned above such as typing, photocopying and scanning of documents cannot be catered remotely. Perdana and Prasojo (2020) concede that digital library cannot fully replace the services of conventional libraries even though it has many benefits.

Participants indicate that the users are likely to access reading materials and services from other organisations, for instance e-government. Their needs are gathered as follows as per participants' response: books, reference materials, study guides, storytelling platform, newspapers, journals, magazines, and e-government services. However, people view a library as a place to access printed books rather than electronic sources of information (Connaway & Dickey, 2010) cited in

(Connaway, 2015). Therefore, the librarians need to work harder to show users various sources of information and their formats to alter their perceptions around libraries in general.

Most of the physical public libraries are opened at a specific time in the morning and closes in the afternoon. This arrangement limits access time to the people who are at work during those times; the scholars; and those who prefer studying or reading at night. The digital library and its unlimited or 24/7 access break that access barrier by providing option for users as to when to use library services. In a study by Curry (2003) it has been found that extended service hours of libraries are important to students as it helps them in preparations for examinations and probably improves their academic performance. The unlimited access time of using the library services seems to offer opportunities for all population groups and preferences of users. In the digital library system there is no waiting for the other user to complete using a particular information source. Mishra (2016) points out that one resource can be used by a numerous institutions or users simultaneously. This insures maximum use of the resource while the users are fulfilled with their needs without making them wait for hours or weeks so the other user can return the book to the circulation desk.

This is unlike in a traditional library where a whole grade of pupils will flock into a library and share one or two books. All participants made it clear that physical libraries will be afforded space, as Garba (2009) in Nwachukwu, Abdulsalami and Salami (2014) indicates that information resources can be accessed through utilisation of information technologies. In that manner some of the users will access LIS in their own spaces rather than having single mode of access. Mishra (2016) attest that in terms of physical space digital libraries require a small physical space to contain digital information and the library users do not need to go to library physically for information but can remotely access through internet. Therefore, it is with certainty that an ample physical space will be saved in the libraries for serving LIS digitally to users.

5.2.3 Potential digital library users in rural areas

This section discusses and identifies users who are likely to utilise the digital library services. The concept of *Use* from the DeLone and McLean IS success model (2003) was used to identify the potential digital library users in rural areas.

The data presented in section 4.2.3.1 clearly show the youth as a group within the community which is most likely to use the services of digital libraries. It can be reputed that most people who

will use the digital library services are those who are developing themselves educationally and looking for employment opportunities. Lesser users are expected to be those who love reading for pleasure.

Providing the services of libraries on a digital platform is particularly to enable access to those who cannot reach libraries physically. Therefore, providing those services to the physically challenged may be easier as compared to traditional libraries. Echezona, Osadebe and Asogwa (2011) state that making the library services to be inclusive of the physically challenged people is demanding nonetheless surmountable. The participants of this study acknowledged that providing digital library services to the physically challenged needs extra software and require other formats such as audiobooks. The kind of software to assist the users depends on the kind of disability which the user has. Therefore, if the libraries were to be inclusive of physical challenges or disabilities, they have to thoroughly engage in ways that will attract or be suitable for using digital libraries. Ayoung, Baada and Baayel (2020) note that audiobooks, video books with subtitles and sign language, braille books, e-books, easily comprehensible books and all other digital materials should be accessible by all users of the libraries.

Most of the public librarians (participants) are aware that the users in their respective traditional libraries use digital information sources. Connaway (2010) cited in Connaway (2015) confirms that users of libraries are accustomed to the internet environment as they surf for information online. However, they expect smooth access to sources such as full text e-journals, e-books, a variety of digital publishers' platforms, and virtual reference services (Connaway, 2010) cited in Connaway (2015) and Shamsi, et al (2021) . Therefore, it shows that not all digital library users will be beginners or first experience using the digital content. This paves the way for the digital library to hit the ground running. The initiative by L3 to multiply access by digitising books from the library is noble for increased access. However, it is questionable if the librarian is not infringing any of the copyright regulations. In addition, if the library professionals were enabling access remotely, the library would receive more users.

5.2.4 Readiness of librarians to provide digital library services

This section discusses and evaluates the readiness of public librarians to perform duties that are expected in the digital library services provision. The concept of *service quality* from DeLone and

McLean IS success model (2003) was used to investigate the readiness of librarians to provide digital library services. This is for the reason that service in the library is expected from librarians.

Public librarians have shown that they are ready to provide library and information services digitally. A study by Adamou and Ntoka (2017) has arrived at similar results parallel to that of the current study. They both found out that most of the librarians are positive and welcome the advent of new technologies in the library space with some of them having fear or a bit agitated. DeLone and McLean (2003) showed that the information system organisation and IT personnel, empathy of IT personnel, determine a good information system. However, those feeling agitated express that it will only be in the beginning of integration of technologies where they will stress in their work environment. Furthermore, the librarians in both the current study and study by Adamou and Ntoka (2017) highlighted the need for technology education or training to facilitate library services. Education is articulated to be a very important element for their adjustment in the changing workplace environment. Emezie and Nwaohiri (2013) agree that librarians of the 21st century need competent skills that will enable the enhancement of the provision of effective library services to meet the users' changing needs. Therefore, librarians in the digital age have to use the technologies to organise and disseminate information digitally, provide information services in digital form, provide digital reference services, and anticipate how technologies affecting library services can be improved (Adamou & Ntoka, 2017) and Durodolu and Isibor-Mamudu (2020). Moreover, Krishan (2011) in Emezie and Nwaohiri (2013) notes other digital age librarians' skills as communication and partnership, creativity and innovation, critical thinking and problem solving, media literacy, flexibility and adaptability. Fezaa (2013) stresses that for a digital library system to be fully functional, it requires trained staff to utilise information technologies effectively.

Similarly to the requirements needed by the users of a digital library presented in Section 4.2.1.1, there is not much variance regarding the requirements needed by the librarians to perform their duties of information and library services provision. Those needs of the librarians are ICT tools that facilitate accessibility of LIS for library users. In other words, the difference between the ICT tools of users and of librarians is that the users will mostly use them for decoding while the librarians will be using them for encoding the LIS. Digital librarians must manage and organise digital information and knowledge, then disseminate it, provide digital reference services, provide

knowledge mining and other related duties (Sreenivasulu, 2000). It is thus necessary for them to be equipped with resources that will enable their duties to be accomplished.

Computer literacy and overall digital literacy, communication skills, presentation skills, customer care, web literacy, marketing skills, digital information management, technological skills, and advanced information searching skills are skills that public librarians deem essential for them to provide the services of a digital library. On digital literacy, Appiah, Konlan and Asiedu (2018) attest that staff working in library should attain a high level of ICT literacy as it is essential to their working environment. Ashcroft (2004) mentions professional, communication, marketing, and promotion as basic skills needed by the modern age librarian. However, Biddiscombe (2001) maintains that librarians should keep both sets of skills from traditional libraries and learn new skills to continue providing the library and information services. However, Shem (2015) is concerned about librarianship focusing mostly on education, academic and research communities overlooking the development of digital librarians and digital libraries.

5.2.5 Challenges of accessing digital library services in rural areas

This section discusses the challenges that can make accessing digital library difficult or impossible. The concept of *Intension to use* was used from DeLone and McLean IS success model (2003) to find out about the challenges of accessing digital library services in rural areas.

DeLone and McLean (2016) showed that the system features such as intuitiveness, sophistication and response time are contributors to information system quality. Therefore, those pose thread to the users to access digital library services. The participants highlighted internet access challenges, network coverage, electricity outages, lack of gadgets, illiteracy, computer skills, budget, and infrastructure. However, it is important to note the significant growth of internet users from 1 billion in 2005 to an estimated 3.5 billion at the end of 2015 (Mishra, 2016). This is due to the rapid diffusion of digital technologies spurred by the proliferation of smartphones, the economics of which have enabled even the poor in developing countries to purchase and connect to the world. In this context, digital illiteracy becomes the major hindrance wherein the bridging of the digital divide contributes a paltry sum towards closing the knowledge divide gap. A classic case of Matthews's law, where those who possess knowledge reap the rewards whilst those who do not possess such knowledge are led further into the darkness of abundant data. Mishra (2016) points

out that democratising knowledge necessitates not only increasing access to digital technologies, but also teaching skills for everyone to make effective use of them.

All participants identified computer skills to be the main gateway to accessing digital libraries. Furthermore, smartphone operating skills, online services access skills, knowledge of databases, and how they are accessed are additional skills mentioned by the participants. It can be added that these skills need to be complemented by analytical skills and agility of mind that enables the user to adopt quickly the ever-changing digital environment. When asked how these skills can be acquired, the participants note an integral part library should play through exhibitions, computer lessons and training. Additionally, the participants said that schools can include computer literacy as a fundamental part of the curriculum. Moreover, users with financial resources can utilise the services of other institutions for the learning of computer skills. Furthermore, as noted above, the skills to navigate through the maze of information is essential for the effective use of digital libraries. "Within the digital context information sources take various forms, a characteristic that requires a deeper ability by the user to scrutinise and critically evaluate digital information sources."(Lawal, 2017: 23). Regarding the importance of making information literacy part of the mainstream curriculum Lawal (2017: 23) and Durodolu (2018) notes that "by teaching the conceptual models for handling digital information sources through an integrated incremental approach, students can be provided with a broad context for developing mastery of information sources in digitally networked environments."

All the participants expressed the view that digital literacy would be mandatory for users to be able to utilise the digital library. Attahir (2018: 109) defines digital literacy as "new competencies that equip individuals with the confidence and ability to effectively use digital devices and the internet to find, assess, generate new information and communicate it to others." Apart from the domain of operating digital devices, library staff and patrons need the ability to comprehend and analyse information, and most importantly, the ability to distinguish between reliable and unreliable sources.

The participants asserted that library professionals will manage the digital libraries given that they are adequately trained. They believe that with training, most if not all challenges will be resolved. Training of staff to gain some skills relevant to digital library is vital as it will help the staff settle and transition with ease. The ICT tools are also seen as agents to ensure that they are digitally

ready to service users. It may be a real challenge if the equipment necessary to roll out the digital library services is not available or not properly functional.

On the issues of copyright, the participants rendered varying responses in this regard. All of them acknowledged the importance of protecting the copyright, with three of the participants confident that the librarians can manage and protect the copyright. L3 advises that when users are denied access to a specific book they can get alternative books on same subject which are available for use. L4 and L5 remain unsure on how the issue of copyright can be tackled. L4 further mentions copyright, the library and information services or National library of South Africa as bodies which can resolve the issue at hand. But they remain optimistic that there will be a solution. Copyright is deemed one most troublesome barrier to the development of digital library (Chepesuik, 1997). Perdana and Prasojo (2020) express that digital materials are susceptible to copyright infringement unless there are systems in place to detect plagiarism. They further show that most of the authors are reluctant to sell their books in a digital form.

5.2.6 Recommendations for provision of digital library services in rural areas

The participants provided guidance on the establishment of an operative digital library. The concept of *information quality* was used to design the recommendations for provision of digital library services in rural areas.

Relevance, understanding, accuracy, conciseness, completeness, currency, timeliness and usability are determinants of information quality (DeLone & McLean, 2016). The public librarians recommend the aspects of accessibility, usability and reliability as the features that should be considered when implementing the digital library service. Elaiess (2017) advises that digital library services should be implemented so that the necessary services of a traditional library are offered and further provide additional digital services that users frequently require. In this case, one of the public librarians mentions e-government services to be included amongst other digital library services. On accessibility and usability, McCray and Gallagher (2001) advise that the digital library should be accessible to many users, including people with disabilities, people of different cultures and languages. As a digital library is available and accessible over the internet (Elaiess, 2017), it is therefore necessary that internet stability is secured at all times to ensure maximum access and usage is achieved.

On the benefits for libraries which can be derived from providing digital library services, the answers provided by the participants are similar. The participants believe that the digital library will enable access to information materials and most people will have access to the library services, meaning library users will be increased. Delone and McLean (2004) concur quality of information contributes to information satisfaction which may in turn attract users to utilise digital library services. The libraries will be free from overcrowding as most people will be accessing the services remotely. Digital library will help in the eradication of illiteracy, fair chance of getting jobs will be granted and pass rate will be improved. The library will be up to date with the trends and developments in the library sector and will be recognised. Information can be retrieved faster and, lastly, the librarians can work from other libraries as they remotely offer services.

In terms of information sources the users should be granted access to, the participants show that books, journals, newspapers, and magazines are significant to user needs. Moreover, the participants add the databases for provision of access to a wealth of those useful books and periodicals. The aspect of information quality should be prioritised for effective digital library as advised by Delone and Mclean (2003) theory which provides that information sources should be of quality. Connaway (2015) suggests that user behaviour study is required to find out the library users' patterns on information-seeking behaviour under different contexts and situations.

From the participants' viewpoint, the following are required for erecting a digital library: digital library system, digital collection, digital rights, reliable internet, proper cabling, digitisation equipment, computers, trained personnel, and proper planning. To set up a digital library, the training of library staff for effective utilisation of IT and funding for it is of critical importance (Fezaa, 2013). Moreover, lack of ICT facilities, finances, and reliable networks can be problematic for digital library implementation.

5.2 DISCUSSION OF MAJOR FINDINGS

The study found out that digital library users require ICT tools of which some rural users may not afford. Those are computers/laptops, smartphones, and internet. Tsetsi and Rains (2017) express that smartphones promote digital inclusion especially for minority groups, lower income earners and the less educated people. Therefore, people in rural areas are more likely to use smartphones as they are mostly poor and less educated. In the same vein, smartphones are affordable than computers and they destroy the infrastructural barriers, equipment and the required skills. James

(2009) supports that disadvantaged people who never accessed the internet through computers are adopting smartphones to access the web. However, the dissimilarity between smartphones and computers are of screen size, and quality of content (Kaasinen, Roto, Roloff, Väänänen-Vainio-Mattila, Vainio, Maehr, & Shrestha, 2009). Moreover, the current study revealed that users have varying preferences on the format of information sources. Some may need printers to convert the digital information to print format adding financial implications on the rural user. Furthermore, scanners are seen to be important, they might be used to share information resources between users who are remotely located. The current study further indicated that basic computer literacy skills are central for access and use of digital library services, and no advanced training is necessary. However, Correa, Pavez and Contreras (2018) note smartphone-using skills and computer-using skills differ in depth as smartphone requires fewer skills than a computer. Correa (2016) revealed that people with lower socio-economic status have lower level of skills than those with higher socio-economic status. However, training by librarians and self-training might be sufficient for the use of digital library system, denoting that the public librarians expect usable and simplicity of digital library system or interface. Nzioki (2018) laments that it is the responsibility of librarians to impart relevant skills to library users to enable them to locate, access, and use information effectively. Hong, Thong, Wong and Tam (2002) add that user-friendly interfaces can help users to use the digital library more easily. Blandford, Buchanan and Jones (2004) agree that it is of no use to provide sophisticated libraries with novel features which will detract intended users. Allerman (2018) expresses that digital literacy trainings within local libraries are useful to help patrons to complete their online tasks. On the same note, the older people tend to underperform in terms of technical or operational skills (Deursen & Dijk, 2010), therefore, intensive training should be prioritised for the elderly. This compliment the revelation by this current study that the youth are expected to use the digital library services than other age groups, as youth are arguably conversant with internet skills. Network and internet emerged to be requisite for access to digital library services. The Department of Telecommunications and Postal Services (2015) note internet infrastructure as a challenge for South African rural areas. Moreover, Mahler, Montes and Newhouse (2019) are of the view that sub-Saharan Africa has a long way from achieving the universal internet access as a result of lack of infrastructure. However, promoting internet access could accelerate the digital participation of developing countries significantly (Zhang, 2013). Malatji (2020) and Malecki (2003) point that access ICTs should be seen as a link to social

communication, learning and business activities which are key drivers of development, and not as the end to rural development. Therefore, ICTs for digital library access in rural areas should be used effectively for accessing LIS which will contribute to self-empowerment.

There are numerous benefits of accessing digital libraries as mentioned by the public librarians in this study. Therefore, the main ones are accessibility to LIS and no overcrowding as compared to the physical libraries. Higgins (2013) supports that digital libraries present advantage of elimination of physical boundaries, create multiple access points, open networking abilities and have extended search functions. However, developing countries experience constant barrier of implementation and access to digital libraries on daily basis (Da Rosa and Lamas, 2007). Overcrowding in physical libraries is evident from the responses of the participants. Therefore, digital libraries are perceived to be a solution for that hence the solutions are provided for digital library challenges. Furthermore, digital libraries have the ability of providing library and information services to many users as compared to physical libraries which are limited to space. In addition, the digital libraries are open to users for 24 hours a day ensuring that all the users are provided a fair chance of accessing LIS, unlike in physical libraries where operational times affect access to LIS. Fezaa (2013) study concurs that digital libraries are predicted to be extensive and provide unhindered 24/7 access.

The current study revealed the youth are expected to use the digital library services than other age groups, as youth are arguably conversant with internet skills. Masten, Mobley-sellers, Sailors, Pickett, Siller, Garcia-Alvarado, Johnson and Whitlock (2019) point that youth prefer using the internet for accessing information. Moreover, the investigation by Abbas, Kimball, Bishop and D'elia (2008) on non-use of public library by youth found out that 85% of youth use internet rather than visiting physical libraries. Therefore, the library services should make use of the ICTs and provide digital information on internet to ensure that the youth access reliable and relevant information. The youth are expected to seek employment, read for pleasure, download books and previous question papers. For the physically challenged people, it has been revealed that they can be able to utilise the services of a digital library; hence, the formats such as audios, videos and braille, and software like JAWS can be useful to accommodate the people with physical challenges. However, it was expressed that serving the digital library services will not be as easy but possible.

The study revealed that the public librarians are ready to migrate to digital library services. However, they point that training and management involvement are necessary for digital migration. Massis (2014) agrees that librarians must be knowledgeable on the platforms used by modern library users. Librarians also point that they are motivated by the possibility of combatting overcrowding in physical libraries as digital libraries are accessible remotely. However, they noted requisites which will enable easier provision of digital library services. Those are smartphones, computers, telephones, scanners, printing devices, stable WI-FI, online databases, means to send SMSes, and funds. Moreover, they view the training on computer literacy, digital literacy, a set of skills for engaging with clientele, and management skills. The study found out that the public librarians have been providing digital content in their respective libraries. Some librarians do digitise some of their heavily used materials to cater many users as they flock to the library, for instance, curriculum books. However, copyright laws might be overlooked or not taken cognisance of. The library users were found to be familiar with digital information content. Nzioki (2018) shows that the digital environment has influenced library users' needs to evolve overtime. Familiarity with the digital content by the library user paves a way for a feasible usage of digital libraries.

A myriad of challenges cloud the notion of digital library implementation in rural areas. Higgins (2013) points that the developing countries attempt to bridge digital divide but their efforts succumb to many challenges. Physical library users live far from libraries and are required to travel long distances to reach the LIS. On the other hand, they still require financial means to purchase ICT tools and the internet on the digital platform, which is still a barrier to LIS access. Illiteracy is prevalent in the South African society, Khuluvhe (2021) highlights that South Africa stands at 12.1% of illiterate people who have not completed grade 7 which are above 20 years of age with the rural populace at 14%, and Limpopo Province is recorded at 17.6%. Statistics SA (2018) found out that Capricorn District Municipality has 75% of its households having no access to internet, with the entire Limpopo Province having a total of 93% households with no access to internet. These statistics show that internet access is a challenge which will affect digital library accessibility. Bamgbade et al. (2015) add that in African countries where unstable power supply and poor internet technology architecture or unstable telecommunication infrastructure are evident, digital operations cannot thrive. Sulla and Zikhali (2018) revealed that 81.3% of the rural population in South Africa are poverty stricken. Therefore, for the accessibility of digital libraries

the government and library authorities should consider the challenges of rural areas. The study revealed that computer operating skills are perceived to pose a challenge for digital library access. However, digital library is not accessible through computers only, but through smartphones and other gadgets as well. Correa, Pavez and Contreras (2018) acknowledge that there is a rapid rise of mobile-only users and for many people, the smartphones are utilised as a connection to the digital world. Therefore, computer training is fundamental as well as the skills for operating smartphones.

Based on the findings, it was recommended that the current traditional libraries should operate as hybrid to provide LIS to users with no gadgets and other access challenges. Ogbonna, Igewsi and Enweani (2014) indicate that hybrid libraries are the best alternative since the information seeking behaviour of users change and different formats of information ensures everyone is provided with the format they prefer. Digitisation equipment, reliable internet, well-trained personnel are seen to be aspects of significance for digital library system. Moreover, it is encouraged that the digital library system should be inclusive of people with disabilities. It is further advised that the digital library system should provide services of traditional libraries which are possible digitally and subscribe to online information resources.

Malatji (2020) expressed that most of the African countries have poor basic rural infrastructure which negatively affect development in those areas, especially electricity infrastructure. The study showed that back-up electricity is recommended for realisation of effective digital library services. This shows that the participants are well aware of the challenges of electricity in South Africa. The electricity challenges of load shedding traces back to over a decade.

The study presented that e-government, public and private jobs on a single website, communication channels like chat-rooms, virtual library orientation, bulletin board for community updates should be included in the digital library interface. This denoted that the digital library services should not be confined to library services i.e. books but to the general needs of the community. Malatji (2020) says that ICTs create jobs and empower rural communities through access to computers and internet for social communication, learning and business activities.

5.3 SUMMARY

This chapter discussed the findings of the study. The findings were contrasted against literature. The next chapter will provide a summary of research findings, conclusion and recommendations.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 INTRODUCTION

The preceding chapter discussed the research findings. This chapter provides summary, conclusions and recommendations from the collected data. The summary is provided in accordance with the objectives of this study which are: to determine the requirements for the use of digital library services; to find out the benefits of accessing digital library in rural areas; to identify the potential digital library users in rural areas; to ascertain public librarians' readiness to provide digital library services; to find out challenges that might hinder the use of digital library services and to make recommendations implementation for the provision of digital library for rural areas.

6.2 SUMMARY OF THE FINDINGS

The summary is presented below sub-divided according to the research objectives of this study.

6.2.1 Summary about the requirements for the use of digital library services in rural areas

The study determined the requirements for library users which will enable them to access digital library services. The study found out that the digital library users need gadgets which can be used to access digital library through internet, for instance a smartphone and other supporting device such as printers and scanners. Printers are useful for converting the e-resources to print form if one needs or prefers to read from paper. Scanners are necessary for sharing information from print form to electronic form with other users, e.g., study mates. However, the information shared might not be from the digital library as digital libraries offer electronic sources. Internet and network connectivity are vital requisites for digital library users. This is because the gadgets mentioned will not work without internet or network connectivity. Since there are computers involved, it has been revealed that basic computer literacy is essential for accessing digital library services but smartphones require less digital skills than computers.

It was expressed that those who cannot operate the computers may not able to access the services that digital library provides through the computers. Skills training is revealed to be measure which

can be taken to train users to be in a position to operate computers and subsequently be skilled to access digital libraries. On the other hand it was shown that most phone owners will be in a position to utilise their gadgets to access digital library with ease.

6.2.2 Summary about the benefits of accessing digital libraries in rural areas

The study outlined the benefits associated with accessibility of digital libraries by rural inhabitants. From the rural context, the major benefits revealed are the accessibility of library and information services and the ability to access the library resources conveniently to the user without worrying about the operational times and physical barriers. Libraries offer information free of charge, and rural dwellers are from poverty-stricken backgrounds. Therefore, accessing library services will enable them to self-develop and participate in the economy, for instance, access job vacancies and apply, enable both formal and informal learning, especially distance learning. Users can have access to timely information as most of these areas have no access to print media.

6.2.3 Summary about the potential digital library users in rural areas.

The study has revealed the potential digital library users in rural areas. It has been shown that most of the people to use the services of digital libraries are youth. Adults will use it but in small numbers. The school learners, tertiary education students, employment seekers, and those who enjoy reading for pleasure are groups expected to use the digital library services. On the other hand, providing for the physically challenged require special equipment and software.

6.2.4 Summary about public librarians' readiness to provide digital library services in rural areas.

The study assessed the public librarians' readiness to provide the digital library services. The study found out that public librarians are supportive of digital library implementation. They proclaim to be ready to migrate to a digital platform. In addition, they perceive a slight difference in the location (shelves/computer system) of library resources. Moreover, it is stipulated that public librarians are familiar with the digital library services and some do provide information in digital format to users. The public librarians noted office equipment which will enable all librarians for smooth digital working conditions.

6.2.5 Summary about the challenges of accessing digital library services in rural areas.

The study discovered the challenges that might obstruct digital library services. Those are failure to access internet, poor network coverage, electricity outages, having no gadgets, illiteracy (inability to read and write), digital illiteracy, lack of computer skills. However, computer skills can be acquired through various means. The study further revealed that the public librarians foresee no challenges that can halt the provision of digital library services. Yet, it was acknowledged that it will not be easy in the initial stages. They expect to undergo training to learn how to manage the digital library services. The challenge in this regard will be the lack of training programmes by the library authorities for the library professionals. Regulation of copyright will be a challenge as it is required that the practices around it are permitted. Most of the participants hold the belief that they can manage the copyright law. With others upholding that copyright should be protected by ensuring that the owners are compensated for their intellectual property.

6.2.6 Summary about recommendations for the provision of digital library services in rural areas.

The study captured the recommendations by public librarians on the implementation of a digital library for rural areas. They recommended that a digital library should be easily accessible, be user-friendly and reliable. Reliability of internet and electricity, relevant collection, and a good digital library system are recommended to realise an effective digital library. Moreover, digital library services should include all services of physical libraries which are practicable online and be available for 24 hours throughout the week. Furthermore, digital services such as OPAC, e-government, periodicals, databases, and online jobs advertisements should be part of the digital library services. They add that communication through chat rooms, telephone and email are essential for keeping in touch between the users and the library.

On implementation of digital libraries, participants expect that overcrowding in the physical library will be minimised while attracting more users; efficiency on the provision of services as time which was used for shelving will be used for handling requests; information sources will have unlimited space unlike the practices of a physical library where torn and older books were weeded to create space for new books. The digital library system is recommended to be in form of an Overdrive from which users can log in and access library materials. In addition, funds, digital

collection (books, audios) and digital rights, proper ICT equipment, including digitisation equipment, trained human resource, and internet access and cabling are recommended to be central to the establishment of a digital library.

6.3 CONCLUSION

The purpose of this this study was to investigate the public librarians' perspectives of a digital library for rural areas of Capricorn District Municipality in Limpopo Province. The conclusion on the findings are offered in this section based on the research objectives of this study which are:

- To determine the requirements for the use of digital library services in rural areas of Capricorn District Municipality.
- To find out the benefits of accessing digital libraries in rural areas.
- To identify the potential digital library users in rural areas.
- To ascertain the public librarians' readiness to provide digital library services to rural dwellers.
- To find out the challenges of accessing digital library services in rural areas.
- To make recommendations for the provision of digital library services in rural areas.

The conclusions are presented as follows:

6.3.1 Conclusion about the requirements for the use of digital library services in rural areas

This section reveals the requirements which are relevant for the use of a digital library. Those resources are gadgets, internet, network coverage, basic computer literacy or internet search skills as fundamental elements of a digital library system. It was shown that digital divide has an influence on accessibility to digital libraries in rural areas especially for the reason that poverty and lack of infrastructure are prevalent. However, on the issue of attainment of skills, the library officials can teach those without basic computer skills. This demonstrated that the librarians are willing to impart ICT skills to users. Nevertheless, others may learn through computer academies and self-training. It was established that without the combination of gadgets and ICT skills that it will be difficult for the user to access and utilise the digital library services. Moreover, the study

shows that the digital library system is expected to be easier to use since no advanced computer training is necessary.

6.3.2 Conclusion about the benefits of accessing digital libraries in rural areas

This section provides the benefits of accessing digital library services in rural areas. The main benefits of a digital library are accessibility to LIS at any time convenient to the user, and no overcrowding of library as services are reachable online. As physical libraries operate under specific times, digital library accommodates users irrespective of their work-shifts and school hours. In addition, one digital library resource is not limited to one user, it can be used by many users who need it simultaneously. For instance, when pupils from the same grade need to use a certain study material they are not to wait for others to finish their work, rather they have access to the material all at once. Moreover, digital library offer information in different formats, this allows the disabled to access videos, audio resources, and other formats. It is undeniable that the tertiary education and other forms of learning embrace distance learning and teaching methods. Therefore, digital library can be used to compliment the educational developments seen in the society. It can be concluded that digital library strives for inclusive library for all users even though it has its own shortcomings.

6.3.3 Conclusion about potential digital library users in rural areas

This study has established that the youth are mostly expected to use the digital library in rural areas. It is expected that they are to use it for educational, and employment seeking purposes. It can be resolved that digital library is a tool which can be used to meet developmental needs of the youth. The findings have shown that digital library services also provide for the people with disabilities. The audios, videos, and software are available to guide those with vision and hearing challenges. Therefore, the disabled people are expected to be part of the digital library users. Some users of a digital library are expected to be familiar with the digital content as some of the physical libraries do offer information digitally.

6.3.4 Conclusion about public librarians' readiness to provide digital library services in rural areas

This section provides conclusion about public librarians' readiness to provide digital library services in rural areas. It is necessary to ascertain the public librarians' readiness to provide digital

library services especially with the uncertainty of whether the library authorities in Capricorn District Municipality will employ the digital librarians or they will rely on the current librarians to provide the digital library services. Therefore, the study revealed that for the public librarians to provide digital library services in rural areas they need training, and variety of equipment for assisting in the distribution of digital library services. However, public librarians have been providing some digital services from the physical libraries they work for.

6.3.5 Conclusion about the challenges of accessing digital library services in rural areas

Establishing a digital library for rural areas comes with numerous of challenges. The main barrier for the establishment and access of digital library is infrastructural challenges especially because some are not the responsibility of one department (Department of Sport, Arts and Culture), for instance, network coverage. Therefore, the concerned organisations are needed to attend to some of the challenges. However, the main institutional challenges may be of copyright and the digital library system. Other challenges are related to lack of gadgets, and illiteracy by the rural dwellers. The challenges can be linked to the poor economic backgrounds of the rural inhabitants. The challenges which digital library implementation face should be addressed before actual implementation of such libraries.

6.3.6 Conclusion about recommendations for the provision of digital library services in rural areas

The public librarians provided the recommendations for the provision of digital library services in rural areas. The study established that the system of a digital library should be accessed easily at all times, and be useful to the rural user. This means that the ICT infrastructure and equipment, relevant digital collection in various formats, and alternative source of power are pivotal to ensure the rural user has access at any time. Moreover, the digital library system has to be reliable. This demonstrates that the library authorities have an obligation of ensuring that the system runs efficiently and the digital library infrastructure is erected properly.

The study recommended that the services of a digital library should not be limited to the services which were provided in the physical libraries, but should incorporate the services which are beyond

familiar services of the library, for instance, e-government. As communication is important for any organisation, the study recommended the use of chat-rooms, telephone and e-mail.

6.4 RECOMMENDATIONS

The previous section provided conclusions to all research objectives of the study. In this section recommendations are provided. They are as follows:

6.4.1 Recommendation about the requirements for the use of digital library services in rural areas

This section gives recommendations about the requirements for the use of digital library in rural areas. The users need to be trained on how to search information, for instance, on how to conduct Boolean search. Moreover, the library staff should invite the public for computer and digital library training for the effective use of digital libraries. As rural areas are engulfed with poverty, consideration should be placed on affordability of the gadgets and internet costs. It would make no sense for provision of digital libraries with the aim of striking balance of LIS access without taking the realities of rural dwellers into consideration. Therefore, the library authorities may have gadgets which the users may borrow and provide free internet access to the digital library interface. If measures to curb digital divide are not well addressed, the digital libraries shall remain inaccessible like physical libraries which are mostly located in towns and cities. On infrastructural issues, the digital library for rural areas should take cognisance of smartphones as the main gadget for accessing digital library. Therefore, its interface should be proper and be user friendly. As the smartphone screens are smaller than those of computers, it is recommended that the content should be printable to allow those who may like to print, especially because users' preferences differ. Even though using smartphones is much easier than computers, training should be provided either through video clips which may be accessible on the interface for those users who may need to know how to fully use the digital library system. As internet is a challenge for rural areas of South Africa, it is recommended that the library authorities lobby stakeholders for internet accessibility and also provide means for free access and download of digital library content.

6.4.2 Recommendation about the benefits of accessing digital libraries in rural areas

The study recommends that for deriving the benefits associated with accessibility to digital libraries, consideration should be placed on the demands/needs of the rural users from the digital

library i.e. identify the type of content users need. The digital library system should be implemented in a manner which paves a way for the users report challenges they encounter on the system. Therefore, regular user surveys and analysis, and digital library system analysis should be conducted to ensure that the users benefit from the digital library. To stay relevant to the community, librarians and library authorities should be alert of developments around digital library and how they can take part in the community organisations.

6.4.3 Recommendation about potential digital library users in rural areas

The findings of this study have shown that the youth are expected to be the ones using digital library morethan other age groups. Therefore, the study recommends that other groups, for instance the adults and children should not be overlooked as this may lead to selective information provision, which this study does not advocate for. Those minority groups have to use the digital library services. Therefore, the library should market the library services which may serve their interests.

6.4.4 Recommendation about public librarians' readiness to provide digital library services in rural areas

The librarians are custodians of LIS provision, therefore it is important to pay attention to their readiness for providing LIS in rural areas. Based on the findings the librarians are ready to provide LIS to the users. However, they require an assortment of training for enabling themselves to provide LIS of high quality. Therefore, this study recommend that the library authorities should always conduct need analysis of the librarians to ensure that the digital library run smoothly. Parallel to that the librarians should ensure they are alert on the library usage statistics and impact, and always attend to queries by the library users. Moreover, since the digital library services are provided online, the librarians should nurture communication and relations with the clientele. As the study found out that public librarians have been providing digital content from their respective libraries, the workshop on copyright law and digital information use should be prioritised as this may lead to unethical practice which may dent the image of the digital library.

6.4.5 Recommendation about the challenges of accessing digital library services in rural areas

The study found out the challenges for the rural areas in relation to accessing the digital library services. The first step towards realisation or implementation of digital libraries for rural dwellers is for library authorities to know and understand the challenges at hand. The second step is to have a comprehensive plan on how to mitigate the challenges, and to understand that engagement with the society and stakeholders is necessary. Thirdly, the library authorities should understand that without properly dealing with the challenges, implementation might be difficult. With the challenges not addressed, accessing digital library will not be easy. Moreover, the absence or inaccessibility of the LIS will continue to burden the rural users. Therefore, this study recommends that the Department of Sport, Arts and culture (DSAC) should work with the responsible departments and stakeholders in the plan for erection of digital libraries. Without multilateral approach to deal with some of the challenges, it might take forever to realise digital library access in rural areas. For example, Eskom should be approached for electricity provision in rural areas and network providers to provide network coverage. The libraries and schools should be encouraged to impart skills and alleviate illiteracy within societies. Computer operating skills initiatives should be taken to afford those users who prefer using computers. Free access to digital library interface is recommended where the DSAC should cover the costs as the rural population in South Africa is poverty stricken and cannot afford to buy some basic needs. Where possible the library authorities should find ways of loaning out mobile gadgets to their users. On the issue of copyright, library authorities should find a way to purchase digital licences and pay subscription fees to collections and databases. Where financials fail the libraries should raise funds i.e. from donors.

6.4.6 Researcher's recommendation about recommendations for the provision of digital library services in rural areas

Based on the findings, the researcher recommends that the system of a digital library should be accessed easily at all times, and be useful to the rural user. The system should have automatic detectors which alert the library staff when it experience problems. On the other hand, the librarians should keep the users alert of any upgrades and updates to avoid inconveniences, and to allow users to download library materials before the system goes off. This demonstrates that the

library authorities have an obligation of ensuring that the system runs efficiently and the digital library infrastructure is erected properly. It is recommended that the digital library interface should be a centre where the community organisations and citizens use it for as many services possible or serve as a link to other community needs. In simple terms, it should have the up to date links to community updates, link to employment opportunities and general economic opportunities.

6.5 IMPICATION FOR POLICY AND PRACTICE

The study findings advocate for the establishment of digital libraries in rural areas. The library authorities are challenged to adapt digital ways of information provision. Since librarians have been providing digital content in libraries for use on users' laptops and other gadgets, this implies that the Department of Sport, arts and culture has been lagging behind in finding innovative ways to provide information especially in rural areas. In order to successfully keep libraries as oasis of information, transformative measures have to be taken, where possible, revisit the policies and keep drifting with the societal changes. The library authorities have to delve into new ways of providing LIS to the communities. Unquestionably, ICTs have penetrated our societies and became a way of life. In addition, there are unlimited benefits which can be derived from digital technologies, especially with the lack of physical libraries in rural areas.

6.6 SUGGESTIONS FOR FURTHER RESEARCH

Considering that this study was about the perspectives of the public librarians, the attitudes of library users towards digital libraries should be fully investigated as well to see if the rural users will welcome the digital library services.

Considering the lack or reluctance to shift to other ways of LIS provision channels by library authorities, a study should be carried out to investigate the LIS policies in Limpopo Province.

Considering lack of capacity by LIS authorities to provide LIS, Other ways to obtain quality information from other channels away from the libraries should be investigated.

6.7 FINAL CONCLUSION

This final section concludes the study on digital libraries for rural areas of Capricorn District, Limpopo Province. The findings shed light that digital libraries are not to replace the physical libraries but to improve the provision of LIS. The study has shown that user skills and the library

staff skills, proper digital library system and stable electricity are central for a fully functional digital library. However, it is distressing to learn that in the rural context accessing digital library may not be viable as poverty and infrastructure backlog still dominate and users cannot afford ICTs. The study has discovered that the public librarians do offer digital content in their libraries. However, they use sites like Google scholar, and digitise some of their collection to provide digital content. It has emerged that the available physical libraries have no capacity to serve the communities. The study findings advocate for development of digital libraries for rural areas as they have many benefits, for instance, accessibility beyond library location, no overcrowding, and its ability to provide services anytime convenient to the user. Not all users can afford the gadgets and internet costs for accessing digital library. Therefore, conversion of the current physical libraries to hybrid libraries is seen to be a solution. Furthermore, the study revealed that during times of Covid-19 lockdown users were to continue getting library services through digital library. The limitations encountered involve not getting access to one municipality and one participant. The other limitation may be the subjectivity linked with a qualitative research approach as the findings are open to wide-array of interpretations. This study may close a gap for research studies on digital libraries for rural areas, therefore, its contribution to the body of knowledge is of paramount importance. Moreover, with lack or no observable research on digital libraries for rural areas, this study may serve as a blueprint for the implementation of digital libraries for the rural areas in future.

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Appendix I: Interview schedule

INTERVIEW SCHEDULE

"Public librarians' perspectives of the digital library for rural areas of Capricorn District Municipality, Limpopo province"

I am Mapheto Johannes Mamabolo, pursuing my studies in Masters of Information Science with the University of South Africa. I am conducting a study titled: "**Public librarians' perspectives of the digital library for rural areas of Capricorn District Municipality, Limpopo province**". The purpose of this study is to gather the perspectives of public librarians under Capricorn District Municipality. Your response or answering of the interview questions could assist in assessing whether the digital libraries can help in enhancing accessibility to library and information services in rural areas.

You are guaranteed that your Information disclosed will be solely used for this study, and your anonymity will be protected. Audio-taping will be used on your discretion, and confidentiality will as well be observed.

You are guided by the following instructions to answer the interview questions:

- Where you do not understand the question, ask the interviewer to repeat the question.
- Answer every question with honesty as possible.
- Answer all questions accurately.
- Feel free to elaborate after answering, where possible.
- Code switching from English to any official language of South Africa is acceptable.
- Avoid to remain silent, use 'not sure' in case you are unsure of the answer.

You are required to sign consent form before we begin with the interview. The interview is scheduled to take not more than one hour.

The interview questions to be answered are tabled below:

Research questions	Sub-research questions
1. What are requirements for the use of digital library services in rural areas of Capricorn District Municipality?	a) What kind of Information and Communication Technology (ICT) tool would be needed for a digital library? b) What are the additional resources are needed to utilize that ICT tool? c) What level of computer literacy do they require to utilize that ICT tool? d) What could be done to acquire computer literacy?
2. What are the benefits of accessing digital libraries in rural areas?	a) What can be benefited from digital libraries? b) Why is it essential for rural people to have access to Library and Information Services (LIS)? c) What are the core needs of rural dwellers from LIS? d) What kind of materials would users like to access from the digital library? e) What would be the benefits of 24 hours access to information resources? f) How would multiple access to information resources enhance library services? g) How would digital library help in managing physical space?
3. Who are the potential digital library users in rural areas?	a) Which age groups are most likely to use the digital library? b) What could be done by the digital library to cater the physically challenged? c) Did library users ever used digital content or services before? What are those digital content or services?
4. Are the public librarians ready to provide digital library services to rural dwellers?	a) Are your ready to provide the digital library services? b) What do you require to provide the digital library services? c) Which skills do you think are important to librarians for catering the digital library services?
5. What are the challenges of accessing digital library services in rural areas?	a) What could make accessing digital library services difficult? b) Which skills are essential for accessing the digital library? c) What can be done to acquire those skills? d) Would digital literacy be required in using the digital library? e) Would it be a challenge for library professionals to manage the digital library services? f) Are copyright issues going to hinder digital library services?

6. What are recommendations for the provision of digital library services in rural areas?	a) What is your description of a practical or effective digital library? b) What should the services of a digital library incorporate? c) What will your library benefit from offering digital services? d) Which library sources are important for users in a digital library? e) What are the requirements needed in setting up a digital library?

An electronic copy of the dissertation will be sent to you after completion of this study. The researcher hopes that the information you shared will help to enable accessibility of library and information services via the digital platform.

Thank you!

Appendix II: Consent Form

Consent to participate in interviews

I, _____ voluntarily agree to participate in the interviews, for a study titled "**Public librarians' perspectives of digital library for rural areas of Capricorn District Municipality, Limpopo province**". The researcher has issued ethical clearance and a letter introducing this study to me, of which I have received, read, and understood. I understand that my views will be used for this research study.

Name & Surname: _____

Signature: _____

Date: _____

Appendix III: Application for Permission

Oluwole O. Durodolu

Department of Information Science,
University of South Africa, Pretoria,
South Africa.

The Head of Department
Department of Sport, Arts & Culture
Private Bag X 9549
Polokwane
0700

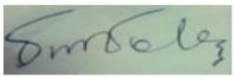
Dear Sir/Madam

APPLICATION FOR PERMISSION TO CONDUCT RESEARCH

I am writing this letter to request for permission for my student **Mamabolo Mapheto Johannes** to conduct research (interviews) with public librarians under Capricorn District for a study titled '**Public librarians' perspectives of a digital library for rural areas of Capricorn District Municipality, Limpopo Province**'. He has been granted ethical clearance to conduct this research by the Department of Informtion Science, University of South Africa. Therefore, we will be glad if all the necessary assistance be granted to enable his access to the information required to strengthen his research.

The interviews will take a duration of a maximum of one hour per librarian. I, therefore, humbly request your permission to conduct the interviews.

Yours faithfully,



Dr. Durodolu, Oluwole Olumide

Appendix III: Ethical Clearance

UNISA university of south africa

DEPARTMENT OF INFORMATION SCIENCE ETHICS REVIEW COMMITTEE

24 July 2020

Dear Mr Mapheto Johannes Mamabolo

DIS Registration #: Rec-20200724

References #: 2020-DIS-0020

Name: MJ Mamabolo

Student #: 43560903

Decision:

Ethics Approval from 24 July 2020 to 24 July 2024

Researcher(s): Mr Mapheto Johannes Mamabolo
43560903@mylife.unisa.ac.za
079 468 4926

Supervisor(s): Prof OO Durodulo
woledurodolu@gmail.com
062 481 5754

Public librarians' perspectives of digital library for rural areas of Capricor District Municipality, Limpopo province.

Qualifications: Masters Study

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
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The ***low risk application*** was reviewed and expedited by the Department of Information Science Research Ethics Committee on 24 July 2020 in compliance with the Unisa Policy on Research Ethics and the Standards Operating Procedure on Research Ethics Risk Assessment. The proposed research may now commence with the provisions that:

1. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the UNISA Policy of Research Ethics.
2. Any adverse circumstances arising in the undertaking of the research project that is relevant to the ethicality of the study should be communicated in writing to the Department of Information Science Ethics Review Committee.
3. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.
4. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards the protection of participants' privacy and the confidentiality of the data should be reported to the Committee in writing, accompanied by a progress report.
5. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the field of study. Adherence to the following South African legislation is important, if applicable: Protection of Personal Information Act, no. 4 of 2013; Children's Act no. 38 of 2005 and the National Health Act, no. 61 of 2003.
6. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data requires additional ethics clearance.
7. Research must consider rules for engagement that are in line with observing COVID 19 regulations.
8. No field work activities may continue after the expiry date of **24 July 2024**. Submission of a completed research ethics progress report will constitute an application for renewal of Ethics Research Committee approval.

Note:

*The reference number **2020-DIS-0020** should be clearly indicated on all forms of communication with the intended research participants, as well as the Committee.*

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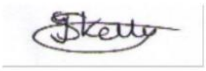
Yours sincerely



Department of Information Science: Ethics Committee

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Appendix V: Permission Letter

LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
SPORT, ARTS AND CULTURE
HEAD OFFICE

Ref: 2/9/2/2
Enq: Mayevu M
Tel No: (015) 284-4035)
Date: 19 January 2021

Dr. Durodolu, O.O
Department of Information Science
University of South Africa
Pretoria
South Africa

Application for permission to conduct research with public librarians under Capricorn District.

1. Your letter of request bears reference.
2. The Limpopo Department of Sport, Arts and Culture hereby grants permission to Mr Mamabolo Mapheto Johannes, student number: 43560903 to conduct research in relation to "**Public librarians' perspectives of a digital library for rural areas of Capricorn District Municipalities, Limpopo Province".**
3. The Department expects to be furnished with the outcomes of the research findings prior to being published.
4. The outcomes of the research will assist the Department to achieve strategic objective of promoting access to library and information services in the Province.
5. **All the COVID-19 related protocols will be adhered to when collecting data for this research.**

TSEBE N.N
HEAD OF DEPARTMENT
SPORT, ARTS AND CULTURE

21 BICCARD ST, POLOKWANE, 0699, Private Bag X9549, POLOKWANE, 0700
Tel: 015 284 4000, Fax: 015 284 4508
Website: http://www.limpopo.gov.za

The heartland of South Africa – **development is about people!**

Appendix VI: Editorial letter

University of Zululand
KwaDlangezwa Campus

Faculty of Arts
Languages and Communication Studies
Department of English

UNIVERSITY OF ZULULAND

RESTRUCTURED FOR RELEVANCE

Private Bag X1001, KwaDlangezwa 3886
Cell: 0614556808
E-Mail: rataun@unizulu.ac.za

22 November 2022

TO WHOM IT MAY CONCERN

This letter serves to certify that I have conducted a language editing of research dissertation entitled: **PUBLIC LIBRARIANS' PERSPECTIVE OF DIGITAL LIBRARY FOR RURAL AREAS OF CAPRICORN DISTRICT MUNICIPALITY, LIMPOPO PROVINCE,** by Mr. Mapheto Johannes Mamabolo. To my knowledge, the work has been thoroughly edited. Unless tampered with prior to your reception of the edited work, I trust you will find the editing quality in order.

Regards

nelson

Mr. NS Ratau (Editor)