

**Digitalization of library services as a magnifying factor towards improving public  
library services in Limpopo**

by

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DISSERTATION

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## DECLARATION

I declare that the **DIGITALIZATION OF LIBRARY SERVICES AS A MAGNIFYING FACTOR TOWARDS IMPROVING PUBLIC LIBRARY SERVICES IN LIMPOPO PROVINCE** hereby submitted to the University of Limpopo for the degree of **INFORMATION STUDIES** has not previously been submitted by me for the degree at this or any other university; that it is my work is my work in design and in execution, and that all material contained herein has been duly acknowledged.

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Khanya I.A Mr.

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Date

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- Special thanks to my parents for being there for me through difficult times.
- I also thank the Department of Sports, Arts and Culture for granting me permission to collect data in Limpopo public libraries.
- Limpopo public libraries together with the library staff (respondents) for allowing me to collect data through questionnaires.

## **DEDICATION**

This work is dedicated to my parents, Samuel Khanya and Refiloe Khanya; as well as my sisters Boitumelo Moleko and Lebogang Khanya.

## **ABSTRACT**

The digitalisation of library services is concerned with ensuring that almost all systems used to render services are ICT incorporated. This is of utmost importance since we are moving towards the 4<sup>th</sup> industrial revolution. Public libraries need to upgrade their systems to ensure that the service rendered is digitalised. Failure to digitalise libraries may lead to public libraries being obsolete and library staff may lose their users.

The purpose of this study is to examine the digitalisation of library services as a magnifying factor towards improving public library services in Limpopo public libraries. The quantitative research approach was used to conduct this study. The questionnaire was used to collect data from Limpopo public library staff population.

Convenience sampling techniques were used to select libraries in all five districts in Limpopo Province, which are Capricorn, Mopani, Vhembe, Waterberg and Sekhukhune. The instrument used to collect data from all library staff was a self-administered questionnaire. Eighty-seven questionnaires were distributed, filled, interpreted and analysed.

Findings revealed that the library staff have a positive attitude towards digitalisation. The study also found that library staff do have the necessary Information and Communication Technology skills. Most libraries lack ICT systems and operate under financial constraints.

The study recommends that training should be implemented more than once a year in public libraries and that it should be relevant towards the library staff needs. The government should also finance libraries for promotional and maintenance of ICT systems to ensure that a positive attitude is held up high by the library staff.

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## **LIST OF ABBREVIATIONS**

**ICT:** Information and Communication Technology

**LIS:** Library and Information Services

**TAM:** Technology Acceptance Model

**PU:** Perceived Usefulness

**PEU:** Perceived Ease of Use

**OPAC:** Online Public Access Catalogue

## **CHAPTER 1: INTRODUCTION AND ORIENTATION OF THE STUDY**

### **1.1. Introduction**

Public libraries in South Africa plays a pivotal role in keeping and providing information to users for many reasons including research purposes. The public library system in South Africa is considered the most sophisticated on the continent. However, public libraries in various parts of South Africa are now facing an alarming deterioration. It is reported that 8 million out of 12 million users do not have access to library facilities (Issak, 2000). This poses a problem in terms of accessibility of services rendered by public libraries.

Digitalisation refers to an increase or adoption of usage of digital or computerised technology by libraries (Paulin, Anthopoulos, & Reddick, 2017). Fabunmi, Paris, and Fabunmi (2006) express that the greatest purpose of digitalisation is to improve access and heighten preservation of library materials.

The impact of the library manual system amongst another includes the inability to access library resources twenty-four hours. This is because without ICT there will be no OPAC (Online Public Access Catalogue), which prohibits users to access library materials even after hours. Lack of digitalisation hampers the smooth running of internal operations in the library. This causes a delay in the provision of service through the usage of card catalogues (Johnson, Zion & Prabhu, 2019).

There is a paradigm shift from manual library system to digitalisation. This means that Technological advances force libraries to adopt new ways of providing library and information services. Digital preservation and cloud computing are the new ways of offering the best information sources and service (Khan & Rubina, 2017). As such, many libraries have started to use new methods and techniques to acquire, preserve

and disseminate information through web-based library services (Khan & Rubina, 2017).

South Africa has approximately 1612 public and community libraries, which are all serviced by the nine provincial library services. It also has approximately 381 public libraries that are serviced by the metropolitan library services systems to meet the needs of the existing population of about 51 million (National Library of South Africa, 2015). According to the National Library of South Africa (2015), there are 385 public libraries in South Africa without the internet. However, there are some inroads in the country aiming to bring about change in the public library sector and one of them being Mzansi Libraries Online (MLO) (National Library of South Africa, 2015).

Mzansi Libraries Online (MLO) is a programme of the National Library of South Africa, in collaboration with the Department of Arts and Culture and the provincial library services in all nine provinces. The overall objective of MLO is to empower communities in South Africa to develop their lives through the provision of free access to information, providing community and public libraries with Information Communication Technology facilities as well as internet (National Library of South Africa, 2015). Mzansi Libraries Online aims to assist public libraries across South Africa with an internet connection and ICT facilities.

Limpopo province has sixty-nine public libraries (National Library of South Africa, 2015). Out of these libraries one library namely Thulamela, Public Library has benefited from Mzansi Libraries Online as it has been provided with internet and ICT facilities (National Library of South Africa, 2015). Limpopo is a predominantly rural province. It is divided into five municipal districts, which are Capricorn, Waterberg, Sekhukhune, Vhembe and Mopani (Municipalities of South Africa, 2012). However, it appears as if many public libraries are still lagging in terms of digitalisation. This results in poor library services. Bhebe (2018) highlights that in South Africa whenever masses are not happy with the poor public library services, calling for public meetings where views are shared and

debated is not fashionable. Hence people always strike whenever there are problems, and some go as far as burning the very same public libraries out of anger of bad services. The services provided by the libraries are largely manual and this affect accessibility and quality of library services. Without digitalisation, library users must visit the physical library and gain access to print or microfilm material with the help of a librarian (Stewart & Newman, 2018). This affects the accessibility of Library services and this is the reason why digitalisation should be considered.

## **1.2. Research problem**

The problem that led to this study is an ineffective and inefficient library service offered by Limpopo public libraries. Library staff are usually unable or struggle to render timely and effective library services to citizens due to ineffective library manual system. Presently in South Africa, many users must physically visit the library for service, and this is financially costly and time-consuming (Salman, Mugwisi, & Mostert, 2017). The digitalisation of resources and services can be used to ensure that users have unlimited time to access information or library services at any time.

The digitalisation of library services provides remote access to users and round the clock access whereby users can access information sources twenty-four hours a day (Yakkaldevi & Ghante, 2014). As would Ariole, (2017) attest, applying Information and Communication Technology in library services increases the number of usages of library resources and patronage. Therefore, there is a need for effective library system for improvement of public library services.

## **1.3. Purpose of the study**

### *1.3.1. Aim of the study*

The study aimed to examine digitalisation of library services as a magnifying factor towards improving public library services in Limpopo public libraries.

### *1.3.2. Objectives of the study*

- 1.3.2.1. To establish the attitudes of library staff towards digitalisation
- 1.3.2.2. To investigate the skills of library staff in terms of retrieval and usage of online materials
- 1.3.2.3. To determine the extent to which Limpopo public libraries are digitalised for service improvement
- 1.3.2.4. To identify the challenges of digitalisation of library resources and services
- 1.3.2.5. To underscore the benefits of digitalisation in public libraries

### **1.4. Significance of the study**

The significance of the study refers to how those practicing in the profession will benefit from this work (Cottrell & McKenzie, 2005). Sesay (2012) stresses that the significance of the study is concerned with how the study would contribute to the body of knowledge as well as how important is this study. The study seeks to examine digitalisation of library services as a magnifying factor towards improving public library services in Limpopo public libraries. The results of this study can benefit Limpopo public libraries, academics, research institutions, and general researchers as well as library staff interested in the research topic.

Lastly, this study contributes to the already existing body of knowledge in Library and Information Services (LIS) by submitting a copy to the South Africa Journal of Libraries and Information Science (SAJLIS) for publication.

### **1.5. Scope of the Study**

The scope of the study refers to a distinctive area and parameters where the research is focused, and where data is collected (Harrison, 2015). The study was conducted in

Public libraries from five municipal districts in Limpopo. Due to time and budgetary constraints, the study was limited only to public libraries that are known and closest to the researcher. The participants were public library staff.

## **1.6. Clarification of key concepts**

Defining concepts allows consistency in the way the term is used (Burns & Grove, 2010).

### *1.6.1. Library*

The word library refers to a collection of books gathered for purposes of reading, study, or reference (Blum, 2006).

### *1.6.2. Public Library*

Public library refers to the collection of books, organised for public access. The public library is maintained wholly from public funds, and it should be readily accessible by everyone irrespective of race, gender, language, religion or educational attainment (Harrison, 2015).

### *1.6.3. Library Service*

Service is a means of delivering value to the clients by facilitating outcomes the client wants to achieve, but without the ownership of specific expense and risks (Hatcher, 2013). For the purpose of this research, library service refers to the delivering of value (information) to the library clientele by the library staff.

### *1.6.4. Attitude*



Attitudes refer to the beliefs and feelings about people, objects, and ideas (Weiten, et al., 2016). For this study, attitudes refer to the way library staff perceive and reacts towards the digitalisation of library services.

#### *1.6.5. Digitalisation*

Digitalisation refers to the process of converting any type of information into digital form (Strachan, 2017).

### **1.7. The organisation of the study**

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

#### **Chapter one: Introduction and orientation of the study**

This chapter covers the introduction and orientation of the study, where the problem statement was briefly explained with citations of other similar studies. Purpose of the study was clearly stated which was to examine digitalisation of library services as a magnifying factor towards improving public library services in Limpopo province public libraries. Significance of the study was also provided. Scope of the study and clarification of key concepts were also briefly explained.

#### **Chapter two: Theoretical framework and literature review**

The chapter reviews the relevant theoretical framework regarding assessing digitalised service in public libraries. Theories used were Diffusion of innovations and Technology acceptance model. Choice of the theory was also highlighted which was Technology acceptance model.

It also presents review of literature from other similar studies. The literature review is arranged according to the five objectives of the study which are Attitudes of library staff towards digitalisation; Skills of library staff in using ICT; Usage of library online materials; Challenges of digitalisation; Benefits of digitalisation to library staff and users.

### **Chapter three: Research methodology**

This chapter discussed the research methodology and quantitative method was used. This approach was used in the research for examining the data collected, its relationship as well as variations. Their variations were assessed and rationed normally on the tools so that quantified data can be nicely analysed by the usage of statistical procedures. It also covered research design, population and sampling, data collection, criteria of quality of the study and ethical considerations.

### **Chapter four: Data analysis and interpretation**

This covers the analysis and data interpretation of the findings presented according to the five objectives of the study. Data analysed is further presented in a form of graphs, pie charts and tables.

### **Chapter five: Discussion of the findings**

The chapter discusses the findings of the study emanating from chapter 5, data analysis. The findings are discussed in line with the theories of the study as well as a literature review.

### **Chapter six: Summary, conclusions and recommendations**

Summary of the research findings, as well as conclusion and recommendations, are presented in this chapter. Recommendations made are in line with the findings of the study. References, as well as appendices, are also presented in this chapter.

## **Summary**

The chapter covered the introduction, and research problem. Purposes of the study together with the five objectives were briefly explained. The study also covered the significance of the study. Scope of the study was also highlighted as well as clarification of key concepts. The chapter also showed and explained the organisation of the study starting from chapter one up to chapter seven. The next chapter discusses the literature review including the theoretical framework. Diffusion of innovations together with Technology acceptance model theories are also discussed.

## **CHAPTER 2: THEORETICAL FRAMEWORK AND LITERATURE REVIEW**

### **2.1. Introduction**

The previous chapter covered the introduction and background to the study to familiarize the reader with the concept of digitalisation of public libraries, including the aim and objectives of the study. It also covered the problem statement; the purpose of the research and the significance of the study. The scope of the study was also discussed. Chapter 2 discusses the theoretical framework, whereby technology acceptance model and diffusion of innovations theory were critiqued; and the main theory that was used to anchor this study was discussed. It also reviews related literature according to the five objectives of the study.

### **2.2. Theoretical framework**

Theoretical framework refers to the theories and concepts to be used in the research process (Markovic & Alecchi, 2016). Creswell (2011) explains the functions of a theoretical framework as to build a research foundation, to demonstrate how a study advances knowledge, to conceptualize the study, to assess research design and instrumentation, as well as to provide a reference point for the interpretation of findings.

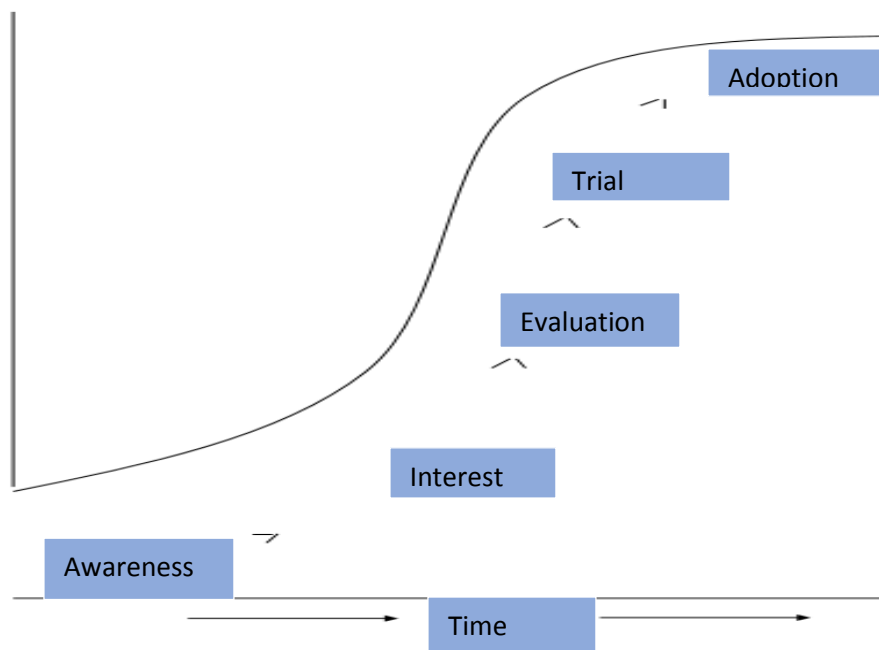
Ngulube, Mathipa, and Gumbo (2015) accentuates that many quantitative studies are theory-driven and based. Most of them are mainly concerned with challenging or verifying theories, rather than developing them. Theory helps to guide the research. The theory is like a container which data must be poured into. In other words, it shapes the research and determines the type of research tools used in the data collection stage. The process involved in research starts with the theory, which is used to come up with the hypothesis. Data collection and analysis then follows. The research findings then help in deciding whether the theory is applicable or not. If not, then the theory will be revised (Ngulube, Mathipa, & Gumbo 2015).

The theoretical framework includes theories that the researcher proposes to utilize (Ngulube, Mathipa, & Gumbo 2015). The theories used in this research are Diffusion of Innovations by Everett Rogers and Technology Acceptance Model by Fred Davis.

### 2.3. Diffusion of Innovations

This theory was developed by Carl Rogers in 1962 as the Innovation Diffusion Theory. It was revised and redeveloped in 1985 by Rogers. The diffusion of innovation theory dwells on understanding at what rate the new ideas flow and transmit in the society. This theory takes a different approach as compared to the theories of change. This theory sees change as being about the reinvention instead of concentrating on influencing majority to change.

The concept of diffusion of innovations refers to the spread of ideas from one society to the other or from a focus or institution within a society to other parts of that society. The innovation is communicated through certain channels of overtime among the members of a social system (Rogers, 2010).



**Figure 2.1:** Diffusion of Innovations adoption curve adapted from (Rogers, 2010)

Rogers (2010) accentuates that in the diffusion of innovations, innovations are the ones changing not people. Hence, the theory in this research focused on the rate that innovation spreads rather than the library staff themselves. Rogers (2010) explains that the theory comprises of five adoption stages, namely Awareness, Interest, Evaluation, Trial and Adoption. This research used the Diffusion of Innovations theory to determine the rate of acceptance of digitalisation by library staff in Limpopo libraries. For example, in the Awareness stage, library staff were asked to indicate on whether they know about digitalised services. Interest stage assesses whether library staff have interest in using digitalised service; Evaluation focused on whether digitalisation improves service in libraries; Trial focuses on assessing training segments for library staff on utilizing library systems; and lastly Adoption stage focus on checking the number of digitalised libraries and if whether employees are well acquainted (Rogers, 2010).

Diffusion of innovations theory to focus solely on the technology or innovation, disregarding the complex societal, cultural, economic and other factors that determine how the product is adopted into society (Chile, 2017). There are advantages of using this theory to assess the adoption of innovations. According to Lamorte (2016) advantages of using the diffusion of the theory include the following:

- Relative Advantage – this is an extent to which the innovation is better than the idea it substitutes;
- Compatibility – refers to how steady that innovation is with the potential clients;
- Complexity – this is how broad and challenging the innovation may be to understand as well as to utilize;
- Triability – refers to the stage where customers can be able to assess and give that innovation a try;
- Observability – the innovation produces the results at this degree.

Diffusion of innovations theory was used in this study to be able to note and determine the rate of acceptance of digitalisation in Limpopo Public Libraries. The reason why this theory was used is that for the examination of technology innovations, Rogers' diffusion of innovations theory is the most viable one to use. Much diffusion research involves technological innovations, so Rogers usually used the word "technology" and "innovation" as synonyms (Sahin, 2006).

The approach of the Diffusion of Innovations theory is quite different as compared to others. This theory sees change as a process of reinventing technologies to fit times of today, rather than persuading individuals to change (Robinson, 2009).

#### **2.4. A critic of Diffusion of innovations theory**

As it has been stated in (section 2.3) the Diffusion of innovation model curve is divided into five stages. Lyytinen and Damsgaard (2001) argue that complex technologies will not diffuse in sequential stages as depicted by Rogers. Many times, it is not clear what these stages mean concerning to the observed behaviour. In some situations, adoptions take place in dyadic relationships where it is difficult to see what the notion of an early adoption mean (Lyytinen & Damsgaard, 2001). Diffusion of innovations theory focuses strictly on the spread of digitalisation in this research. However, it does not cover the attitudes of library staff towards digitalised service. This weakness was offset by the second theory, which is the Technology Acceptance Model.

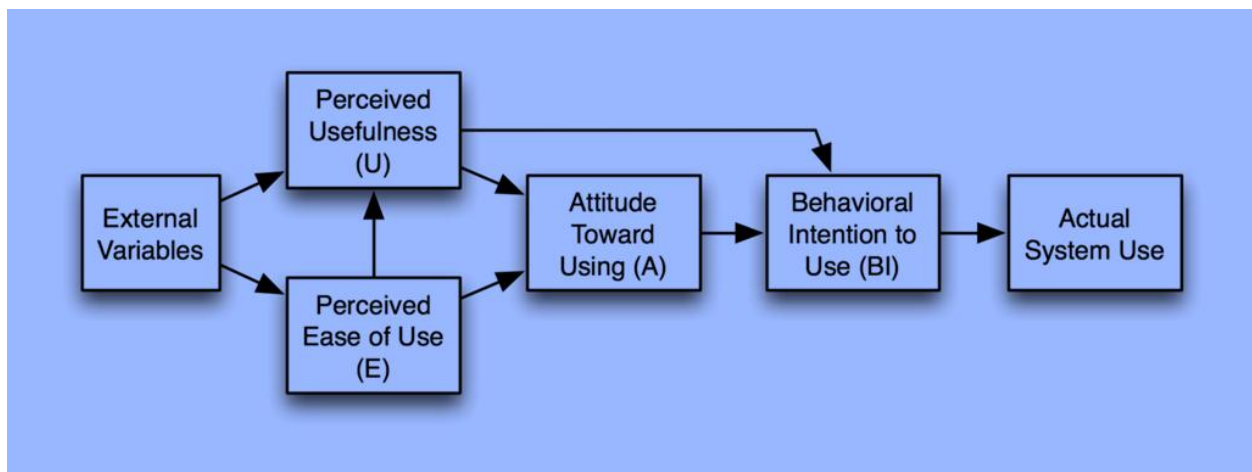
#### **2.5. Technology Acceptance Model**

Mugo, Njagi, Chemwei, and Motanya (2017) argued that the user accepting the technology must precede the inclusion of technologies in Library and Information Services sectors. Without this effort, the technologies remain abandoned or heavily underutilized once supplied to library systems. Mugo, Njagi, Chemwei, and Motanya

(2017) recommended frameworks that can inform policymakers, library management and library users on how best technology can be incorporated in public libraries.

Technology Acceptance Model (TAM) was invented by Fred Davis in 1989 to explain computer usage behaviour. With this model, Davis sought to explain the general determinants of computer acceptance that lead to explaining users' behaviour across a broad range of end-user computing technologies and user populations. The basic TAM model included and tested two specific beliefs, which are, Perceived Usefulness (PU) and Perceived Ease of Use (PEU) (Lai, 2017).

Technology Acceptance Model is the most widely used model of user acceptance and usage of information technology. Udo Richard Averweg used this model in a study titled *Information Technology Acceptance in South Africa: An Investigation of Perceived Usefulness, Perceived Ease of Use, and Actual System Use Constructs*. Willie Chinyamurind and Gert Louw also used the Technology Acceptance Model in the study titled *Gender differences in technology acceptance in selected South African companies: implications for electronic learning*.



**Figure 2.2:** Technology Acceptance Model adapted from (Davis, 1986)



This model was used to assess the acceptance behaviour of library staff towards digitalisation of Limpopo public libraries. It has six stages, which are External variables, Perceived usefulness, Perceived ease of use, Attitude, Behavior and Actual system use (Davis, 1989).

With the External variables stage, the investigation focused on what influences library staff to utilize digitalised service. Davis (1989) explains two major causes of why people accept or reject technology innovations. Perceived usefulness is the degree to which a person believes that using an information system or ICT facility would enhance their job performance. For example, when library staff use the Sierra system to catalogue, this system enhances their job by mitigating the mistakes as compared to using printed cataloguing sheets.

In contrast, perceived ease of use refers to the degree to which a person believes that using a particular system would be free of effort (Davis, 1989). For instance, when there is a self-service machine in the library to issue out books of which its function is to weigh off the burden on librarians' shoulders, but only to find that library staff perceive it to be difficult to utilize. These two stages (Perceived usefulness and perceived ease of use) vary but both play a pivotal role in the Technology Acceptance Model in the sense that they prompt advantageous role. For example, in perceived usefulness, the user's work is simplified, and performance is increased. The beneficial role also overlaps to the perceived ease of use where the library staff find their work free from effort and easy to accomplish by using ICT facilities. With the fourth stage named Attitudes, the study investigates whether library staffs have a negative or positive attitude towards digitalisation. The fifth stage is Behavioral intention. Surendran (2012) explains that behavioural intention is the measure of the probability of a person using the facility or ICT system. In this regard, this research assessed whether the usage of digitalised systems was goal perpetuated or they were purely comfortable with it.

Even though Technology Acceptance Model has been applied in numerous studies testing user acceptance of information technology, for example, word processors, spreadsheet applications, library systems, emails, web browsers, blackboard etc., there are few critics about Technology Acceptance Model, and they are outlined in the following subsection (Masrom, 2007).

## **2.6. A critic of the theory**

Although the Technology Acceptance Model is the most used research model, researchers share mixed reactions and opinions regarding its theoretical assumptions as well as practical effectiveness (Chuttur, 2009). Some of the researchers including Chuttur (2009) imply that the Technology Acceptance Model lacks enough accuracy. This theory is not profound to instances in which the context of use is changing, or the pertinent features of use are somewhat unknown.

### **2.6.1. Choice of theory**

#### **2.6.2. Technology Acceptance Model**

The best way to assess the behaviour of library staff towards digitalisation of services is to incorporate Technology Acceptance Model theory. This theory was used to anchor this research on. Technology Acceptance Model theory was used in this study to note the attitudes of library staff towards digitalisation of library services. It is the one that captures most of the technological applications as well as digitalisation hence it was adopted in this study.

This theory was chosen as the main one in this study as it covers both the attitudes as well as the processes involved to assess the acceptance behaviour of technology by the library staff in public libraries.

Technology Acceptance Model is gaining popularity for understanding the relationship between humans and technology through Perceived Usefulness (PU) and Perceived Ease of Use (PEU) (Durodolu, 2016).

Alomary and Woollard (2015) postulate that others have also recognised the Technology Acceptance Model as a highly reliable predictive as well as powerful, and valid model that can be used in several contexts. Moreover, it contributes a lot in terms of understanding the usages of ICT and acceptance behaviour.

## **2.7. Review of related literature**

### *2.7.1. Introduction*

The literature review is a written, analytic summary of research findings on a topic of interest (Bosswell & Cannon, 2011). Jupp (2006) expatiates that literature review is a precarious summary and assessment of the existing materials dealing with knowledge and comprehension in each field. The purpose of a literature review is to adjust the research project, to form its context or background and to offer understanding into previous researches similar to the one conducted (Jupp, 2006).

Moreover, the literature review helps the researcher to understand the subject area more fully and identify the different theoretical approaches that have previously been applied. Secondly, the literature review helps to develop the research methodology by assessing the previous existing literature review similar to the topic the researcher is working on. The researcher may also look at how methodologies were used previously and whether the methods were successful. By doing so the researcher will be able to employ the most effective methodological tools. Thirdly, literature review broadens the mind of the researcher as well as the knowledge for the research to be well aligned with the topic and to be as relevant as possible (Jupp, 2006).

The sources used in this study for compiling literature review were online journals accessed from different databases such as Ebscohost, Jstor, Sabinet, Science-Direct etc.; and electronic books as well as online reports. Thesis was also consulted to note and quote what previous studies revealed. Searches were made using different search terms such as the Digitalisation, Public Library, ICT benefits, ICT challenges, ICT usage, Skills, Library staff.

### ***2.7.2. Attitudes of library staff towards digitalisation***

Attitudes refer to the association in the memory of a person between the given subject or object and a given summary of the evaluation of that subject or object. It refers to how much we like or dislike something and this may influence the reaction as well as the behaviour of a person (Maio, Haddock, & Verplanken, 2018). Attitudes can either be positive or negative. In this instance, attitudes were studied to determine whether the library staff have a positive or negative approach towards ICT facilities available in their public libraries. A qualitative study conducted in Nigeria by Ariole (2017) highlights that the successful integration of information service delivery depends on the availability, competence and attitudes of library staff towards the role of ICT in the provision of library and information services.

Another study conducted in Indian public libraries by Kumar (2016) illuminates that the introduction of Information Communication and Technology into libraries prompted fear to most library staff as they are scared that digitalisation may affect their jobs adversely and that they may lose them. In a different study Kumar (2008) highlighted that 21 out of 97 library staff assumes that ICT application will spoil the image of the public libraries. While some libraries assume that ICT uses often disturb the routine work of the library; and believes that ICT applications take over the traditional way of Information handling in the libraries. However, the study does not show whether usage of digitalised library materials indeed disturb the routine work of the library. This study intends to find out if digitalisation affects the smooth running of library services.

Some library staff in South Africa tend to adopt the same negative approach when confronted by the reality of the new technologies, such as the internet, Google and Web 2.0 tools (Moropa, 2010). Library staff argue that the library is superior or better than those new technologies or they look for faults with those technologies. These studies imply that library staff have a negative attitude towards digitalisation. This then leads to library staff not utilizing the new technologies to provide services in libraries, which is very bad looking at the new ways' libraries provide information with technology enhancement (Enakrire & Ocholla, 2017).

A study conducted in South Africa as well as Nigeria by Enakrire and Ocholla (2017) implies that limited use of ICTs can also attribute bad and negative attitudes that stem from both external and internal influences. Re-skilling and training of library staff to acquire ICT knowledge and skills is one way that may help to improve the usefulness and perceived ease of use of ICTs in libraries (Enakrire & Ocholla, 2017).

Concerning the findings above, a study conducted in Indian public libraries by Kumar (2008) shows that 114 out of 126 library staff agreed that positive attitude does not only improve the usage of IT systems but also the efficiency of the library, as well as communication channels. One hundred and fifteen out of one hundred and twenty-six agree that positive attitude towards digitalisation helps to improve services rendered in public libraries. Kumar (2008) also revealed that through a positive attitude, library staff obtain the right information to the right people at a short of time.

### ***2.7.3. Skills of library staff in using ICT***

ICT skills, along with communication and administration are essential for every modern librarian as well as digitalised libraries (Gerolimos & Konsta, 2008). To provide effective formal and informal training opportunities to the public, library staff need to improve their Information Literacy and teaching skills (Lai, 2011). According to Library and Information

Association of South Africa (2015), most skilled and experienced library staff in South African public libraries are close to retiring and this will lead to a shortage of skills in the library sector. In this regard, the Limpopo Provincial Library Service is focusing on addressing the library back log by appointing qualified staff, and by continually training library staff (Library and Information Association of South Africa, 2015).

In Kenya, 37% of library staff lack teaching equipment and skills in using ICT facilities (Kingori, Njiraine, & Maina, 2016). Lack of skills is normally aggravated by lack of libraries and information centres. Sharma (2012) accentuates that currently, South Africa has few library and information studies training initiatives in place and this result in very few skilled library staff. Through a questionnaire survey, Mugwisi (2015) established that a lack of basic information handling and a lack of computer skills is a problem affecting South African public libraries negatively and leads to loss of library clientele.

Mwai, Kiplang' and Gichoya (2016) in their qualitative study conducted in Kenyan public libraries accentuates that most library staff lacked skills in ICT areas. They highlight that 13 out of 40 sampled library staff lack ICT skills. Ricardo (2011) acknowledges that the absence of ICT training sessions for the library staff impedes the library staff to render the best service to their clients. It also affects the quality and usage of ICT in public libraries.

Advances in technology have presented many good opportunities for public libraries to improve services as well as skills of library staff. With the use of self-serving machines, library applications, and social media channels such as Facebook, providing greater ease of use and access to a public library and its assets, as well as avenues for better community engagements, it is of paramount importance to ensure that library staff is well skilled (Nicholson, 2017). Staff training is drawing attention to library users today

because of the worth it brings to public libraries. Training helps managers to focus on strategic priorities and more importantly on high-level activities, freeing up resources to focus on measurement, evaluation, and operational excellence in training programmes themselves (Mwai, Kiplang' at, & Gichoya, 2016). Nicholson (2017) accentuates that library staff need ICT skills to access, locate and to be able to use information. Because of pressure on public libraries to render ICT services as well as the need to support communities with ICT skills training, libraries now focus more on providing access to technology and supporting digital literacy skills.

Ricardo (2011) alludes that lack of training impedes staff capacity to serve the users in the best possible way. He also explains that for users to fully incorporate technology into their daily lives, library staff have to acquire right and relevant skills in using these technologies first. Lack of library staff skills may lead to the users not utilising the digitalised systems in libraries because of lack of influence and appropriate training (Ricardo, 2011). Library users need digital literacy training to locate, access and use this information library sources and services.

#### ***2.7.4. Usage of library online materials***

Library staff are increasingly using ICTs to access digitised information (Enakrire & Ocholla, 2017). Using ICT not only enhances the services of public libraries but also improves the librarian's abilities and the organisation of the library (Leung, Nkhoma, & John, 2013). Public libraries have an important role to play in getting older people connected and teaching them skills they need to utilize ICT facilities in public libraries. Elderly people who are housebound should have the same degree of access and ICT utilization as those that can to visit their local public libraries (Pateman & Williment, 2016). Age of library staff influence the usage of ICT, while gender appears to have a significant influence on the usage of ICT in public libraries (Leung, et al., 2013). Leung, et al. (2013) affirms that male and female library staff are not significantly different regarding ICT usage.

According to Salman, Mugwisi and Mostert (2017) access to and use of public libraries being affected by the availability of the quantity and quality of resources and services including digitized materials (Salman, et al., 2017). When service is digitalised, accessibility becomes easier and faster which increases the usage of materials in public libraries. Salman, et al., (2017) indicate that high-quality service with integration of ICT offered by libraries can increase user satisfaction. Despite the significant progress in equipping libraries with digitalised systems, there are weaknesses in the public library digital infrastructure, which prohibits the usage of these systems. Some of the problems are broadband width and broadband speeds (Pateman & Williment, 2016). Isiyaku, Ayub, and Abdulkadir (2015) highlight that ICT usage behaviour has lower mean ratings in Nigerian libraries. With only 54% of library staff using ICT facilities in the library. The other 46% provide service traditionally so without ICT incorporation. However, 54% of ICT incorporation is not sufficient in terms of rendering good quality service in this information society era.

Broadband width affects library staff when providing information to users in a sense that they determine the speed for service. If the library broadband width is low, possibilities are that the service will also be slow. This may discourage library staff to provide information services using ICT systems.

Goulding (2016) advocates that although some of the staff members are eager to take on the role of ICT usage in public libraries and training, others shy from the increased responsibility and this involves especially as it is rarely accompanied by extra remuneration. Goulding in her study explained that the minority library staff who are not eager to use ICT lack motivation. Goulding (2016) found out that people are likely to be more committed to learning how to use ICT if they can be shown that it gives them easier access to information and resources that they find useful and interesting. Many public libraries are trying to encourage use by identifying and signposting websites considered to provide quality assured, reliable, accurate information relevant to the



needs of users. This is only accessible by the use of ICT systems in libraries. In contrast to the above findings, a study conducted in Kwazulu Natal public libraries by Hoskins (2005) highlight that 94% of library staff use computers and other ICT facilities in their workplace, and they encounter no problems because of the training they received.

### ***2.7.5. Challenges of digitalisation***

Certain challenges are brought about by digitalisation. For instance, challenges such as lack of funding, few trained staff, outdated technology and inadequate infrastructure produce library staff which are, both negative and dispirited (Sharma, 2012). The section below discusses the challenges.

A quantitative study conducted by Gichohi, Onyancha and Dulle (2017) in Kenyan public libraries revealed that 45% of library users are reluctant to use community libraries because of poor infrastructures and lack of electronic resources. This becomes a challenge because the library without users becomes a white elephant. Hove and Brindle (2015) identified another challenge as the issue of coding and outdated technology. They imply that digitalisation captions and coding may be representative of the current time and may use terms that will not be used in future.

The other challenge is the issue of untrained staff. A quantitative study by Wachira and Onyancha (2016) highlights that librarian in the University of Nairobi have not received adequate training on how online services work. Some of them were also not mindful about the precise meaning of 'remote users. For example, a member in the discussion group during an interview commented: "we do not have remote users in our library and all we have is an online catalogue where once an item is identified, a user has to make a personal visit to the issue counter with the book for fresh borrowing or renewal." This was conditional in the other public libraries' debate groups. They also added that only when an item was available on the shelves was a user contacted by e-mail. This clearly

shows that resources are there, but library staff have not received adequate training on how to operate them and a clear meaning on how those technologies work. Remote user refers to an individual working on a computer, on a different network or in a different terrestrial place from the Local Area Network server (Dean, 2012).

The only way library remote users can access library materials is through the internet, using OPAC (Online Public Access Catalogue) and Local Area Network to access databases. However, as highlighted earlier in Section 1 of this research that 385 libraries in South Africa do not have the internet, which means that they will never be able to serve remote library users. This also means that it may be difficult to access those demarcated isolated libraries, especially in rural counterparts. Issak (2000) demarcates that 8 million out of 12 million people in South Africa cannot access library materials because of a lack of ICT infrastructure that is perpetuated also by lack of finances. Below are challenges identified in literature review pertaining to digitalisation. However, the study intends to find more challenges in relation to the research title.

#### ➤ **Technical challenges**

Juma, Wamukoya and Wekullo (2014) highlight that digital libraries have faced a series of difficulties: first technical problems such as introducing ICT systems without adequate training of library staff, this includes new library software systems, self-serving machines in rural libraries, radio frequency identification scanners and systems. A challenge found in the study conducted by Isiyaku, Ayub, and Abdulkadir (2015) was that hardware and software applications need to be updated time and again, and some of the library staff sees this as time-consuming and some are just reluctant to update software. This leads to reliability on the use of traditional library systems over digitized systems.

#### ➤ **Economic challenges**

Technical was then followed by economic issues, such as lack of government funds to help in repairing and servicing newly digitalised systems; lack of electricity and network, which prohibits library users to access online facilities of public libraries. This impedes badly on the usage of digitalised resources. Public libraries are facing serious changes internationally caused by a rapid change in the way society access and use information through the use of Information and Communication Technology. (Aabo, 2011). The rapid change is also influenced by the development and digitalisation of library resources. The financial crisis also has a serious impact and is increasing the stress on the public economy dramatically so including all mentioned issues (Aabo, 2011).

#### ➤ **Legal and ethical challenges**

The other prevalent one is legal issues. This in most cases is when Acts and laws clashes, such as Promotion of Access to Information Act 2 of 2000 which talks about the free provision of digitalised information irrespective of age is in a clash with Children's Act 38 of 2005 by prohibiting kids from accessing violent or disturbing digitized information in libraries (Juma, Wamukoya & Wekullo, 2014). This means censorship in public libraries is a challenge. Lent and Pipkin (2015) define censorship as "the restriction or suppression of ideas, information, or artistic expression by those in authority, usually a governmental entity. (Lent & Pipkin, 2015).

#### **2.7.6. Benefits of digitalisation to library staff and library users**

Despite challenges, there are various benefits associated with digitalisation of library materials, hence print collections are now replaced by the soft copies, which allow users to be able to use them through their mobile devices and tablets. This change from print documents to soft copies allows libraries to provide web-based services and full-texts proactively (Bhardwaj, 2017). The transition from digital libraries is very much important in the sense that services are offered faster and conveniently. Digital libraries have a huge potential towards offsetting the knowledge deficit in many parts of the world and

Africa in particular (Juma, et al., 2014). ICT can transform the landscape of library and information practice, which benefits libraries by providing quality services. When quality service is offered, the number of public library users will also increase (Ariole, 2017). The purpose of a digital library is to exploit the ICT facilities for sharing global resources. It also raises the profile of public libraries as users globally can know the library collection and be able to utilize the resources even remotely, which is otherwise not possible with print publications (Ashraf & Gulati, 2012). A study conducted in Kenyan public libraries by Gichohi, Onyancha and Dulle (2017) points out that after digitalisation was implemented, information materials were now accessible for 24 hours and research respondents rated it as 100% good service. This is supported by a questionnaire survey conducted by Khaola and Mabilikoane (2015) which reveals that participants are satisfied with the service provided in the Lesotho public libraries because of digitalisation of services in libraries. Pateman and Williment (2016) accentuate that not only do the library management benefit from attending training sessions on how to use the ICT system in the library. ICT literate seniors can tutor fellow library staff who are going to tutor the library users as well. Some of the benefits are, libraries will be more accessible through internet and websites, the offering of a broader range of content and resources as well as new ways of accessing, manipulating and comparing information. Digitalisation may also attract new users to the library since it is assumed that online access has a high allure to bring clients into the actual library (Pateman & Williment, 2016). In South Africa, the National Library of South Africa is taking a lead in acquiring funds to bring improvements in library services. Mzansi Libraries On-Line also aims to build more libraries with high-speed broadband (internet connectivity) and to increase the library assets (Library and Information Association of South Africa, 2015).

Mwai, Kiplang' at, and Gichoya (2016) inculcates that ICT is a requirement for moving libraries in the right direction. It is also important for providing library users with quality services. Because of the increased demand for Web-based information resources by the library users, library staff are forced to outsource ICT services as a way of

safeguarding life-threatening ICT services to complement the traditional library and information services and enhance their service delivery. Outsourcing ICT brings with it huge benefits to the public libraries (Mwai, Kiplang' at, & Gichoya 2016).

## **2.9 Summary**

The chapter covered the theoretical framework and literature review whereby two theories were used: Diffusion of Innovations and Technology Acceptance Model to align the study and to guide the objectives in the study. Literature was also discussed based on the objectives. The literature was discussed and arranged according to five objectives of the study which are: Attitudes of library staff towards digitalisation; Skills of library staff in using ICT; Usage of library online materials; Challenges of digitalisation; and Benefits of digitalisation to library staff and library users. The following chapter is about research methodology and it covers research design, research approach, population and sampling, study area, as well as data collection tools that were used in this research.

## **CHAPTER 3: RESEARCH METHODOLOGY**

### **3.1. Introduction**

The Previous chapter deliberated on theoretical and literature review, whereby literature was distinctively discussed. Literature was discussed based on the objectives of the study. The aim of this study in (subsection 1.3.1) has been stated that it is to examine digitalisation of library services as a magnifying factor towards improving public library services in Limpopo public libraries. Ngulube, Mathipa, and Gumbo (2015) highlight that the research's aim and objectives determine the methodology that should be used to understand reality. Chapter 3 discusses research methodology, research design, pilot study, study area, data collection, data analysis and quality criteria, and ethical consideration.

Research methodology is the study of the research process in all its broadness and complexity (Monsen, 2017). It also involves the various methods and techniques that are employed, the rationale that underlies the use of such methods, the limitations of each technique, the influence of each methodological preference on the types of data analysis employed and the subsequent interpretation of findings.

The research methodology section outlines the procedures and methods that were used in this research, and they are classified in subsections. The subsequent sections outline the research design used in this research, population and sampling as well as data collection methods used.

### **3.2. Research design**

Monsen (2017) defines research design as the overall plan that rationally integrates the components of a research. The concept design refers to a logical task undertaken to make sure that evidence collected enables the researcher to test the theories as unambiguous as possible (De Vaus, 2001). Besides, Richardson-Tench, Nicholson,

Taylor, and Kermode (2018) highlight that research design implies the organisation of the research components into a coherent and systematic plan to ensure the evidence obtained will effectively address the research problem. De Vaus (2001) expatiates that, the role of research design is to mitigate the chance of coming up with indecent causal inferences from data.

Silver, Stevens, Wrenn, and Loudon (2012) outline three categories of research designs, which are exploratory, descriptive and casual. This study adopted a descriptive research design.

Bista (2018) expatiates that descriptive research design is used to describe the characteristics of a population or phenomenon that is studied. It does not answer questions about how, when, why things occurred. A descriptive survey research design aims at explaining exactly how certain variables are related, without giving explanations for the connection, and they describe the frequency or possible determinants of a condition (Bordens & Abbott, 2011).

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

### *3.2.1. Research approach*

Research approaches are plans and procedures of research that span the steps from broad assumptions to detailed methods of data collection, analysis, and interpretation. They are the key terms that represent a viewpoint about research, successively

presents information from broad constructions of research to the narrow procedures of methods (Creswell, 2014).

The two generally used research approaches applicable to the scientific enquiry are the qualitative and the quantitative research approaches, each with its emphasis on attributes, such as numbers or social understanding respectively. However, researchers may want to use both in their research, and this may result in either a mixed-method or multi- methodology.

Qualitative research is a way of discovering and understanding the meaning individuals or groups ascribe to in dealing with problems (Creswell, 2014). It is used to comprehend meaning and interpretation, context and situation, processes and subjects. In qualitative research, the researcher seeks to develop understanding by investigating the context and situation. The aim is to understand the meaning of social action by studying it in its social context (Azevedo & Mesquita, 2018).

The second approach is a quantitative research approach, which the study adopted. Quantitative research is a systematic process of using numerical data from a selected subgroup of the entire population, and to also generalize the findings of the subgroup that is being studied (Creswell, 2014). It is the use of numerical measurement and analysis in research (Creswell, 2014). This approach was used in the research for examining the theories and objectives by assessing their relationship as well as variations. Their variations were assessed and rationed normally on the tools so that quantified data can be analysed using statistical procedures. This involves writing of research report. Which should comprise of an introduction, which is followed by literature review, theories, research methods and lastly results (Creswell, 2014).



Nykiel (2007) underscores that quantitative research's feedback is statistically trustworthy. The feedback can dependably conclude whether one idea or concept is better than the other results. The other distinct benefit was that the outcomes were projectable to the studied populace. However, the main drawback of quantitative research is that subjects, as well as objects, are measured only if the researcher at the beginning of the research knows them (Creswell, 2014).

Considering the benefits as well as the advantages of quantitative research method, the researcher has opted to use the quantitative research method. This was adopted in this research to identify and note the quantity of libraries and library staff' progress on the adoption of digitalisation in Limpopo public libraries.

### *3.3. Population and sampling*

The entire group of subjects or objects studied represents the population. Whereas sampling is a smaller group of either subjects or objects taken from the population. The succeeding paragraph outlines the definitions as well as the size of the sample and population used in this research.

#### *3.3.1. Population*

A population is simply a discrete set of entities that researchers want to know something about. Population in the study refers to a group of people usually from one or series of interrelated geographic areas, who share some important characteristics, whom researchers draw interest in studying (Atkinson, 2012). A population can share characteristic such as gender, occupation, workplace, race, nationality, age, and so forth (Namboodiri, 2013). In this research, the population shared the same profession. The population of this study was the library staff working in Limpopo public libraries. According to the National Library of South Africa (2012), there are sixty-nine (69) public and community libraries in Limpopo Province, and approximately one hundred and

thirty-eight (138) library staff. Below is the number of Public libraries in Limpopo divided into segments according to different districts.

District	Capricorn	Mopani	Sekhukhune	Vhembe	Waterberg	Total
<b>Number of Public Libraries</b>	14	17	14	11	13	69

Table 3.1: Number of libraries in five Limpopo districts

(Library and Information Association of South Africa, 2015)

Table 3.2: Number of Library staff in Limpopo public libraries

District	Capricorn	Waterberg	Mopani	Vhembe	Sekhukhune	Total
<b>Number of Library staff</b>	40	44	36	44	20	184

(Library and Information Association of South Africa, 2015)

Studying the entire population was simply not feasible. It was going to be costly and likely impossible to be able to source information from all of the libraries (Jugenheimer, Bradley, Kelley & Hudson, 2010). It is on this basis that the researcher has sampled the library staff.

### 3.3.2. *Sampling*

Sampling refers to a process of selecting a subset of the population that meet a criterion that has been predetermined by the researcher as relevant (Wiley, 2018). Jugenheimer et al. (2010) explain that sampling allows researchers to make reasonable estimates about the population parameters from which data is collected and a conclusion can be drawn. A group of Authors (2018) inculcates that sampling techniques can be divided into two, namely probability and non-probability. According to Group of Authors (2018) probability sampling refers to any method of sampling which uses random selection. Objects or subjects are grouped so that the probability of them being chosen are equal. On the other hand, non-probability sampling objects or subjects have less possibility of being chosen.

There are different methods used under both probability and non-probability sampling. The methods that fall under probability sampling methods include simple random sampling, systematic sampling, stratified random sampling and cluster sampling; while those falling under non-probability sampling include convenience sampling; quota sampling; snowball sampling and purposive sampling (Group of Authors, 2018).

This study adopted the non-probability sampling method called convenience sampling. This sampling method enabled the researcher to deal with data from a large landscape i.e. data from five different municipal districts in Limpopo. In South Africa Botha and Muller (2016) used convenience sampling to study “Institutional Research in South African Higher Education: Intersecting Contexts and Practices.” Moreover, the method was also used by Enakrire and Ocholla (2017) to study information and communication technology for knowledge management in academic in Nigeria and South Africa. Data was collected from 7 libraries that were close and accessible to the researcher. Data was collected from staff members that were present at work during data collection

### 3.3.3. *Sampling size*

Sampling size refers to the number of observations or individuals measured (Princeton Review, 2017). As far as sampling size is concerned, Hancock and Mueller (2010) suggest that a sampling size of fifty percent is valid enough to conclude from. Since according to National Library of South Africa (2015), the population of library staff in Limpopo is approximately 184, the researcher sampled 10% of the population in accordance with Krathwoni (1998) who assert that a sample of 10-20% of the population is enough.

### 3.4. **Pilot study**

Before the distribution of questionnaires pilot test was conducted. A pilot study is a preliminary study conducted on a limited scale before the original studies are carried out to gain some primary information. A pilot study is undertaken without formulating any hypothesis about the problem. It is made on a small sample, but the respondents must be representatives of the entire population (Daniel & Sam, 2011). The main aim of a pilot study is to try out the research approach to identify potential problems that may affect the quality and validity of the results (Blessing & Chakrabarti, 2009).

The researcher also wanted to see the errors within the questionnaires including repetitive and vague questions. Fifteen questionnaires were distributed in Polokwane Public library to assess the accuracy, relevancy and mistakes that might be included. The results of the pilot were not included in the main study because piloting was conducted to identify possible weaknesses in the research instruments. The following issues were identified through the pilot test:

- Consistency in the usage of the word “digitalisation” instance of “digitalisation” since South Africa uses British English.
- Arrangement of options in a questionnaire starting from agreeing to strongly disagree so that they are presented.

- A suggestion was made that I equalize boxes for ticking number of years so that they look presentable.
- Another suggestion was that I should include in the instructions how participants should respond to close-ended questions, by either ticking or crossing.

### **3.5. Study area**

This study was conducted in Limpopo public libraries in all five districts, being Capricorn, Mopani, Vhembe, Sekhukhune and Waterberg municipality. Taylor, Bogdan, and Marjorie (2015) accentuates that the ideal research setting is one which the observer obtains easy access, establishes immediate rapport with informants, and gathers data directly related to the research interest. Therefore, the researcher chose Limpopo as its focus area because of its proximity to the researcher.

### **3.6. Data collection**

Data collection is the most important element of research since it is proof for or against the projected idea. It refers to the gathering of all information that is relevant to the research hypothesis for analyzing (Flick, 2017). It can be in two ways primary and secondary data collection. There is also a distinction between the two, primary and secondary data collection. Primary data collection normally refers to research that involves the collection of original data, specific to that particular research project, for example using research tools such as questionnaires or interviews. In contrast, secondary data collection refers to research whereby data is not collected from the origin of observation or questionnaires, but the research obtain previously used sources of data such as consensus data (Gratton & Jones, 2004). This study used only primary data collected from the questionnaire. The data collection instrument the researcher used in this research is outlined in the following subsection beneath.

#### *3.6.1. Data collection instrument*

It was important for the researcher to identify relevant research tools to collect data. Data collection instruments are tools used for collecting data, such as questionnaires, an interview schedule, observation schedule or a checklist (Clifford & Gough, 2014). In this study, a questionnaire was used to collect data.

### *3.6.2. Self-administered questionnaire*

The questionnaire is any fixed set of questions that are proposed to be completed by a group of respondents. Self-administered questionnaire refers to the questionnaire that is filled by the respondents without the intervention by the researcher (Menter, Elliot, Hulme, & Lewin, 2011). This study has adopted the self-administered questionnaire; the researcher distributed the questionnaires by visiting public libraries and did not partake in answering any questions.

The benefits of using self-administered questionnaires as a data collection tool in this study were plenty. Cargan (2007) highlight the advantages of using self-administered questionnaires as follows:

- It provided greater opportunity for the respondents to be as free as possible in answering the questionnaire.
- Respondents were not under pressure to respond immediately because the researcher was not there to intervene.
- There was no need to make appointments.

Ary, Jacobs, Irvine, and Walker (2018) express that the response rate when using questionnaires is often higher among the better-educated society group. In this study, data was collected from the educated group, being the library staff.

However, there were also setbacks in using self-administered questionnaires. Glasper and Rees (2018) explain the disadvantages of questionnaires as follows:

- There was reluctance by few library staff to complete the questionnaire due to busyness.
- Some respondents took longer to respond, this was because they were on their normal library duties.

### *3.6.3. Questionnaire design and layout*

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

The questionnaire was divided into sections according to the five research objectives highlighted in Chapter 1 (Cf.1.3.1). The sections were nicely bold and visible so that the recipients can see them.

The questionnaire had the following sections:

- Demographic segment
- Attitudes of library staff towards digitalisation
- Skills of library staff in using ICT
- Usage of online materials
- Challenges of digitalisation
- Benefits of digitalisation

There is a general tendency for some people to answer positively and others negatively (Ekinci, 2015). It is in this instance that the researcher included both positive and negative questions in the questionnaire to avoid bias. The researcher also included the covering letter within the questionnaire that kindly informed the participants that partaking in filling up the questionnaire is voluntary. It also included the informed consent which was signed by participants who agreed to participate.

*3.6.4. Data collection procedure*

The researcher received approval from the University of Limpopo (Turfloop Research and Ethics Committee) to go to Limpopo public libraries to collect data. Thereafter, a request to collect data was sought and granted from the HOD of the Department of Sports Arts and Culture in Limpopo to collect data from the public libraries in Limpopo province. The researcher then visited public libraries in all five districts that were easily accessible and closer to him. The respondents were told about the aim of the study and those who agreed to partake were given a consent form to sign to confirm their voluntary participation in the study. This was done to ensure that participation is voluntary and that they can withdraw from participating anytime they feel that their privacy is at risk. This kind of assurance made respondents cooperative and knew clearly what they were being asked to do (Punch, 2013). Data collection took place in fourteen public libraries as indicated in Table 3.2.

Table 3.3: Names of libraries and the number of questionnaires distributed

District	Name of library	Number of questionnaires distributed
Capricorn	Polokwane City Library	13
	Mankweng Library	3



	Moletji Library	2
	Nirvana Library	1
<b>Total</b>	4	<b>19</b>
<b>Mopani</b>	Tzaneen Public Library	8
	Letsitele Public Library	1
	Giyani Public Library	10
<b>Total</b>	3	<b>19</b>
<b>Sekhukhune</b>	Jane Furse	2
	Ga-Phaahla Community Library	4
	Phokwane	5
<b>Total</b>	3	<b>11</b>
<b>Vhembe</b>	Makhado Public Library	10
	Thulamela Main Public Library	9
<b>Total</b>	2	<b>19</b>
<b>Waterberg</b>	Mogalakwena Library	11
	Mahwelereng Public	8

	Library	
Total	2	19
Overall Total	14	87

### 3.7. Data analysis

In data analysis, the researcher attempts to transform the raw data and extracts meaning from it by either quantifying it or presenting data qualitatively. (Monette, Sullivan, & DeJong, 2010). Mertens, Pugliese, & Recker (2017) expatiates that data analysis is an interactive process of manipulating and interpreting numbers to extract meaning from them, to answer research questions, to test a hypothesis, or to explore meanings that can be derived inductively from the data.

Data analysis depends on the research methods used. Since this research followed a quantitative method, statistical analysis was used to present the results in a clear, precise and reliable way using IBM Statistical Package for Social Sciences (SPSS) Statistics Version 22 statistical programme. Data was presented in tables, charts and graphs for easier interpretation. However, data derived from open-ended questions were coded using thematic analysis. Thematic analysis is a method of gathering and grouping data according to different themes such as practices, factors, perspective etc., (STAR Publications, 2019).

### 3.8. Quality criteria of the study

Quality criteria is a guiding framework used to assess the validity, reliability and objectivity of the quantitative data (Mayer, 2017). Since this research followed the quantitative method, validity, reliability and objectivity will be used as the qualitative criteria.

### 3.8.1. *Validity*

Research validity is the ability to draw conclusions based on research findings and to apply those findings elsewhere. It also involves the measure of whether researchers have discovered what they claim to have found. Validity also refers to the potential of a design or an instrument to achieve or measure what it is supposed to achieve or measure (Brynard, Hanekom, & Brynard, 2014). In this regard the researcher has ensured that the questions asked in the questionnaire were correct, appropriate and linked to the research objectives. This means that the collect data was in line with the research methods used in this research. Validity is also about the way the research is conducted including recruitment and assignment of subjects (participants). It involves the trustworthy and accuracy of research (Rosenstein, 2019). The study used questionnaires. Findings analysed emanated from the answers given by the participants. From these findings, conclusions were drawn, and recommendation were made to ensure validity was maintained.

### 3.8.2. *Reliability*

The ability to measure phenomenon accurately and consistently is essential to ensuring reliability in research and evaluation (Wallance & Van Fleet, 2012). Reliability is the stability of research results and its ability to be replicated by other researchers (Schensul, Schensul, & LeCompte, 1999). Data collected in the Limpopo public libraries, emanating from five municipal districts was corroborated by the data from other researchers in the literature review from other Provinces and African Countries. Data were analysed in line with the literature review to check whether the study was in concurrence with other previous studies or not.

Reliability again measures the accuracy of an instrument over time and is therefore linked to the findings of the research (DuPlooy-Cilliers, Davis,& Bezuidenhout, 2014). This means that the same instrument must be able to produce the same data at a later stage under similar conditions, e.g. by means of a test-retest technique (Brynard, et al., 2014). Therefore, the researcher has pre-tested the questionnaire by conducting a pilot study of which the results did not form part of the study. Reliability was achieved by sticking to the design of the study when collecting data.

### 3.8.3. *Objectivity*

Objectivity in the scientific world ensures an unbiased, unprejudiced, and impersonal study or research (Sahu, 2013). The researcher was precise, unbiased, open, honest and receptive to criticism in order to achieve a reasonable level of objectivity. Sugarman (2004) expatiates that objectivity is the neutrality of the research, the detachment of the researcher to make judgements and interpretations. Data analysis was made wholly from the data emanating from the collected one. The collected data emanated from the questionnaires that were self-administered by the researcher. The researcher refrained from taking sides hence data analysed was discussed in comparison with the one presented in the literature review.

Objectivity involves a focus on ensuring accurate, reliable and unbiased information (Percival & Schroeder, 2017). The researcher will be precise, unbiased, open, honest and receptive to criticism in order to achieve a reasonable level of objectivity.

## **3.9. Ethical considerations**

Ethical consideration refers to methods, procedure and perspectives that relate to the researcher how to act, how to analyse complicated problems and issues relating to research (Antonio, Ana, & Elena, 2018). Ethical issues relating to research are discussed below:

### 3.9.1. *Permission to conduct the study*

Researchers must seek permission first to research with the subjects, but also to present any data obtained from the subjects (Rayner & Bell, 2017). Written permission was first sought and granted by Turfloop Research Ethics Committee (TREC): See appendix E. Secondly it was granted by the HOD from the Department of Sports, Arts and Culture in Limpopo: See appendix D.

### *3.9.2. Informed consent*

Informed consent refers to making a voluntary and informed decision to participate in research (Lomelino, 2015). Informed consent implies that subjects are made adequately aware of the type of information the researcher wants from them, why the information is being sought, what purpose it will be put to, and how they are expected to participate in the study. The researcher made participants aware of the ethical considerations and issued the informed consent together with the consent form for participants to sign if they agree to participate.

### *3.9.3. Anonymity and confidentiality*

Anonymity refers to the state of lack of identity among a set of objects or subject (Wang & Reeves, 2015). Participants should be kept anonymous and private information such as names, identity etc. should not be requested. The researcher has refrained from including private seeking questions in the questionnaire.

#### Confidentiality

Confidentiality means that no person other than specified members of the research team can have access to the respondent's information unless those who have access to the data are identified to the participants before their participation. The information provided by the respondent cannot also be linked to person's identity (DePoy & Gitlin, 2013). The researcher has utilized the obtained data strictly for research purposes, and participants were also informed in the consent form.

### *3.9.4. Plagiarism*

Plagiarism refers to an act of copying or using studies prepared by other researchers without acknowledging them as authors of the material (Institute, 2018). To avoid

plagiarism, all sources used in this research that is not owned by the researcher were cited. The bibliography was also compiled at the end of this research. An anti-plagiarism software called Turn-it-in was used to detect any form of plagiarism in this research.

### **3.10 Summary**

The main purpose of this chapter was to give analysis and data interpretation from data collected emanating from public libraries in five different districts of Limpopo. The chapter has presented the research methodology from which research design was drawn. Population and sampling size were also determined. Data collection, quality criteria, ethical considerations were clearly explained. The next chapter interprets data collected

## **Chapter 4: DATA ANALYSIS AND INTERPRETATION**

### **4.1. Introduction**

The previous chapter covered research methodology, research approach, population and sampling, pilot study, study area, data collection, data analysis, quality criteria of the study, and ethical considerations. Chapter 5 analyses and interprets the collected data.

The moment data is collected in research; it needs to be analysed so that factual conclusions can be drawn. Data analysis refers to the accurate examination of data collected, which is raw or unorganised to determine the useful results (Somani & Deka, 2017). In this research data is analysed emanating from Public Libraries in five Limpopo Municipal districts. Out of 184 librarians, the researcher sampled 87. This led to a response rate of 47%. Data was presented in the form of graphs, tables and a bit of explanation. Data were analysed and presented according to the five objectives of the study which are:

- To establish the attitudes of library staff towards digitalisation
- To investigate the skills of library staff in terms of retrieval and usage of online materials
- To determine the extent to which Limpopo public libraries are digitalised
- To identify the challenges of digitalisation of library resources and services
- To underscore the benefits of digitalisation in public libraries

### **4.2. Quantitative data analysis from the questionnaire**

#### **4.2.1. Gender**

Gender was one of the questions asked under the demographic section in the questionnaire. This was done to determine how many respondents were males or females.

Table 4.1: Gender of respondents (N=87)

Gender		
	Frequency	Percentage
Male	30	34%
Female	57	66%
Total	87	100%

The results in Table 5.1 depicts that there are 57 (66%) females and only 30 (34%) males in Limpopo public libraries. This clearly shows that there are more females than there is males' staff in the LIS profession in Limpopo Public Libraries.

#### 4.2.2. Qualification of Library staff

The respondents were asked to state their qualification by ticking in an applicable block on a questionnaire. This question sought to investigate whether library staff are qualified to serve as library staff or not. Ary, Jacobs, Irvine, and Walker (2018) express that the usage of ICT facilities is often higher among the better-educated society group.

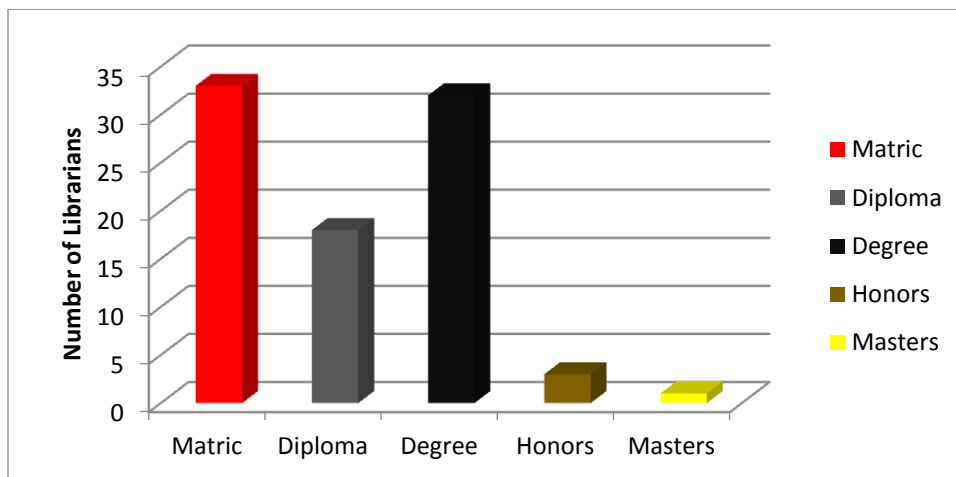


Figure 4.1: Qualification of Library staff (N=87)



Figure 4.1 clearly shows that 33 (38%) out of the 87-library staff from which data was collected only have Grade 12 certificate, and 18 (21%) had Diplomas. Thirty-two (37%) out of the proportion have Degrees. The graph also depicts that 3 (3%) had an Honors degree and only 1 (1%) Librarian out of 87 respondents had a Masters.

#### 4.2.3. Library staff supporting digitalisation

Library staffs were asked to indicate whether they support the digitalisation of services or not. The aim was to note the number of library staff. Figure 4.1 below demonstrates library staff for and against digitalisation.

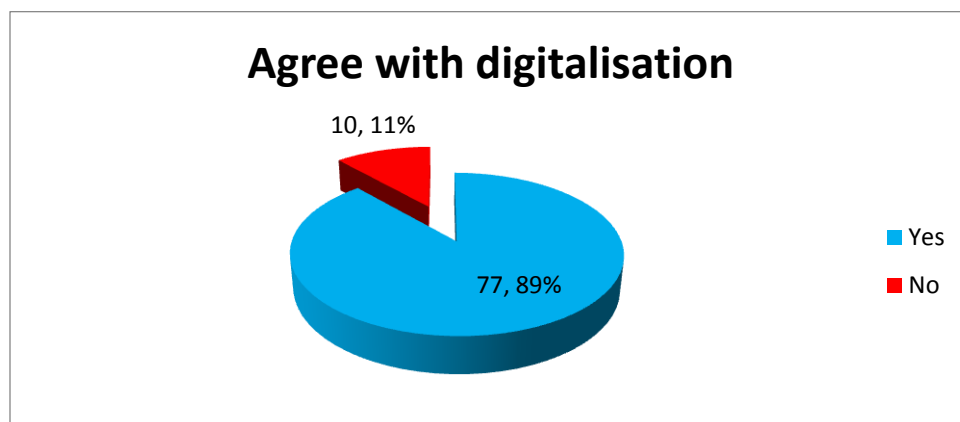


Figure 4.2: Supporting digitalisation (N=87)

The results in Figure 5.2 above reflects that 77 Library staff (89%), support the digitalisation of services whilst 10 (11%) do not support the digitalisation of services.

#### 4.2.4. Feeling motivated by using ICT facilities

ICT motivation can be encountered only if the user is well acquainted with utilising digitalised library services. A question about whether the staff feel motivated or not by using digitalised resources was asked, and the answers are presented in Table 5.2.

Table 4.2: Motivated using ICT (N=87)

<b>Motivated using ICT</b>		
	<b>Frequency</b>	<b>Percentage</b>
Strongly Disagree	2	2%
Disagree	5	6%
Strongly Agree	31	36%
Agree	49	56%
Total	87	100%

From the data analytic, judging from Table 4.2, 49 (56%) Library staff feel motivated in using automated services which is the highest percentage in this tabulated data set. This is followed by 31(36%) Library staff that strongly agrees, which is the second-largest value. This yield positive results in terms of rendering automated services.

#### *4.2.5. Attended training*

Respondents were asked to state if they have attended ICT training. This question sought to establish if they have the necessary ICT skills and are competent to deliver digitalised library service.

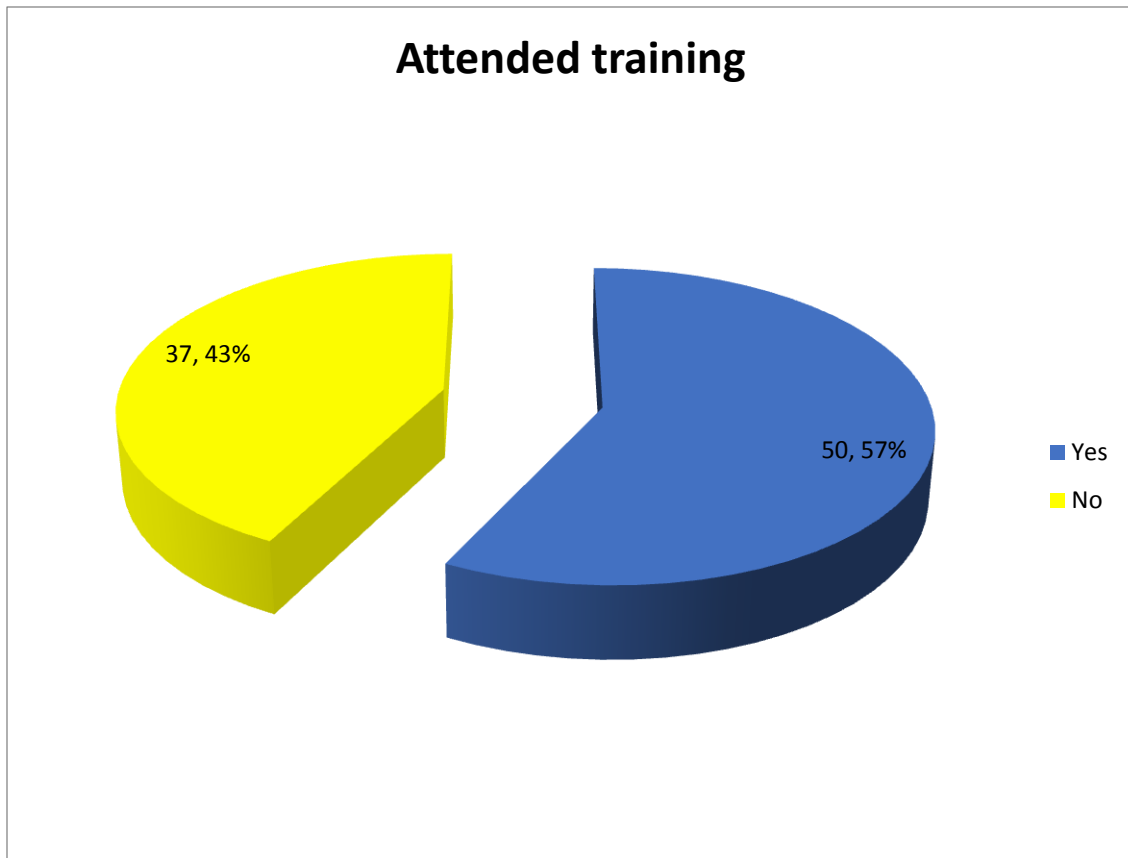


Figure 4.3: Attended training (N=87)

The pie chart in Figure 4.3 depicts that 50 (57%) library staff out of 87 respondents have attended ICT related training, and only 37 (43%) have not. The majority agreed that the training offered was helpful as shown in Table 4.2 below.

#### 4.2.6. ICT training helpful

A question on ICT training was asked to determine whether training was helpful or not.

Table 4.3: Training helpful (N=87)

<b>Training helpful</b>		
	<b>Frequency</b>	<b>Percentage</b>
Yes	60	69%
No	27	31%
Total	87	100%

Table 4.3 shows 60 (69%) of Library staff who agreed that the training was helpful. The training was provided by Mzansi Libraries Online pilot project which is an agent of the National Library of South Africa. The table also presents 27 (31%) of the Library staff who answered that training was not helpful.

#### *4.2.7. ICT training per annum*

The questionnaire included a question about the number of training library staff have attended per annum in public libraries. The aim was to quantify the number of those library staff.

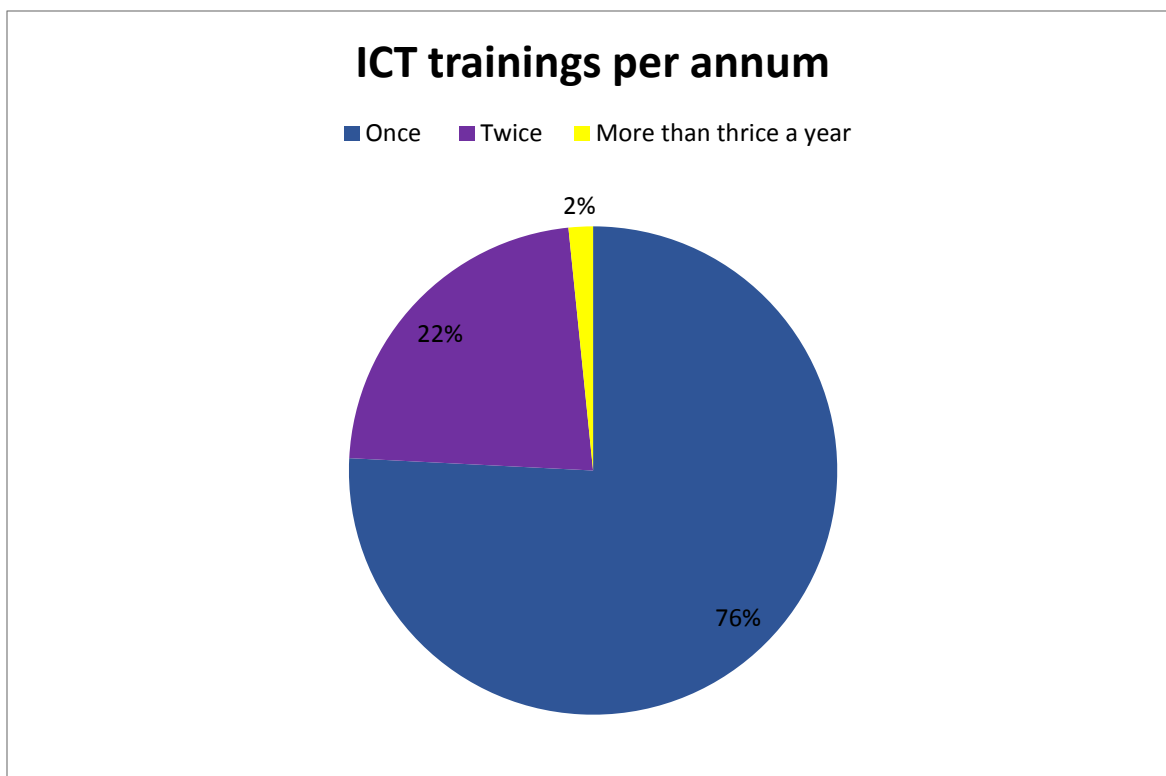


Figure 4.4: ICT training per annum (N=87)

Figure 5.4 depicts that 47 (76%) Library staff attended training once a year and 14 (22%) of them attended training twice a year, whilst only 1 (2%) attended training more than three times in a year.

#### 5.2.8. ICT skills of library staff

ICT skills refer to the ability to operate and use software and hardware of the computer to get a job done (Ayo & Mbarika, 2017). The question about skills rating was included in the questionnaire. The rating scale included very poor, poor, average, good and excellent, and Library staff rated themselves according to what they think of their ICT skills. Results are shown in figure 5.5.

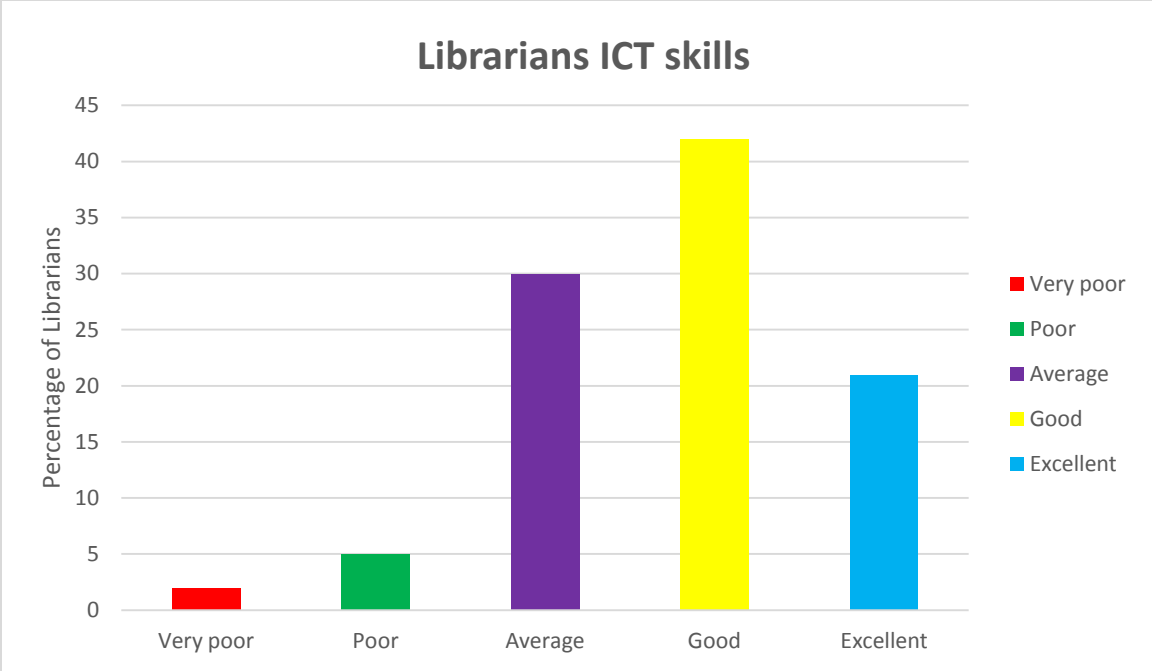


Figure 4.5: Library staff ICT skills (N=87)

Figure 4.5 shows that 2 (2%) library staff rated their ICT skills very poor, 17 (5%) rated poor, 26 (30%) rated average, 37 (42%) Library staff rated good, whilst at least 18 (21%) library staff rated excellent. This clearly shows that Library staff in Limpopo are well acquainted when it comes to ICT skills.

4.2.9. Adequacy of Library ICT infrastructure

The infrastructure of libraries was assessed, and a question was included in the questionnaire for library staff to rate their libraries. The question asked whether the library ICT infrastructure was adequate or not.

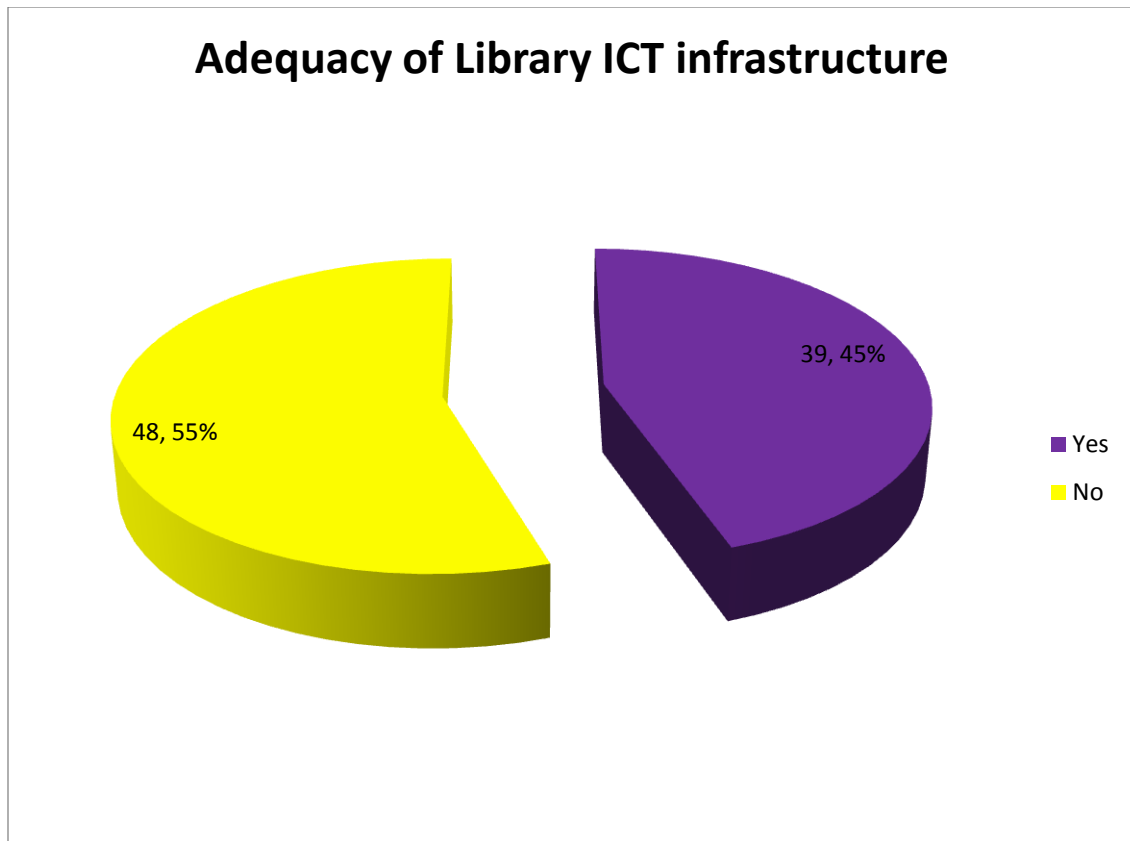


Figure 4.6: Adequacy of library ICT infrastructure (N=87)

Figure 4.6 demonstrates that 39 (45%) Library staff agree that their libraries are ICT equipped, while 48 (55%) of them disagree. This shows that the majority of libraries with a percentage of 55% do not offer digitalised services. Most of them still use card catalogues when issuing books, and do not even have websites and OPAC (Online Public Access Catalogue). It is only a minority (45%) of libraries that have adequate ICT.

#### 4.2.10. Rendering digitalised service

In this question, the researcher wanted to find out whether Library staff in Limpopo prefer rendering service using digitalised systems or not. Respondents were then asked to use always, sometimes and never to indicate how frequent they render digitalised service.

Table 4.4: Rendering digitalised service (N=87)

<b>Rendering digitalised service</b>		
	<b>Frequency</b>	<b>Percent</b>
Always	27	31%
Sometimes	45	52%
Never	15	17%
Total	87	100%

Table 4.3 shows that 27 (31%) Library staff out of 87 always provide digitalised service, whilst 45 (52%) do it at times and 15 (17%) do not provide digitalised service. This 15 Library staff that do to render service using ICT systems could be that their libraries do not have those systems. This is evidenced by Figure 4.6 which indicates that 55% of libraries in Limpopo do not have digitalised systems.

#### 4.2.11. Skilled users

This question was included in the questionnaire to determine whether users are skilled to operate the digitalised systems in the library. The results are shown in figure 4.7.



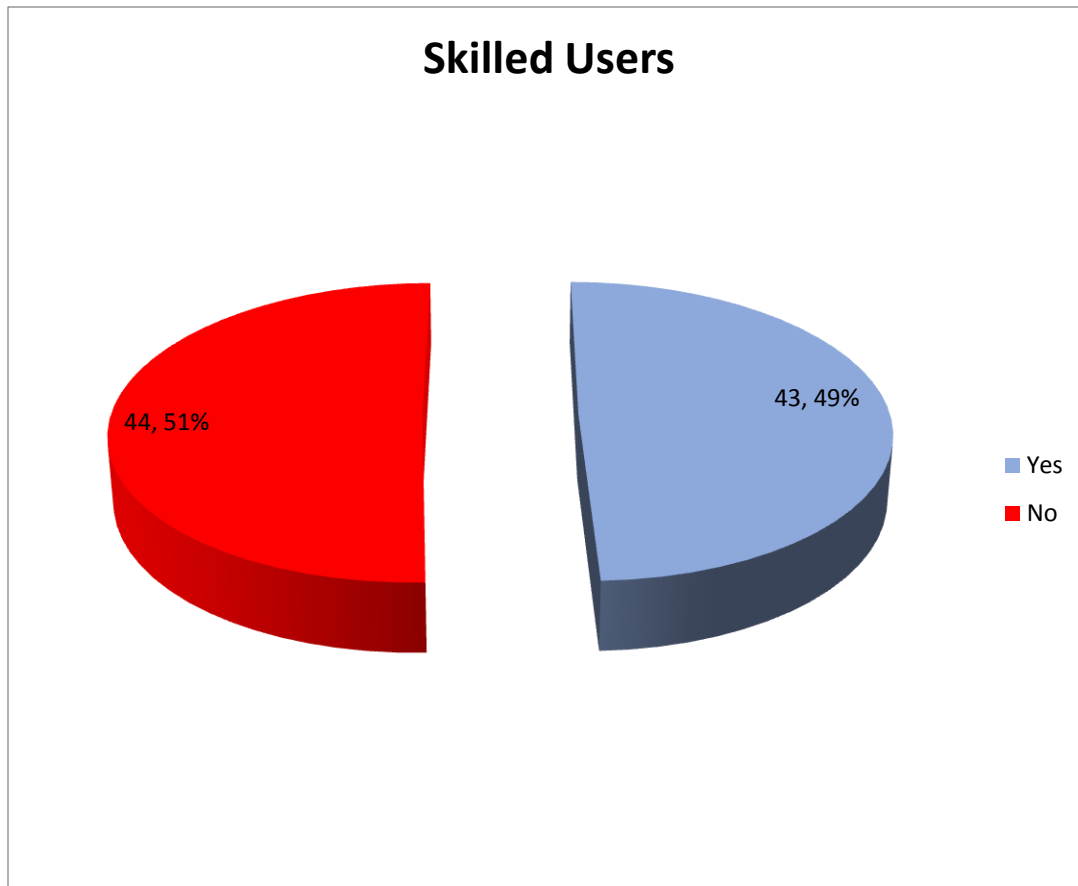


Figure 4.7: Skilled Users (N=87)

Figure 4.7, 43 (49%) library staff agrees that their library Users are able and well-skilled to operate online systems such as OPAC, accessing their websites for information, using self-service machines etc. However, Library staff with a percentage of fifty-one (51%) 44, said that their users are still struggling to utilise digitalised systems. This means that training needs to be implemented by the library staff to ensure that communities are well acquainted with the ICT skills.

#### 4.2.12. Challenges of digitalisation

Respondents were asked about the challenges that prohibit implementation of digitalised service rendition. Figure 4.8 below demarcates percentages as well as numbers of challenges incurred in the digitalisation of library materials and services.

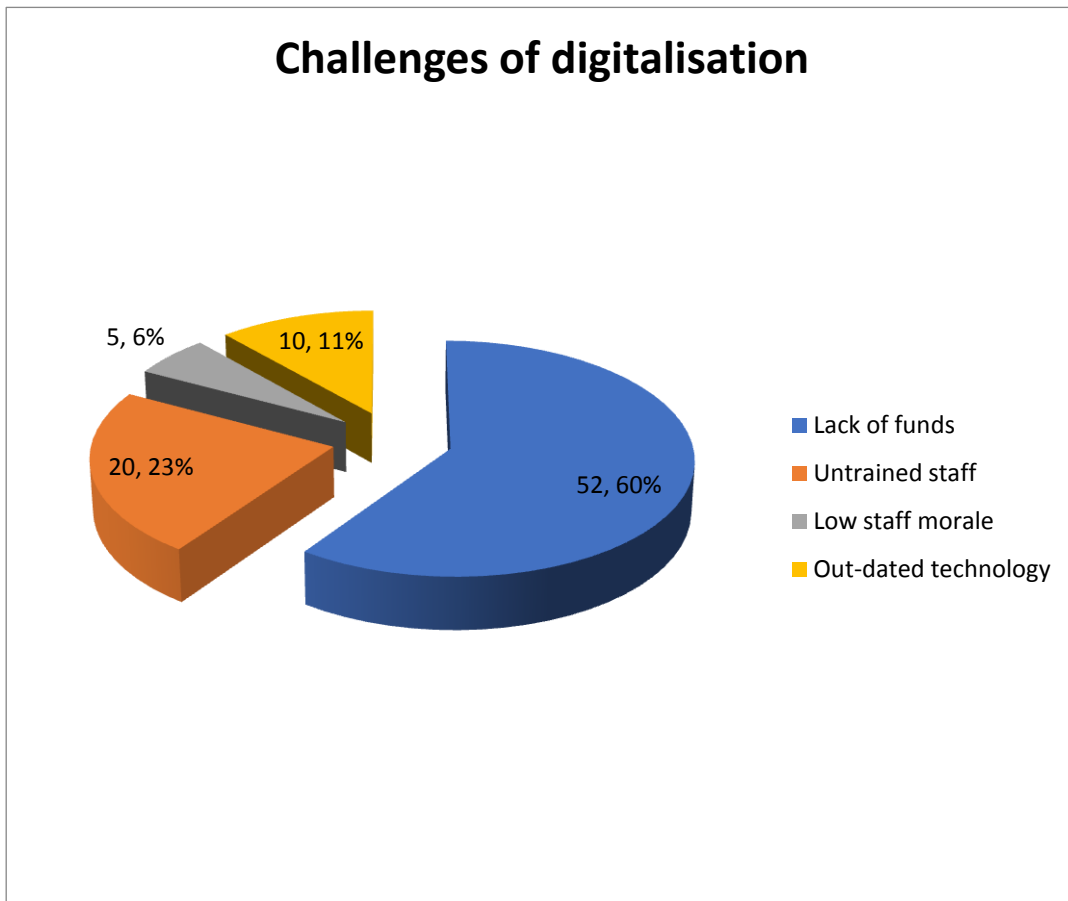


Figure 4.8: Challenges of digitalisation (N=87)

Figure 4.8 shows that 52 (60%) Library staff think that the reason behind the lack of digitalisation is lack of funds. However, 20 (23%) of them stated that it is because of untrained staff, meaning resources are there, however, the staff is not trained. Juma, Wamukoya and Wekullo (2014) highlight that public libraries have faced a series of difficulties: first technical problems such as introducing ICT systems without adequate training of library staff, this includes new library software systems, self-serving machines in rural libraries, radio frequency identification scanners and systems. The other challenge was that 10 (11%) of them implied that their ICT resources are outdated and malfunctions, whereas 5 (6%) of them think it is because of low staff morale.

Table 4.5: Solution to ICT challenges

Problem	Themes	Number	Percentage
Relating to library	Replacement of ICT facilities	27	31%
	Funds	38	44%
Relating to Library staff	Training	22	25%
<b>Total</b>		<b>87</b>	<b>100%</b>

Table 4.5 thematically depict that 27 (31%) library staff want the library facilities to be replaced, whilst 38 (44%) of library staff assumes that challenge to digitalisation can be remedied by sourcing funds. Isiyaku, Ayub, and Abdulkadir (2015) reiterate that lack of government funds to help in repairing and servicing newly digitalised systems prohibit library users to access online facilities of public libraries. In contrast, 22 (25%) library staff implies that training should be applied to remedy the problems.

#### 4.2.13. Benefits of digitalisation to Library Users

Respondents were asked to indicate the benefits of digitalised service for library users. Figure 4.9 below shows different answers by the Library staff.

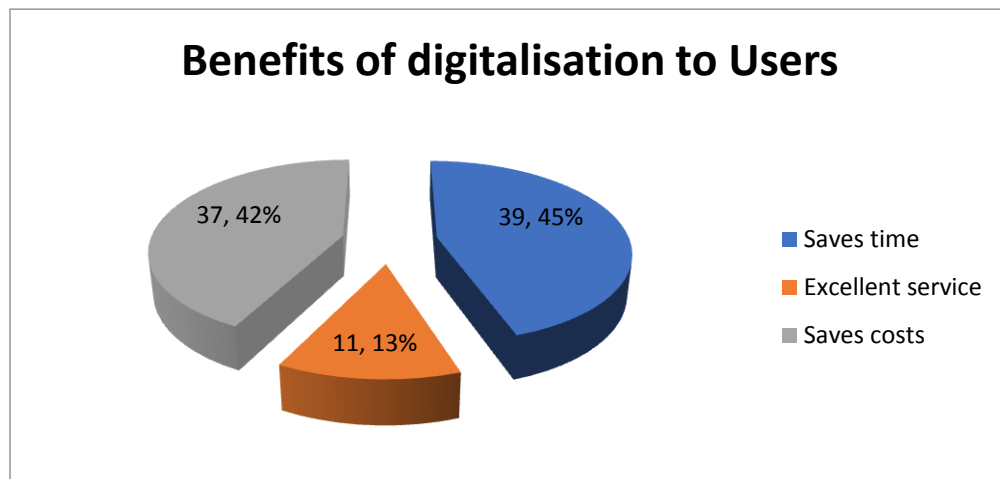


Figure 4.9: Benefits of digitalisation to Library Users

Figure 4.9 clearly shows that 39 (45%) Library staff think that digitalised services save the time of the users, 37 (42%) think digitalised service contributes to excellent service being rendered, whilst 11 (13%) said it saves costs.

### **4.3 Summary**

The main purpose of this chapter was to give an analysis from the findings collected by the researcher-using questionnaire as a data collection instrument. Data collection emanates from 87 sampled Library staff, which were found in 14 different public libraries. It has been found that majority of Library staff prefer rendering library service using digitalised systems; however, most of the libraries Limpopo Province do not have adequate ICT services and hence this temper with the provision of excellent, digitalised library service by the library staff. It was also found that more females than males infiltrated this profession. The next chapter discusses the findings of the study presented according to the five objectives of the study.

## **CHAPTER 5: DISCUSSION OF THE FINDINGS**

### **5.1. Introduction**

The previous chapter deliberated on data analysis and interpretation, whereby data was analysed quantitatively so using charts and tables. Data were also analysed under the five objectives of the study. Chapter 5 presents discussion of the findings of the study. These findings are also merged with other studies that were presented in the literature review, to see whether they are in contrast or concurrence. The section also discusses how findings of the study can be applied by the library staff in community and public libraries across the country (Matthews & Kostelis, 2011).

The findings are discussed according to five objectives of the study which are:

- To establish the attitudes of library staff towards digitalisation;
- To investigate the skills of library staff in terms of retrieval and usage of online materials;
- To determine the extent to which Limpopo public libraries are digitalised;
- To identify the challenges of digitalisation of library resources and services;
- To underscore the benefits of digitalisation in public libraries.

### **Respondents' profiles**

#### *5.1.1. Gender*

The results in Table 5.1 (Cf.4.2.1) depicts that there are 57 (66%) females and only 30 (34%) males in Limpopo public libraries. This clearly shows that there are more females than there are male staff in the LIS profession in Limpopo Public Libraries. However, male and female library staff are not significantly different in terms of ICT usage (Leung et al., 2013). This is in correlation with findings presented in the literature review from a study conducted by Leung, Nkhoma, and John where they presented that there are more females than there are male library staff, however, accessibility and ICT skills rank the same amongst genders (Leung, et al., 2013). Irrespective of females being more

than males, provision of digitalised service is the same amongst them, and gender plays no role in terms of provision of good quality digitalised service.

### *5.1.2. Attitudes of library staff towards digitalisation*

According to the findings presented in chapter 4 of this study, Figure 5.2 (Cf.4.2.3) reflects that 77 Library staff (89%), support the digitalisation of services. This means that Library staff have a positive attitude towards the digitalisation of services.

Findings of the study in chapter 5, figure 5.9 corroborates that library staff who agreed with the digitalisation believe that it helps in rendering a fast service. In correlation to findings of this study, as highlighted in literature review, a study conducted in Indian public libraries by Kumar (2008) has found that 114 out of 126 library staff agree that positive attitudes not only improve the usage of IT systems but it also improves the efficiency of the library, as well as communication channels including rendition of fast service.

Technology acceptance model correlates with the findings that once the technology is accepted, it becomes easy for the user to fulfil their job requirements. The fourth stage in technology acceptance model named Attitudes investigates whether library staff have a negative or positive attitude towards digitalisation, and findings demonstrate that library staff has a positive attitude towards digitalisation and this means that there is a future in public libraries of digitalised service.

### *5.1.3. Skills of library staff in terms of retrieval and usage of online materials*

Over the past few decades, libraries' atmosphere has changed significantly regarding the knowledge organisation in both cases; offline and online. E-resources have become a large part of a library's collection. Hence ICT skills become the most significant tool in the librarianship profession. ICT skills give the motivation to bring technological revolution and keeping up with its ever-changing trends. Technological advances require library staff to grasp basic as well as modern skills and knowledge for using these technologies more efficiently in libraries.

Findings of the study depicted that 55 (63%) library staff have the required ICT skills. This clearly shows that Library staff in Limpopo are well acquainted when it comes to ICT skills. However, it was found that library staff do not share their skills with library users by initiating training (Figure 4.7 (Cf.4.2.10)). The figure also showed that library staff with a percentage of fifty-one (51%) 44, said that their users are still struggling to utilise digitalised systems. This shows that there is no skill and knowledge transfer which is not good since the world is heading towards the 4<sup>th</sup> industrial revolution.

Skills play a pivotal role in the recruitment process. They can also be used as a measurement of knowledge. Ary, Jacobs, Irvine, and Walker (2018) express that ICT skills are often higher among better-educated society. This is in correlation with the library staff since they are the educated class and hence it makes it easier to operate ICT systems in place.

According to Library and Information Association of South Africa (2015), most skilled and experienced library staff in South African public libraries are close to retiring and this may lead to a shortage of skills in the library sector. In contrast, the Limpopo Provincial Library Service is focusing on addressing the library backblock by appointing qualified staff, and by continually training library staff (Library and Information Association of South Africa, 2015). This clearly shows that the future of public libraries in terms of relevant ICT skills will always be utmost the best.

#### *5.1.4. The extent to which Limpopo public libraries are digitalised*

Findings in the research have shown that 48 (55%) Library staff said that their libraries are not ICT equipped. This shows that the majority of libraries with a percentage of 55% do not offer digitalised services. These findings are in contrast with those presented in the literature review. Abdulkadir (2015) highlighted that in Nigerian public libraries, 54% of library staff work in ICT advanced libraries, whereas 46% are not digitalised and still provide services traditionally. The other 46% provide service traditionally without ICT

incorporation. This is well understood since the studies were done in two different countries. With 55% of libraries not providing digitalised services, it is of utmost importance that the government needs to intervene by funding public libraries.

Using ICT not only enhances the services of public libraries but also improves the librarian's abilities and the organisation of the library (Leung, Nkhoma, & John, 2013). When service is digitalised, accessibility becomes easier and faster which increases the usage of materials in public libraries. Salman, et al., (2017) indicate that high-quality service with integration of ICT offered by libraries can increase user satisfaction.

#### *5.1.5. Challenges of digitalisation of library resources and services*

Challenges such as lack of funding, few trained staff, outdated technology and inadequate infrastructure produce library staff, which are, both negative and dispirited (Sharma, 2012). Findings in this study revealed that 52 (60%) Library staff think that the reason behind the lack of digitalisation is lack of funds. This is corroborated by a study conducted by Isiyaku, Ayub, & Abdulkadir (2015) which stated that lack of government funds to help in repairing and servicing newly digitalised systems is a serious challenge in public libraries.

The study also elucidated that 23% of library staff assume that lack of training perpetuates inability to render digitalised services. Juma, Wamukoya and Wekullo (2014) highlight that public libraries have faced a series of difficulties: first technical problems such as introducing ICT systems without adequate training of library staff, this includes new library software systems, self-serving machines in rural libraries, radio frequency identification scanners and systems. Lack of adequate skills is a serious challenge. The majority of library staff have admitted having received training only once a year. Figure 5.4 (Cf.4.2.6) depicts that 74% Library staff attended training once a year and 22% of them attended training twice a year, whilst only 2% attended training more



than three times in a year. Most of them attest that training offered was from Mzansi Online Libraries pilot project. This is very bad looking at the fact that the world is migrating towards 4<sup>th</sup> industrial revolution where almost everything is computerized. The library profession should also gear towards that phase. However, with the little training library staff receive hinders the 4<sup>th</sup> industrial revolution paradigm shift.

A challenge found in the study conducted by Isiyaku, Ayub, and Abdulkadir (2015) in Nigerian public libraries was that hardware and software applications need to be updated time and again, and some of the library staff sees this as time-consuming and some are just reluctant to update software. The same applies to Limpopo public libraries where 11% of library staff implied that their ICT resources were outdated and malfunction.

#### *5.1.6. Benefits of digitalisation in public libraries*

ICT transform the landscape of library and information practice, which benefits libraries by providing quality services. When quality service is offered, the number of public library users will also increase (Ariole, 2017). The purpose of a digital library is to exploit the ICT facilities for sharing global resources. It also raises the profile of public libraries as users globally can know the library collection and be able to utilize the resources even remotely, which is otherwise not possible with print publications (Ashraf & Gulati, 2012).

Findings in the study revealed that 45% of library staff assume that digitalised services save time, and 42% think digitalised service contributes towards the provision of excellent service. From the study's literature review, a study conducted in Kenyan public libraries by Gichohi, Onyancha & Dulle (2017) points out that after digitalisation was implemented, information materials were now accessible for 24 hours and research respondents rated it as 100% good service. This is supported by a questionnaire survey

conducted by Khaola and Mabilikoane (2015) which reveals that participants are satisfied with the service provided in the Lesotho public libraries because of digitalisation of services in libraries. The truth of the matter is that the majority of youth interacts and uses technology in their daily lives, hence the provision and accessibility of information should be through technology. Pateman and Williment (2016) expatiate that digitalisation attracts new users to the library since it is assumed that online access has a high allure to bring clients into the actual library. In South Africa, the National Library of South Africa is taking a lead in acquiring funds to bring improvements in library services. Mzansi Libraries On-Line also aims to build more libraries with high-speed broadband (internet connectivity) and to also increase the library assets (Library and Information Association of South Africa, 2015).

These findings were also guided by the Diffusion of Innovation theory which comprises of five adoption stages, namely Awareness, Interest, Evaluation, Trial and Adoption. The evaluation stage of the theory assesses whether digitalisation indeed brings about improvement or not (Rogers, 2010).

## **5.2 Summary**

This chapter covered the discussion of research findings as guided by the five research objectives. The discussions were linked with the literature review and theories used in the study. This chapter sought to give the reader a reflection of the meaning of data collected. Chapter 6 presents and discusses the research summary, conclusions and recommendations. Findings from this study were generally consistent with the findings of several related studies in the literature.

## **CHAPTER 6: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

### **6.1. Introduction**

The previous chapter covered the discussion of the findings. This study's purpose is to examine digitalisation of library services as a magnifying factor towards improving public library services in Limpopo public libraries. This chapter was orchestrated to present the major findings in order to demonstrate that the research objectives stated in (Cf.1.3.2) have been addressed. The chapter focuses mainly on the summary, conclusions and recommendations. Chapter five also suggest areas that may request further study. It also highlights the limitations of the study that may have been proposed otherwise in the research proposal.

The main aim of this study was to examine the digitalisation of library services as a magnifying factor towards improving public library services in Limpopo public libraries, and the five main objectives that guided the study were:

- To establish the attitudes of library staff towards digitalisation
- To investigate the skills of library staff in terms of retrieval and usage of online materials
- To determine the extent to which Limpopo public libraries are digitalised
- To identify the challenges of digitalisation of library resources and services
- To underscore the benefits of digitalisation in public libraries
- 

### **6.2. Summary of the findings**

This subsection is aimed at summarising the findings in line with the five objectives of the study. Findings of the objectives are stipulated as follows:

#### *6.2.1. Findings on the attitudes of library staff towards digitalisation of library services*

Findings of the study revealed that most of the Library staff agrees with the digitalisation of services and they prompted a positive attitude. The only curbing factor that prompted negative attitude was the unavailability of ICT systems which led to a negative attitude towards digitalisation.

Most Library staff responded positively that they feel motivated by using digitalised systems in rendering services.

#### *6.2.2. Findings on the skills of library staff in terms of retrieval and usage of online materials*

Skills of the Library staff were studied and from the findings, it was revealed that most library staff are skilled. Most of them attended the Mzansi Libraries Online pilot project. The training included the usage of SLIMS which is a software allowing them to issue out information sources. This training is relevant towards retrieval and usages of digitalised systems in a rendition of service.

The findings highlighted that the majority of about 54% of Library staff attended training once a year. This prompts positive feedback since the majority has been trained and this may lead to best service being rendered in public libraries.

Majority of the Library staff found training attended helpful. This was because the training was relevant.

The study also revealed that the majority (79%) of library staff considered themselves to be having ICT skills. Computer skills are a valuable addition to any employee's portfolio. Upskilling and polishing employees' computer literacy can greatly increase their desirability to the library users (Bowman, 2017).

#### *6.2.3. Findings on the extent to which Limpopo public libraries are digitalised and usage of online materials*

The findings revealed that 55% of libraries in Limpopo do not have adequate ICT infrastructure. They render library service manually. However, 80% of Library staff believes that rendering library service through the aid of ICT improves the actual service in libraries. This is in concurrence with the Literature review; According to Salman, Mugwisi and Mostert (2017) access to and use of public libraries are affected by the

availability of the quantity and quality of resources and services including digitized materials.

The findings in this study do not correlate with the ones in the Literature review in a sense that 83% of Library staff in this study provides digitalised service as compared to a study conducted by Isiyaku, Ayub, and Abdulkadir (2015) which highlighted that ICT usage behaviour has lower mean ratings in Nigerian public libraries. With only 54% of library staff using ICT facilities in the library. The other 46% provide service traditionally so without ICT incorporation. This study revealed that only 17% renders service manually so, without incorporation of ICT. However, this was not a matter of choice but was because of the absence of ICT systems.

#### *6.2.4. Findings on the challenges of digitalisation of library resources and services*

Findings in this study correlate with the ones presented in the literature review. Juma, Wamukoya and Wekullo (2014) highlight that digital libraries have faced a series of difficulties: first technical problems such as introducing ICT systems without adequate training of library staff, this includes new library software systems, self-serving machines in rural libraries, radio frequency identification scanners and systems. This study has also revealed that 23% of the library staff think that one of the major challenges in terms of usage of digitalised systems is the untrained library staff.

Gichohi, Onyanacha, and Dulle (2017) in Kenyan public libraries revealed that 45% of library users are reluctant to use community libraries because of poor infrastructures and lack of electronic resources. The study has also revealed that 11% of the libraries in Limpopo have outdated technology, which hampers excellent service.

One of the major challenges revealed in this study was that 60% of the libraries revealed that the main problem is lack of funds to maintain ICT systems. Most libraries have Wi-Fi connection, however, in most libraries they are malfunctioning.

#### *6.2.5. Findings on the benefits of digitalisation in public libraries*

Findings under this objective vary with the ones presented in the literature review. This study revealed that 45% of the library staff stated that the main benefit of digitalisation is that it saves time in rendering the service. 13% assume that they render excellent service when using ICT facilities.

Literature review revealed that outsourcing ICT brings with it huge benefits to the public libraries, such as mitigating costs (Mwai, Kiplang' at, & Gichoya 2016). This study has also found that 42% of the library staff think that digitalised service saves costs.

### **6.3. Conclusions**

Conclusions in this research emanate from the data provided in data analysis and interpretation chapter. These conclusions are presented in order according to the objectives of this study.

#### *6.3.1. Conclusions about the attitudes of the library staff towards digitalisation*

The findings were that Library staff do agree with the digitalisation of services. The positive attitude of the library staff will ultimately encourage good quality digitalised library service. Kumar (2008) highlighted that the library staff's' positive attitude does not only improve the usage of IT systems but the efficiency of the library, as well as communication channels including good quality service.

### *6.3.2. Conclusions about the skills of library staff in terms of retrieval and usage of online materials*

Findings of this study show that library staff have the necessary ICT skills. This was evidenced by the majority of respondents (63%) who rated their ICT skills as good. This clearly shows that the future of public libraries including a rendition of good quality service will continue prevailing towards 4<sup>th</sup> industrial revolution.

### *6.3.3. Conclusions about the extent to which Limpopo public libraries are digitalised*

The findings revealed that 55% of libraries in Limpopo do not have adequate ICT infrastructure. Most libraries do not have all the needed ICT systems to render digitalised service. This hinders the provision of good, digitalised quality service.

### *6.3.4. Conclusions about the challenges of digitalisation of library resources and services*

The main challenge hindering digitalisation of systems and services in Limpopo public libraries is lack of funds. Most libraries received computers as well as Wi-Fi installation, but they are not working properly due to lack of maintenance caused by lack of funds from the South African Government. Issak (2000) demarcates that 8 million out of 12 million people in South Africa cannot access library materials because of the lack of ICT infrastructure that is perpetuated by lack of finances. Without enough budget, libraries will forever lag in terms of ICT infrastructure and this will harm library service.

### *6.3.5. Conclusions about the benefits of digitalisation in public libraries*

This study concludes based on the findings of the study that the main benefit in digitalising library systems is that it saves time in rendering services. Time curbing benefits both Library staff and Users. But if the libraries are not allocated enough budget, public libraries may not fully reap these benefits.

## **6.4. Recommendations**

Recommendations are made to fill gaps in the analysed data, it also acknowledges that some insights have been developed about the research process in general as well as the state of knowledge on the topic (Berg & Latin, 2004). After a clear review of the findings, discussions and conclusions in the study, the researcher makes the following recommendations:

### *6.4.1. Recommendations about attitudes of library staff towards digitalisation of library systems and services*

#### ➤ **Encouragement**

Since most Library staff prompted positively towards digitalisation of library systems and services, it is of utmost importance that management encourages library staff to continue upholding it.

### *6.4.2. Recommendations about the skills of library staff in terms of retrieval and usage of online materials*

#### ➤ **Training segments**

Most of the library staff from the findings said they have attended training once. This is not good enough since technology is evolving. Training should be carried regularly to ensure that the library staff know what they are doing and to instill confidence in their work. Training should not only be external such as Mzansi Libraries Online; it should also be carried out by management within each public library consecutively so to ensure the right skills are inculcated amongst library staff.

#### ➤ **Relevance of training**

Training should be relevant to both seniorities and to the role of the employee in each library (Byrnes & Munro, 2019). Training provided should be specific to the demands of library staff.



#### *6.4.3. Recommendations about the extent to which Limpopo public libraries are digitalised and usage of digitalised systems*

##### ➤ **Digitalisation of libraries**

Libraries should start considering public libraries as a mandate that deserves equitable share from the municipalities and Department of Sports, Arts and Culture budget, to be able to procure ICT systems. This will help in digitalising and improving service rendered in public libraries.

##### ➤ **Maintenance**

Public libraries should source funds to ensure that the existing ICT systems and facilities are fully functional. They can do this by seeking donors, charities, sponsors or seeking funds from the Department of Sports Arts and Culture.

##### ➤ **Uniformity in rendering service**

There should be a library policy in place to ensure that all public library staff always use ICT systems when rendering service.

#### *6.4.4. Recommendation about the challenges of digitalisation of library resources and services*

##### ➤ **Sourcing of funds**

Lack of funds was found to be the major challenge in the findings. This can be remedied by sourcing funds from the government.

#### *6.4.5. Recommendation about the benefits of digitalisation in public libraries*

##### ➤ **Website update**

The findings presented saving of time, saving of costs and rendition of excellent service as benefits of digitalisation. Public libraries should update their websites regularly and make sure they are active and utilised by informing their users about their existence.

## **6.5. Recommendations for future studies**

Even though the study intended on achieving a high level of depth in terms of investigations, there are certain areas, aspects and phenomenon that needs to be explored further. Based on the conclusions of this study, the researcher recommends the following for further investigation:

- The research should be extended to investigate public libraries in the whole Country (South Africa). Larger samples allow a researcher to test more variables and more interaction effects among variables, and they allow analyses to be conducted within more subcategories of types of cases (Montello & Sutton, 2012).

## **6.6. Limitations of the study**

All research projects have limitations that need to be acknowledged in the design and in writing about the results of the study (Given, 2015). This study was limited to fourteen libraries in Limpopo Province. Therefore, the results of the research cannot be generalized to the entire country, but they can be used to corroborate findings from similar studies elsewhere.

Another limitation was that some of the library staff were not on duty during the collection of data.

## **6.7. Summary**

This chapter focused on the findings of the study, conclusions, recommendations, recommendations for future study and limitations of the study. It was noted that library staff attitude in terms of digitalisation is positive, and they agree that the digitalisation of library systems improves services. Library staff do have the skills and are trained yearly on the usage of digitalised systems. However, most libraries lack ICT systems, system maintenance as well as finance. This chapter also presented recommendations that can help Public libraries in Limpopo Province and the Department of Sports, Arts and Culture to resolve challenges facing public libraries.

## **6.8. Conclusion**

This is the last chapter of the study. The study covered six chapters which are Introduction and orientation of the study; Theoretical framework of the study and review of literature; Research methodology; Data analysis and interpretation; Discussion of the findings; as well as summary, conclusions and recommendations. Although, most libraries received computers as well as Wi-fi installation through Mzansi online project, the study concludes that digitalisation of systems and services in Limpopo public libraries still needs lot of support from South African government.

## References

- Aabo, S. 2011. The Value of Public Libraries: a Socio-Economic Analysis. *Verso Un'Economia Della Biblioteca: Finanziamenti, Programmazione*, pp. 169 -176.
- Adekunle, P., Omoba, R. & Tella, A. 2007. Attitudes of Librarians in Selected Nigerian Universities toward the Use of ICT. *Library Philosophy and Practice (e-journal)*, p. 159.
- Alomary, A. & Woollard, J. 2015. *How is Technology Acceptance by Users? A Review of Technology Acceptance Models and Theories*. [Online] Available at: <https://eprints.soton.ac.uk/382037/1/110-14486008271-4.pdf> [Accessed 28 May 2018].
- Anastas, J. W. 2000. *Research Design for Social Work and Human Services*. 2nd ed. New York: Columbia University Press.
- Antonio, S., Ana, F. & Elena, U. 2018. *Ethics in Research Practice and Innovation*. Hershey: IGI Global.
- Ariole, I. A. 2017. Provision of ICT Services and User Satisfaction in Public Libraries in South-East and South-South Zones of Nigeria. *Information Technologist*, 14(2), pp. 39-50.
- Ary, D., Jacobs, L., Irvine, C. & Walker, D. 2018. *Introduction to Research in Education*. Australia: Cengage Learning.
- Ashraf, T. & Gulati, P. A. eds. 2012. *Design, Development, and Management of Resources for Digital Library Services*. Hershey: IGI Global.
- Atkinson, M. 2012. *Key Concepts in Sport and Exercise Research Methods*. London: SAGE.
- Ayo, C. & Mbarika, V. eds. 2017. *Sustainable ICT adoption and Integration for Socio-Economic Development*. Hershey: IGI Global.
- Azevedo, A. & Mesquita, A. eds. 2018. *ICGR 2018 International Conference on Gender Research*. Lisbon: Academic Conferences and publishing limited.
- Babbie, E. 2010. *The Practice of Social Research*. Wadsworth: Cengage Learning.

- Bajpai, N. 2011. *Business Research Methods*. New Delhi: Pearson Education India.
- Baker, D. & Evans, W. eds. 2011. *Libraries and Society: Role, Responsibility and Future in an Age of Change*. Oxford: Chandos Publishing.
- Berg, K. & Latin, R. 2004. *Essentials of Research Methods in Health, Physical Education, Exercise Science, and Recreation*. 2nd ed. Philadelphia: Lippincott Williams & Wilkins.
- Bhardwaj, R. K. ed. 2017. *Digitizing the Modern Library and the Transition From Print to Electronic*. Hershey: IGI Global.
- Bhebe, A. 2018. *Understanding Socioeconomic Transformation in South Africa - What has not changed two decades into democracy*. Illustrated ed. s.l.:Lulu.com.
- Bista, K. 2018. A Quarterly Publication on International Education. *Journal of International Students*, 8(2), p. 686.
- Blessing, T. & Chakrabarti, A. 2009. *DRM, a Design Research Methodology*. London: Springer.
- Blum, M. 2006. *Continuity, Quantum, Continuum, and Dialectic: The Foundational Logics of Western Historical Thinking*. New York: Peter Lang.
- Bordens, K. & Abbott, B. 2011. *Research Design and Methods*. New Delhi: McGraw-Hill.
- Bosswell, C. & Cannon, S. eds. 2011. *Introduction to Nursing Research: Incorporating Evidence-Based Practice*. 2nd ed. Boston: Jones & Bartlett Learning.
- Bowman, J. 2017. *British Librarianship and Information Work 1991–2000*. New York: Routledge.
- Burns, N. & Grove, S. 2010. *Understanding Nursing Research: Building an Evidence-Based Practice*. 5th ed. Maryland Heights: Elsevier Health Sciences.

Byrnes, W. & Munro, R. 2019. *Money Laundering, Asset Forfeiture and Recovery and Compliance - A Global Guide*. New York: LexisNexis.

Cargan, L. 2007. *Doing Social Research*. New York: Rowman & Littlefield.

Chile, P. 2017. *Some of the Disadvantages of using the Diffusion Theory*. [Online] Available at: <https://bizfluent.com/info-8633492-disadvantages-using-diffusion-theory.html> [Accessed 28 May 2018].

Chuttur, M. Y. 2009. Overview of the Technology Acceptance Model: Origins, Developments and Future Directions. *Association for Information System*, 9(37), pp. 9-37.

Clifford, C. & Gough, S. 2014. *Nursing and Health Care Research*. 2nd ed. New York: Routledge.

Cottrell, R. & McKenzie, J. 2005. *Health Promotion and Education Research Methods: Using the Five-Chapter Thesis/Dissertation Model*. Boston: Jones & Barlett Publishers.

Creswell, J. 2011. *The Handbook of Scholarly Writing and Publishing*. San Francisco: John Wiley & Sons.

Creswell, J. W. 2014. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, London: SAGE.

Daniel, P. & Sam, A. 2011. *Research Methodology*. Delhi: Gyan Publishing House.

Davis, F. 1986. *Technology Acceptance Model*. [Online] Available at: <https://pdfs.semanticscholar.org/presentation/b0c9/9b5efd7e2eb1d1617a2854864e72d9340662.pdf> [Accessed 4 April 2018].

Davis, F. D. 1989. Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3), pp. 319-340.

De Vaus, D. 2001. *Research Design in Social Research*. London: SAGE.

Dean, T. 2012. *Network+ Guide to Networks*. 6th ed. Boston: Cengage Learning.

- DePoy, E. & Gitlin, L. 2013. *Introduction to Research- E-Book: Understanding and Applying Multiple Strategies*. 4th ed. New York: Elsevier.
- Durodolu, O. 2016. Technology Acceptance Model as a predictor of using information system' to acquire information literacy skills. *Library Philosophy and Practice*, pp. 1-28.
- Ekinci, Y. 2015. *Designing Research Questionnaires for Business and Management Students*. London: SAGE.
- Enakrire, R. T. & Ocholla, D. N. 2017. Information and Communication Technologies for Knowledge Management in Academic Libraries in Nigeria and South Africa. *South African Journal of Information Management*, 19(1), pp. 1-9.
- Fabunmi, B., Paris, M. & Fabunmi, M. 2006. Digitization of Library Resources: Challenges and Implications For Policy and Planning. *International Journal of African & African American Studies*, 5(2), pp. 24-36.
- Fabunmi, B., Paris, M. & Fabunmi, M. 2006. Digitization of Library Resources: Challenges and Implications For Policy and Planning. *International Journal of African & African American Studies*, 5(2), pp. 24-36.
- Flick, U. 2017. *The SAGE Handbook of Qualitative Data Collection*. New Delhi: SAGE.
- Gerolimos, M. & Konsta, R. 2008. Librarians' Skills and Qualifications in a Modern Informational Environment. *Librarians' Skills and Qualifications*, 29(8/9), pp. 691-699.
- Gichohi, P., Onyanca, O. & Dulle, F. 2017. Provision of Business Information Services by Public Libraries to Small-Scale Business Enterprises. *An article*, 35(3), pp. 1-21.
- Given, L. 2015. *100 Questions (and Answers) About Qualitative Research*. London: SAGE.
- Glasper, A. & Rees, C. 2018. *Nursing and Healthcare Research at a Glance*. Oxford: John Wiley & Sons.
- Goulding, A. 2016. *Public Libraries in the 21st Century: Defining Services and Debating the Future*. London: Routledge.

- Gratton, C. & Jones, I. 2004. *Research Methods for Sports Studies*. London: Routledge.
- Group of Authors. 2018. *Proceedings of IAC 2018 in Budapest*. Prague: Czech Institute of Academic Education.
- Guest, G. & McQueen, K. N. E. 2012. *Applied Thematic Analysis*. London: SAGE.
- Hancock, G., Mueller, R. & Stapleton, L. eds. 2010. *The Reviewer's Guide to Quantitative Methods in the Social Sciences*. New York: Routledge.
- Hancock, G. R., Mueller, R. & Stapleton, L. eds. 2010. *The Reviewer's Guide to Quantitative Methods in the Social Sciences*. New York: Routledge.
- Harrison, K. C. ed. 2015. *Public Library Policy: Proceedings of the IFLA/Unesco Pre-Session Seminar, Lund, Sweden, August 20–24, 1979*. London: Walter de Gruyter GmbH & Co KG.
- Hatcher, A. 2013. *Cambridge Marketing Handbook: Services*. London: Kogan Page Publishers.
- Hoskins, R. 2005. Information and Communication Technology (ICT) Knowledge and Skills of Subject Librarians at the University of KwaZulu-Natal. *SAJLIS*, 71(2), pp. 151-163.
- Hove, J. & Brindle, J. 2015. Digital Archives and Ghanaian History: Potential and Challenges. *Contemporary Journal of African Studies*, 3(2), pp. 135-156.
- Institute, C. 2018. *CFA Program Curriculum 2019 Level II Volumes 1-6*. London: John Wiley & Sons.
- Isiyaku, D., Ayub, A. & Abdulkadir, S. 2015. Empirical Modeling of Information Communication Technology usage Behaviour Among Business Education Teachers Colleges of a Developing Country. *South African Journal of Education*, 35(4), pp. 1-14.
- Issak, A. 2000. *Public Libraries in Africa: A Report and Annotated Bibliography*, Oxford: INASP.



Issak, A. 2000. *Public Libraries in Africa: A Report and Annotated Bibliography*, Oxford: INASP.

Johnson, S., Zion, S. & Prabhu, B. 2019. *ICT and its Application in Library Services*. s.l. Evincepub Publishing.

Jugenheimer, D. W., Bradley, S. D., Kelley, L. D. & Hudson, J. C. 2010. *Advertising and Public Relations Research*. New York: M.E. Sharpe.

Juma, I., Wamukoya, J. & Wekullo, C. 2014. The Role of Digital Libraries in Bridging the Knowledge Gap in Africa. *Mousaion*, 32(1), pp. 64-83.

Jupp, V. 2006. *The Sage Dictionary of Social Research Methods*. New Delhi: SAGE.

Kaplan Medical. 2017. *USMLE Step 1 Lecture Notes 2018: Behavioral Science and Social Sciences*. Rehovot: Simon and Schuster.

Khan, S. A. & Rubina, B. 2017. Technological Advances in Libraries and Possibilities of Ubiquitous Library Services: An Analysis. *Pakistan Library & Information Science Journal*, 48 (3), pp. 2-8.

Khaola, P. & Mabilikoane, M. 2015. Perception of Library Service Quality, Satisfaction and Frequency of use of Library Resources. *Inkanyiso*, 7(1), pp. 44-52.

King, N. & Brooks, J. 2017. *Template Analysis for Business and Management Students*. Chennai: SAGE.

Kingori, G., Njiraine, D. & Maina, S. 2016. Implementation of Information Literacy Programmes in Public Libraries. *Library High Tech News*, 33(2), pp. 17-22.

Kubayi, S. J. 2013. *Address Forms in Xitsonga: a Socio-Pragmatic Perspective*. University of South Africa: s.n.

Kumar, A. 2008. *Public Library System and Services in Tamil Nadu*. Chennai: Bharathi Puthakalayam.

Kumar, V. R. 2016. A Study on Challenges and Opportunities for Academic Libraries in Migrating to E-Resources. *International Journal of Digital Library Services*, 6(3), pp. 85-94.

Lai, H. J. 2011. Information Literacy Training in Public Libraries: A Case from Canada. *International Forum of Educational Technology & Society*, 14(2), pp. 81-88.

Lai, P. 2017. The Literature Review of Technology Adoption Models and Theories for Novelty Technology. *Journal of Information Systems and Technology Management*, 14(1), pp. 21-38.

LaMorte, W. W. 2016. *Behavioural Change Models*. [Online] Available at: <http://sphweb.bumc.bu.edu/otlt/MPH-Modules/SB/BehavioralChangeTheories/BehavioralChangeTheories4.html> [Accessed 28 May 2018].

Leung, N., Nkhoma, M. & John, B. eds. 2013. *Proceedings of the 4th International Conference on IS Management and Evaluation: ICIME 2013*. Ho Chi Minh City: Academic Conferences Limited.

Library and Information Association of South Africa. 2015. *The State of Libraries in South Africa*, Pretoria: LIASA.

Lomelino, P. 2015. *Community, Autonomy and Informed Consent: Revisiting the Philosophical Foundation for Informed Consent in International Research*. London: Cambridge Scholars Publishing.

Lyytinen, K. & Damsgaard, J. 2001. What's Wrong with the Diffusion of Innovation. *The International Federation for Information Processing*, Volume 59, pp. 173-190.

Macfarlane, I., Veach, P. & Leroy, B. 2014. *Genetic Counseling Research*. New York: Oxford University Press.

Maio, G., Haddock, G. & Verplanken, B. 2018. *The Psychology of Attitudes and Attitude Change*. 3rd ed. New Delhi: SAGE.

- Management Association, Information Resources. 2017. *Library Science and Administration: Concepts, Methodologies, Tools, and Applications: Concepts, Methodologies, Tools, and Applications*. s.l. IGI Global.
- Maree, K. 2017. *First Steps in Research*. 2nd ed. Pretoria: Van Schaik.
- Markovic, M. & Alecchi, B. 2016. *Qualitative Methods in Economics*. Oxon: Routledge.
- Masrom, M. 2007. *Technology Acceptance Model and E-learning*. [Online] Available at: [https://www.researchgate.net/publication/228851659\\_Technology\\_acceptance\\_model\\_and\\_E-learning](https://www.researchgate.net/publication/228851659_Technology_acceptance_model_and_E-learning) [Accessed 8 May 2018].
- Matthews, T. & Kostelis, K. 2011. *Designing and Conducting Research in Health and Human Performance*. San Francisco: John Wiley & Sons.
- Mayer, C. H. 2017. *The Life and Creative Works of Paulo Coelho: A Psychobiography from a Positive Psychology Perspective*. Pretoria: Springer.
- McQuarrie, E. F. 2011. *The Market Research Toolbox: A Concise Guide for Beginners*. London: SAGE.
- Menter, I., Elliot, D., Hulme, M. & Lewin, J. 2011. *A Guide to Practitioner Research in Education*. London: SAGE.
- Mertens, W., Pugliese, A. & Recker, J. 2017. *Quantitative Data Analysis: a Companion for Accounting and Information System Research*. Brisbane: Springer.
- Mertler, C. A. 2018. *Introduction to Educational Research*. 2nd ed. s.l.: SAGE Publications.
- Monette, D., Sullivan, T. & DeJong, C. 2010. *Applied Social Research: a Tool for the Human Services*. Belmont: Cengage Learning.
- Montello, D. & Sutton, P. 2012. *An Introduction to Scientific Research Methods in Geography and Environmental Studies*. London: SAGE.

- Moropa, R. 2010. Academic Libraries in Transition: Some Leadership Issues – a Viewpoint. *Academic Librarians in Transition*, 31(6), pp. 381-390.
- Mouton, J. & Marais, H. 1996. *Basic Concepts in the Methodology of the Social Sciences*. Pretoria: HSRC Publishers.
- Mugo, D., Njagi, K., Chemwei, B. & Motanya, J. 2017. The Technology Acceptance Model (TAM) and its Application to the Utilization of Mobile Learning Technologies. *British Journal of Mathematics & Computer Science*, 20(4), pp. 1-8.
- Mugwisi, T. 2015. Role of Librarians in Teaching Information Literacy in Zimbabwean and South African Universities: a Comparative Study. *Mousaion*, 33(1), pp. 23-42.
- Municipalities of South Africa. 2012. *Limpopo Municipalities*. [Online] Available at: <https://municipalities.co.za/provinces/view/5/limpopo> [Accessed 13 March 2018].
- Mwai, N., Kiplang'at, J. & Gichoya, D. 2016. Outsourcing Information Communication Technology Services in Selected Public Libraries in Kenya. *Inkanyiso*, 8(1), pp. 44-56.
- Namboodiri, K. 2013. *A Primer of Population Dynamics*. New York: Springer Science & Business Media.
- National Library of South Africa. 2012. *The Directory of Public and Community Libraries in South Africa*, Pretoria: National Library of South-South Africa.
- National Library of South Africa. 2015. *Mzansi Libraries On-Line*. [Online] Available at: <http://www.nlsa.ac.za/mlo/index.php/about-us/> [Accessed 13 March 2018].
- National Library of South Africa. 2015. *The State of Libraries in South Africa*, Pretoria: National Library of South Africa.
- National Library of South Africa. 2015. *The State of Libraries in South Africa*, Pretoria: National Library of South Africa.
- Ngulube, P., Mathipa, E. & Gumbo, M. 2015. Theoretical and Conceptual Frameworks in the Social and Management Sciences. *Addressing Research Challenges: Making Headway in the Social Sciences*, pp. 43-66.

- Nicholson, K. 2017. *Innovation in Public Libraries: Learning from International Library Practice*. Cambridge: Chandos Publishing.
- Nykiel, R. A. 2007. *Handbook of Marketing Research Methodologies for Hospitality and Tourism*, New York: Psychology Press.
- Palvalin, M., Lonnqvist, A. & Vuolle, M. 2013. Analysing the impacts of ICT on Knowledge Work Productivity. *Journal of Work Management*, 17(4), pp. 545-557.
- Pateman, J. & Williment, K. 2016. *Developing Community-Led Public Libraries: Evidence from the UK and Canada*. Routledge: London.
- Paulin, A., Anthopoulos, L. & Reddick, C. eds. 2017. *Beyond Bureaucracy: Towards Sustainable Governance Informatisation*. Burgdorf: Springer.
- Paulin, A., Anthopoulos, L. & Reddick, C. eds. 2017. *Paulin, A., Anthopoulos, L. & Beyond Bureaucracy: Towards Sustainable Governance Informatisation*. Burgdorf: Springer.
- Pecorari, D. 2013. *Teaching to Avoid Plagiarism: How to Promote Good Source Use*. New York: McGraw-Hill Education.
- Percival, R. V. & Schroeder, C. H. 2017. *Environmental Law: Statutory and Case Supplement, 2017-2018*. New York: Wolters Kluwer.
- Princeton Review. 2017. *Cracking the AP Psychology Exam, 2018 Edition: Proven Techniques to Help You Score a 5*. New York: Random House Children's Books.
- Punch, K. 2013. *Introduction to Social Research: Quantitative and Qualitative Approaches*. London: SAGE.
- Rayner, K. & Bell, K. 2017. *Cambridge Checkpoints HSC Community and Family Studies*. New York: Cambridge University Press.
- Ricardo, G., ed. 2011. *Libraries, Telecentres, Cybercafes and Public Access to ICT: International Comparisons: International Comparisons*. Hershey: IGI Global.

Richardson-Tench, M., Nicholson, P., Taylor, B. T. & Kermode, S. 2018. *Research in Nursing, Midwifery and Allied Health: Evidence for Best Practice*. Melbourne: Cengage.

Roberts-Holmes, G. 2014. *Doing Your Early Years Research Project: a Step by Step Guide*. 3rd ed. London: SAGE.

Robinson, L. 2009. *Enabling Change*. [Online] Available at: [https://twut.nd.edu/PDF/Summary\\_Diffusion\\_Theory.pdf](https://twut.nd.edu/PDF/Summary_Diffusion_Theory.pdf) [Accessed 28 May 2018].

Rogers, E. M. 2010. *Diffusion of Innovations*. 4th ed. New York: Simon and Schuster.

Rosenstein, L. 2019. *Research Design and Analysis: a Primer for the Non-Statistician*. Hoboken: John Wiley & Sons.

Sahin, I. 2006. Detailed Review of Rogers' Diffusion of Innovations Theory and Educational Technology-Related Studies Based on Rogers' Theory. *The Turkish Online Journal of Educational Technology*, 5(2), pp. 1303-652.

Sahu, K. 2013. *Research Methodology: a Guide for Researchers In Agricultural Science, Social Science and Other Related Fields*. New York: Springer.

Salaria, N. 2012. Meaning of the term descriptive survey research method. *International Journal of Transformations in Business Management*, 1(6), pp. 161-175.

Salman, A. A., Mugwisi, T. & Jantine, M. B. 2017. Access to and use of Public Library Services in Nigeria. *South African Journal of Libraries & Information Science*, 83(1), pp. 26-38.

Salman, A. A., Mugwisi, T. & Mostert, B. J. 2017. Access to and Use of Public Library Services in Nigeria. *South African Journal of Libraries & Information Science*, 83(1), pp. 26-38.

Salovaara, A. & Tamminen, S. 2009. *Accept or Appropriate? A Design-Oriented Critique on Technology Acceptance Models*. London: Springer.

Sasson, R. 2019. *Success Consciousness: Skills for Success, Positivity and Inner Peace*, s.l.: s.n.

Schensul, S. L., Schensul, J. J. & LeCompte, M. D. 1999. *Essential Ethnographic Methods: Observations, Interviews, and Questionnaires*. Oxford: Rowman Altamira.

Sesay, A. 2012. *Educational Research: a Beginner's Guide*. New York: Xlibris Corporation.

Silver, L., Stevens, R., Wrenn, B. & Loudon, D. 2012. *The Essentials of Marketing Research*. 3rd ed. London: Routledge.

Somani, A. K. & Deka, C. G. eds. 2017. *Big Data Analytics: Tools and Technology for Effective Planning*. New Delhi: CRC Press.

STAR Publications 2019. *Journal of International Students 2019. Education*, 9(1), p. 378.

Stewart, P. & Newman, N. 2018. User Services in the Digital Environment: Implications for Academic Libraries in the English-Speaking Caribbean. *Library Review*, 66(4/5), pp. 213-234.

Stewart, P. & Newman, N. 2018. User Services in the Digital Environment: Implications for Academic Libraries in the English-Speaking Caribbean. *Library Review*, 66(4/5), pp. 213-234.

Stommel, M. & Wills, C. 2004. *Clinical Research: Concepts and Principles for Advanced Practice Nurses*. Philadelphia: Lippincott Williams & Wilkins.

Strachan, R. 2017. *Sonic Technologies: Popular Music, Digital Culture and the Creative Process*. London: Bloomsbury Publishing USA.

Sugarman, L. 2004. *Life-span Development: Frameworks, Accounts and Strategies*. New York: Routledge.

Surendran, P. 2012. Technology Acceptance Model: A Survey of Literature. *International Journal of Business and Social Research*, 2(4), pp. 175-178.

Surendran, P. 2012. Technology Acceptance Model: A Survey of Literature. *International Journal of Business and Social Research*, 2(4), pp. 175-178.

Taylor, S. J. Bogdan, R. & Marjorie, D., 2015. *Methods: A Guidebook and Resource*. 4th ed. New Jersey: John Wiley & Sons.

Vallabhaneni, S. 2017. *Wiley Coaexcel Exam Review 2017 Focus Notes, Part 3: Internal Audit Knowledge Element*. New Jersey: John Wiley & Sons.

Wachira, M. & Onyancha, O. 2016. Serving remote users in selected public university libraries in Kenya: Perspective of the Section Heads. *Inkanyiso*, 8(2), pp. 136-146.

Wallance, D. & Van Fleet, C. 2012. *Knowledge into Action: Research and Evaluation in Library and Information Science*. California: ABC-CLIO.

Wang, X. & Reeves, D. 2015. *Traceback and Anonymity*. London: Springer.

Wegner, T. 2010. *Applied Business Statistics: Methods and Excel-based Applications*. 2nd ed. Cape Town: Juta and Company Ltd.

Wegner, T. 2010. *Applied Business Statistics: Methods and Excel-based Applications*. 2nd ed. Cape Town: Juta and Company Ltd.

Weiten, W. Dunn, D. & Hammer, E., 2016. *Psychology Applied to Modern Life: Adjustment in the 21st Century*. 12th ed. Boston: Cengage Learning.

Wiley. 2017. *Wiley 11th Hour Guide for 2017 Level III CFA Exam*. London: John Wiley & Sons.

Wiley. 2018. *CMT Level III 2018: The Integration of Technical Analysis*. New Jersey: John Wiley & Sons.

Yakkaldevi, A. & Ghante, P. 2014. *Library Automation*. Solapur: Laxmi Book Publication.



## References

- Aabo, S. 2011. The Value of Public Libraries: a Socio-Economic Analysis. *Verso Un'Economia Della Biblioteca: Finanziamenti, Programmazione*, pp. 169 -176.
- Adekunle, P., Omoba, R. & Tella, A. 2007. Attitudes of Librarians in Selected Nigerian Universities toward the Use of ICT. *Library Philosophy and Practice (e-journal)*, p. 159.
- Alomary, A. & Woollard, J. 2015. *How is Technology Acceptance by Users? A Review of Technology Acceptance Models and Theories*. [Online] Available at: <https://eprints.soton.ac.uk/382037/1/110-14486008271-4.pdf> [Accessed 28 May 2018].
- Anastas, J. W. 2000. *Research Design for Social Work and Human Services*. 2nd ed. New York: Columbia University Press.
- Antonio, S., Ana, F. & Elena, U. 2018. *Ethics in Research Practice and Innovation*. Hershey: IGI Global.
- Ariole, I. A. 2017. Provision of ICT Services and User Satisfaction in Public Libraries in South-East and South-South Zones of Nigeria. *Information Technologist*, 14(2), pp. 39-50.
- Ary, D., Jacobs, L., Irvine, C. & Walker, D. 2018. *Introduction to Research in Education*. Australia: Cengage Learning.
- Ashraf, T. & Gulati, P. A. eds. 2012. *Design, Development, and Management of Resources for Digital Library Services*. Hershey: IGI Global.
- Atkinson, M. 2012. *Key Concepts in Sport and Exercise Research Methods*. London: SAGE.
- Ayo, C. & Mbarika, V. eds. 2017. *Sustainable ICT adoption and Integration for Socio-Economic Development*. Hershey: IGI Global.
- Azevedo, A. & Mesquita, A. eds. 2018. *ICGR 2018 International Conference on Gender Research*. Lisbon: Academic Conferences and publishing limited.

- Babbie, E. 2010. *The Practice of Social Research*. Wadsworth: Cengage Learning.
- Bajpai, N. 2011. *Business Research Methods*. New Delhi: Pearson Education India.
- Baker, D. & Evans, W. eds. 2011. *Libraries and Society: Role, Responsibility and Future in an Age of Change*. Oxford: Chandos Publishing.
- Berg, K. & Latin, R. 2004. *Essentials of Research Methods in Health, Physical Education, Exercise Science, and Recreation*. 2nd ed. Philadelphia: Lippincott Williams & Wilkins.
- Bhardwaj, R. K. ed. 2017. *Digitizing the Modern Library and the Transition From Print to Electronic*. Hershey: IGI Global.
- Bhebe, A. 2018. *Understanding Socioeconomic Transformation in South Africa - What has not changed two decades into democracy*. Illustrated ed. s.l.:Lulu.com.
- Bista, K. 2018. A Quarterly Publication on International Education. *Journal of International Students*, 8(2), p. 686.
- Blessing, T. & Chakrabarti, A. 2009. *DRM, a Design Research Methodology*. London: Springer.
- Blum, M. 2006. *Continuity, Quantum, Continuum, and Dialectic: The Foundational Logics of Western Historical Thinking*. New York: Peter Lang.
- Bordens, K. & Abbott, B. 2011. *Research Design and Methods*. New Delhi: McGraw-Hill.
- Bosswell, C. & Cannon, S. eds. 2011. *Introduction to Nursing Research: Incorporating Evidence-Based Practice*. 2nd ed. Boston: Jones & Bartlett Learning.
- Bowman, J. 2017. *British Librarianship and Information Work 1991–2000*. New York: Routledge.
- Burns, N. & Grove, S. 2010. *Understanding Nursing Research: Building an Evidence-Based Practice*. 5th ed. Maryland Heights: Elsevier Health Sciences.

Byrnes, W. & Munro, R. 2019. *Money Laundering, Asset Forfeiture and Recovery and Compliance - A Global Guide*. New York: LexisNexis.

Cargan, L. 2007. *Doing Social Research*. New York: Rowman & Littlefield.

Chile, P. 2017. *Some of the Disadvantages of using the Diffusion Theory*. [Online] Available at: <https://bizfluent.com/info-8633492-disadvantages-using-diffusion-theory.html> [Accessed 28 May 2018].

Chuttur, M. Y. 2009. Overview of the Technology Acceptance Model: Origins, Developments and Future Directions. *Association for Information System*, 9(37), pp. 9-37.

Clifford, C. & Gough, S. 2014. *Nursing and Health Care Research*. 2nd ed. New York: Routledge.

Cottrell, R. & McKenzie, J. 2005. *Health Promotion and Education Research Methods: Using the Five-Chapter Thesis/Dissertation Model*. Boston: Jones & Barlett Publishers.

Creswell, J. 2011. *The Handbook of Scholarly Writing and Publishing*. San Francisco: John Wiley & Sons.

Creswell, J. W. 2014. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, London: SAGE.

Daniel, P. & Sam, A. 2011. *Research Methodology*. Delhi: Gyan Publishing House.

Davis, F. 1986. *Technology Acceptance Model*. [Online] Available at: <https://pdfs.semanticscholar.org/presentation/b0c9/9b5efd7e2eb1d1617a2854864e72d9340662.pdf> [Accessed 4 April 2018].

Davis, F. D. 1989. Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3), pp. 319-340.

De Vaus, D. 2001. *Research Design in Social Research*. London: SAGE.

Dean, T. 2012. *Network+ Guide to Networks*. 6th ed. Boston: Cengage Learning.

- DePoy, E. & Gitlin, L. 2013. *Introduction to Research- E-Book: Understanding and Applying Multiple Strategies*. 4th ed. New York: Elsevier.
- Durodolu, O. 2016. Technology Acceptance Model as a predictor of using information system' to acquire information literacy skills. *Library Philosophy and Practice*, pp. 1-28.
- Ekinci, Y. 2015. *Designing Research Questionnaires for Business and Management Students*. London: SAGE.
- Enakrire, R. T. & Ocholla, D. N. 2017. Information and Communication Technologies for Knowledge Management in Academic Libraries in Nigeria and South Africa. *South African Journal of Information Management*, 19(1), pp. 1-9.
- Fabunmi, B., Paris, M. & Fabunmi, M. 2006. Digitization of Library Resources: Challenges and Implications For Policy and Planning. *International Journal of African & African American Studies*, 5(2), pp. 24-36.
- Fabunmi, B., Paris, M. & Fabunmi, M. 2006. Digitization of Library Resources: Challenges and Implications For Policy and Planning. *International Journal of African & African American Studies*, 5(2), pp. 24-36.
- Flick, U. 2017. *The SAGE Handbook of Qualitative Data Collection*. New Delhi: SAGE.
- Gerolimos, M. & Konsta, R. 2008. Librarians' Skills and Qualifications in a Modern Informational Environment. *Librarians' Skills and Qualifications*, 29(8/9), pp. 691-699.
- Gichohi, P., Onyanca, O. & Dulle, F. 2017. Provision of Business Information Services by Public Libraries to Small-Scale Business Enterprises. *An article*, 35(3), pp. 1-21.
- Given, L. 2015. *100 Questions (and Answers) About Qualitative Research*. London: SAGE.
- Glasper, A. & Rees, C. 2018. *Nursing and Healthcare Research at a Glance*. Oxford: John Wiley & Sons.
- Goulding, A. 2016. *Public Libraries in the 21st Century: Defining Services and Debating the Future*. London: Routledge.

- Gratton, C. & Jones, I. 2004. *Research Methods for Sports Studies*. London: Routledge.
- Group of Authors. 2018. *Proceedings of IAC 2018 in Budapest*. Prague: Czech Institute of Academic Education.
- Guest, G. & McQueen, K. N. E. 2012. *Applied Thematic Analysis*. London: SAGE.
- Hancock, G., Mueller, R. & Stapleton, L. eds. 2010. *The Reviewer's Guide to Quantitative Methods in the Social Sciences*. New York: Routledge.
- Hancock, G. R., Mueller, R. & Stapleton, L. eds. 2010. *The Reviewer's Guide to Quantitative Methods in the Social Sciences*. New York: Routledge.
- Harrison, K. C. ed. 2015. *Public Library Policy: Proceedings of the IFLA/Unesco Pre-Session Seminar, Lund, Sweden, August 20–24, 1979*. London: Walter de Gruyter GmbH & Co KG.
- Hatcher, A. 2013. *Cambridge Marketing Handbook: Services*. London: Kogan Page Publishers.
- Hoskins, R. 2005. Information and Communication Technology (ICT) Knowledge and Skills of Subject Librarians at the University of KwaZulu-Natal. *SAJLIS*, 71(2), pp. 151-163.
- Hove, J. & Brindle, J. 2015. Digital Archives and Ghanaian History: Potential and Challenges. *Contemporary Journal of African Studies*, 3(2), pp. 135-156.
- Institute, C. 2018. *CFA Program Curriculum 2019 Level II Volumes 1-6*. London: John Wiley & Sons.
- Isiyaku, D., Ayub, A. & Abdulkadir, S. 2015. Empirical Modeling of Information Communication Technology usage Behaviour Among Business Education Teachers Colleges of a Developing Country. *South African Journal of Education*, 35(4), pp. 1-14.
- Issak, A. 2000. *Public Libraries in Africa: A Report and Annotated Bibliography*, Oxford: INASP.

Issak, A. 2000. *Public Libraries in Africa: A Report and Annotated Bibliography*, Oxford: INASP.

Johnson, S., Zion, S. & Prabhu, B. 2019. *ICT and its Application in Library Services*. s.l. Evincepub Publishing.

Jugenheimer, D. W., Bradley, S. D., Kelley, L. D. & Hudson, J. C. 2010. *Advertising and Public Relations Research*. New York: M.E. Sharpe.

Juma, I., Wamukoya, J. & Wekullo, C. 2014. The Role of Digital Libraries in Bridging the Knowledge Gap in Africa. *Mousaion*, 32(1), pp. 64-83.

Jupp, V. 2006. *The Sage Dictionary of Social Research Methods*. New Delhi: SAGE.

Kaplan Medical. 2017. *USMLE Step 1 Lecture Notes 2018: Behavioral Science and Social Sciences*. Rehovot: Simon and Schuster.

Khan, S. A. & Rubina, B. 2017. Technological Advances in Libraries and Possibilities of Ubiquitous Library Services: An Analysis. *Pakistan Library & Information Science Journal*, 48 (3), pp. 2-8.

Khaola, P. & Mabilikoane, M. 2015. Perception of Library Service Quality, Satisfaction and Frequency of use of Library Resources. *Inkanyiso*, 7(1), pp. 44-52.

King, N. & Brooks, J. 2017. *Template Analysis for Business and Management Students*. Chennai: SAGE.

Kingori, G., Njiraine, D. & Maina, S. 2016. Implementation of Information Literacy Programmes in Public Libraries. *Library High Tech News*, 33(2), pp. 17-22.

Kubayi, S. J. 2013. *Address Forms in Xitsonga: a Socio-Pragmatic Perspective*. University of South Africa: s.n.

Kumar, A. 2008. *Public Library System and Services in Tamil Nadu*. Chennai: Bharathi Puthakalayam.

Kumar, V. R. 2016. A Study on Challenges and Opportunities for Academic Libraries in Migrating to E-Resources. *International Journal of Digital Library Services*, 6(3), pp. 85-94.

Lai, H. J. 2011. Information Literacy Training in Public Libraries: A Case from Canada. *International Forum of Educational Technology & Society*, 14(2), pp. 81-88.

Lai, P. 2017. The Literature Review of Technology Adoption Models and Theories for Novelty Technology. *Journal of Information Systems and Technology Management*, 14(1), pp. 21-38.

LaMorte, W. W. 2016. *Behavioural Change Models*. [Online] Available at: <http://sphweb.bumc.bu.edu/otlt/MPH-Modules/SB/BehavioralChangeTheories/BehavioralChangeTheories4.html> [Accessed 28 May 2018].

Leung, N., Nkhoma, M. & John, B. eds. 2013. *Proceedings of the 4th International Conference on IS Management and Evaluation: ICIME 2013*. Ho Chi Minh City: Academic Conferences Limited.

Library and Information Association of South Africa. 2015. *The State of Libraries in South Africa*, Pretoria: LIASA.

Lomelino, P. 2015. *Community, Autonomy and Informed Consent: Revisiting the Philosophical Foundation for Informed Consent in International Research*. London: Cambridge Scholars Publishing.

Lyytinen, K. & Damsgaard, J. 2001. What's Wrong with the Diffusion of Innovation. *The International Federation for Information Processing*, Volume 59, pp. 173-190.

Macfarlane, I., Veach, P. & Leroy, B. 2014. *Genetic Counseling Research*. New York: Oxford University Press.

Maio, G., Haddock, G. & Verplanken, B. 2018. *The Psychology of Attitudes and Attitude Change*. 3rd ed. New Delhi: SAGE.

- Management Association, Information Resources. 2017. *Library Science and Administration: Concepts, Methodologies, Tools, and Applications: Concepts, Methodologies, Tools, and Applications*. s.l. IGI Global.
- Maree, K. 2017. *First Steps in Research*. 2nd ed. Pretoria: Van Schaik.
- Markovic, M. & Alecchi, B. 2016. *Qualitative Methods in Economics*. Oxon: Routledge.
- Masrom, M. 2007. *Technology Acceptance Model and E-learning*. [Online] Available at: [https://www.researchgate.net/publication/228851659\\_Technology\\_acceptance\\_model\\_and\\_E-learning](https://www.researchgate.net/publication/228851659_Technology_acceptance_model_and_E-learning) [Accessed 8 May 2018].
- Matthews, T. & Kostelis, K. 2011. *Designing and Conducting Research in Health and Human Performance*. San Francisco: John Wiley & Sons.
- Mayer, C. H. 2017. *The Life and Creative Works of Paulo Coelho: A Psychobiography from a Positive Psychology Perspective*. Pretoria: Springer.
- McQuarrie, E. F. 2011. *The Market Research Toolbox: A Concise Guide for Beginners*. London: SAGE.
- Menter, I., Elliot, D., Hulme, M. & Lewin, J. 2011. *A Guide to Practitioner Research in Education*. London: SAGE.
- Mertens, W., Pugliese, A. & Recker, J. 2017. *Quantitative Data Analysis: a Companion for Accounting and Information System Research*. Brisbane: Springer.
- Mertler, C. A. 2018. *Introduction to Educational Research*. 2nd ed. s.l.: SAGE Publications.
- Monette, D., Sullivan, T. & DeJong, C. 2010. *Applied Social Research: a Tool for the Human Services*. Belmont: Cengage Learning.
- Montello, D. & Sutton, P. 2012. *An Introduction to Scientific Research Methods in Geography and Environmental Studies*. London: SAGE.



- Moropa, R. 2010. Academic Libraries in Transition: Some Leadership Issues – a Viewpoint. *Academic Librarians in Transition*, 31(6), pp. 381-390.
- Mouton, J. & Marais, H. 1996. *Basic Concepts in the Methodology of the Social Sciences*. Pretoria: HSRC Publishers.
- Mugo, D., Njagi, K., Chemwei, B. & Motanya, J. 2017. The Technology Acceptance Model (TAM) and its Application to the Utilization of Mobile Learning Technologies. *British Journal of Mathematics & Computer Science*, 20(4), pp. 1-8.
- Mugwisi, T. 2015. Role of Librarians in Teaching Information Literacy in Zimbabwean and South African Universities: a Comparative Study. *Mousaion*, 33(1), pp. 23-42.
- Municipalities of South Africa. 2012. *Limpopo Municipalities*. [Online] Available at: <https://municipalities.co.za/provinces/view/5/limpopo> [Accessed 13 March 2018].
- Mwai, N., Kiplang'at, J. & Gichoya, D. 2016. Outsourcing Information Communication Technology Services in Selected Public Libraries in Kenya. *Inkanyiso*, 8(1), pp. 44-56.
- Namboodiri, K. 2013. *A Primer of Population Dynamics*. New York: Springer Science & Business Media.
- National Library of South Africa. 2012. *The Directory of Public and Community Libraries in South Africa*, Pretoria: National Library of South-South Africa.
- National Library of South Africa. 2015. *Mzansi Libraries On-Line*. [Online] Available at: <http://www.nlsa.ac.za/mlo/index.php/about-us/> [Accessed 13 March 2018].
- National Library of South Africa. 2015. *The State of Libraries in South Africa*, Pretoria: National Library of South Africa.
- National Library of South Africa. 2015. *The State of Libraries in South Africa*, Pretoria: National Library of South Africa.
- Ngulube, P., Mathipa, E. & Gumbo, M. 2015. Theoretical and Conceptual Frameworks in the Social and Management Sciences. *Addressing Research Challenges: Making Headway in the Social Sciences*, pp. 43-66.

- Nicholson, K. 2017. *Innovation in Public Libraries: Learning from International Library Practice*. Cambridge: Chandos Publishing.
- Nykiel, R. A. 2007. *Handbook of Marketing Research Methodologies for Hospitality and Tourism*, New York: Psychology Press.
- Palvalin, M., Lonnqvist, A. & Vuolle, M. 2013. Analysing the impacts of ICT on Knowledge Work Productivity. *Journal of Work Management*, 17(4), pp. 545-557.
- Pateman, J. & Williment, K. 2016. *Developing Community-Led Public Libraries: Evidence from the UK and Canada*. Routledge: London.
- Paulin, A., Anthopoulos, L. & Reddick, C. eds. 2017. *Beyond Bureaucracy: Towards Sustainable Governance Informatisation*. Burgdorf: Springer.
- Paulin, A., Anthopoulos, L. & Reddick, C. eds. 2017. *Paulin, A., Anthopoulos, L. & Beyond Bureaucracy: Towards Sustainable Governance Informatisation*. Burgdorf: Springer.
- Pecorari, D. 2013. *Teaching to Avoid Plagiarism: How to Promote Good Source Use*. New York: McGraw-Hill Education.
- Percival, R. V. & Schroeder, C. H. 2017. *Environmental Law: Statutory and Case Supplement, 2017-2018*. New York: Wolters Kluwer.
- Princeton Review. 2017. *Cracking the AP Psychology Exam, 2018 Edition: Proven Techniques to Help You Score a 5*. New York: Random House Children's Books.
- Punch, K. 2013. *Introduction to Social Research: Quantitative and Qualitative Approaches*. London: SAGE.
- Rayner, K. & Bell, K. 2017. *Cambridge Checkpoints HSC Community and Family Studies*. New York: Cambridge University Press.
- Ricardo, G., ed. 2011. *Libraries, Telecentres, Cybercafes and Public Access to ICT: International Comparisons: International Comparisons*. Hershey: IGI Global.

Richardson-Tench, M., Nicholson, P., Taylor, B. T. & Kermode, S. 2018. *Research in Nursing, Midwifery and Allied Health: Evidence for Best Practice*. Melbourne: Cengage.

Roberts-Holmes, G. 2014. *Doing Your Early Years Research Project: a Step by Step Guide*. 3rd ed. London: SAGE.

Robinson, L. 2009. *Enabling Change*. [Online] Available at: [https://twut.nd.edu/PDF/Summary\\_Diffusion\\_Theory.pdf](https://twut.nd.edu/PDF/Summary_Diffusion_Theory.pdf) [Accessed 28 May 2018].

Rogers, E. M. 2010. *Diffusion of Innovations*. 4th ed. New York: Simon and Schuster.

Rosenstein, L. 2019. *Research Design and Analysis: a Primer for the Non-Statistician*. Hoboken: John Wiley & Sons.

Sahin, I. 2006. Detailed Review of Rogers' Diffusion of Innovations Theory and Educational Technology-Related Studies Based on Rogers' Theory. *The Turkish Online Journal of Educational Technology*, 5(2), pp. 1303-652.

Sahu, K. 2013. *Research Methodology: a Guide for Researchers In Agricultural Science, Social Science and Other Related Fields*. New York: Springer.

Salaria, N. 2012. Meaning of the term descriptive survey research method. *International Journal of Transformations in Business Management*, 1(6), pp. 161-175.

Salman, A. A., Mugwisi, T. & Jantine, M. B. 2017. Access to and use of Public Library Services in Nigeria. *South African Journal of Libraries & Information Science*, 83(1), pp. 26-38.

Salman, A. A., Mugwisi, T. & Mostert, B. J. 2017. Access to and Use of Public Library Services in Nigeria. *South African Journal of Libraries & Information Science*, 83(1), pp. 26-38.

Salovaara, A. & Tamminen, S. 2009. *Accept or Appropriate? A Design-Oriented Critique on Technology Acceptance Models*. London: Springer.

Sasson, R. 2019. *Success Consciousness: Skills for Success, Positivity and Inner Peace*, s.l.: s.n.

- Schensul, S. L., Schensul, J. J. & LeCompte, M. D. 1999. *Essential Ethnographic Methods: Observations, Interviews, and Questionnaires*. Oxford: Rowman Altamira.
- Sesay, A. 2012. *Educational Research: a Beginner's Guide*. New York: Xlibris Corporation.
- Silver, L., Stevens, R., Wrenn, B. & Loudon, D. 2012. *The Essentials of Marketing Research*. 3rd ed. London: Routledge.
- Somani, A. K. & Deka, C. G. eds. 2017. *Big Data Analytics: Tools and Technology for Effective Planning*. New Delhi: CRC Press.
- STAR Publications 2019. Journal of International Students 2019. *Education*, 9(1), p. 378.
- Stewart, P. & Newman, N. 2018. User Services in the Digital Environment: Implications for Academic Libraries in the English-Speaking Caribbean. *Library Review*, 66(4/5), pp. 213-234.
- Stewart, P. & Newman, N. 2018. User Services in the Digital Environment: Implications for Academic Libraries in the English-Speaking Caribbean. *Library Review*, 66(4/5), pp. 213-234.
- Stommel, M. & Wills, C. 2004. *Clinical Research: Concepts and Principles for Advanced Practice Nurses*. Philadelphia: Lippincott Williams & Wilkins.
- Strachan, R. 2017. *Sonic Technologies: Popular Music, Digital Culture and the Creative Process*. London: Bloomsbury Publishing USA.
- Sugarman, L. 2004. *Life-span Development: Frameworks, Accounts and Strategies*. New York: Routledge.
- Surendran, P. 2012. Technology Acceptance Model: A Survey of Literature. *International Journal of Business and Social Research*, 2(4), pp. 175-178.
- Surendran, P. 2012. Technology Acceptance Model: A Survey of Literature. *International Journal of Business and Social Research*, 2(4), pp. 175-178.

Taylor, S. J. Bogdan, R. & Marjorie, D., 2015. *Methods: A Guidebook and Resource*. 4th ed. New Jersey: John Wiley & Sons.

Vallabhaneni, S. 2017. *Wiley Coaexcel Exam Review 2017 Focus Notes, Part 3: Internal Audit Knowledge Element*. New Jersey: John Wiley & Sons.

Wachira, M. & Onyancha, O. 2016. Serving remote users in selected public university libraries in Kenya: Perspective of the Section Heads. *Inkanyiso*, 8(2), pp. 136-146.

Wallance, D. & Van Fleet, C. 2012. *Knowledge into Action: Research and Evaluation in Library and Information Science*. California: ABC-CLIO.

Wang, X. & Reeves, D. 2015. *Traceback and Anonymity*. London: Springer.

Wegner, T. 2010. *Applied Business Statistics: Methods and Excel-based Applications*. 2nd ed. Cape Town: Juta and Company Ltd.

Wegner, T. 2010. *Applied Business Statistics: Methods and Excel-based Applications*. 2nd ed. Cape Town: Juta and Company Ltd.

Weiten, W. Dunn, D. & Hammer, E., 2016. *Psychology Applied to Modern Life: Adjustment in the 21st Century*. 12th ed. Boston: Cengage Learning.

Wiley. 2017. *Wiley 11th Hour Guide for 2017 Level III CFA Exam*. London: John Wiley & Sons.

Wiley. 2018. *CMT Level III 2018: The Integration of Technical Analysis*. New Jersey: John Wiley & Sons.

Yakkaldevi, A. & Ghante, P. 2014. *Library Automation*. Solapur: Laxmi Book Publication.

## Appendix A: Consent Form

Dear participant,

My name is Itumeleng Khanya. I am a Master of Information Studies student in the Programme of Information Studies at the University of Limpopo, South Africa. I am conducting research titled “Digitalization of Library Services as a Magnifying Factor Towards Improving Best Service in Limpopo Public Libraries.” I would like you to part and exchange information with me concerning your experiences regarding rendering library services to your users.

Kindly note that:

1. The participation is voluntary, and you have the right to withdraw at any time you feel your privacy or confidentiality is at risk.
2. No name and other personal information will be quoted. The data obtained will be used wholly for research purposes and will be later disposed of. Only my supervisor and I will have access to the raw data provided.

Please do not write your name on any of the pages or documents you submit.

Thank you for your co-operation.

Yours Sincerely

.....

Should you have any comments or concerns regarding the study, please contact me at 074 296 1681, or [ItumelengKhanya@gmail.com](mailto:ItumelengKhanya@gmail.com). Alternatively, you can contact my supervisor, Mr Dikotla M.A. on 015 268 3707 or [Maoka.Dikotla@ul.ac.za](mailto:Maoka.Dikotla@ul.ac.za)

**Appendix B: Questionnaire**  
**Kindly answer all questions**

**Please tick inside a specific box for a preferred answer.** E.g. Yes  No

1. Name of Library .....

2. District .....

3. The number of years in the current position?

Less than 1 year	1 to 4 years	5 to 9 years	10 to 14 years	15 to 19 years	20 to 24	25 to 34	35 upwards
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. Qualification

5. Gender  
 Male  Female

**Attitudes of library staff towards digitalisation:**

6. Do you agree with the digitalisation of library materials?

Yes  No

Please specify why.....  
 .....  
 .....

7. Do you perceive the digitalisation of library services as a challenge in the Library and Information Services (LIS) field?

Yes  No

**Please respond by ticking only one box below**

8. I feel motivated by using digitalised services

Strongly disagree                       Strongly agree   
Disagree                                       Agree

**Skills of library staff in using ICT:**

9. Have you ever attended any ICT training?

Yes                       No

Please specify.....  
.....

10. How often do you attend training per annum?

Once                       Twice                       Thrice                       More

11. Did you find it helpful?

Yes                       No

12. Did training have any improvement in services rendered in your library?

Yes                       No

Please specify.....  
.....

13. Can you now operate all ICT facilities in your library?

Yes                       No

Please motivate your answer.....  
.....  
.....

14. How do you rate your ICT skills?

Very poor                       Poor                       Average                       Good                       Excellent





22. Does the ICT infrastructure better the services provided in your library?

Yes  No

If yes, please specify how.....  
.....  
.....

**Please respond by ticking only one box below**

23. Digitalised services convenience my work

Strongly disagree  Strongly agree   
Disagree  Agree

**Please respond by ticking only one box below**

24. Digitalised services do not require much effort

Strongly disagree  Strongly agree   
Disagree  Agree

25. Has your library fully adopted digitalised services provision?

Yes  No

Please motivate your answer .....  
.....  
.....

**Please respond by ticking only one box below**

26. I believe the digitalisation of library services improves LIS

Strongly disagree  Strongly agree   
Disagree  Agree

**Challenges of digitalisation:**

27. Do you think the lack of library digitalisation increases poor service?

Agree  Disagree

Please Motivate your answer

.....  
.....  
.....

28. What do you think is the main challenge with the digitalisation of services?

- Lack of Funds
- Untrained staff
- Low staff morale
- Out-dated technology
- Other

Please specify .....

29. How can the problem be remedied or resolved? .....

.....  
.....

**Benefits of digitalisation:**

30. How does the digitalisation of services benefit you?

- To provide faster service
- To provide excellent service
- Creates a room to acquire more skills
- None of the above

Any other? Please specify.....  
.....  
.....

31. How do you think digitalisation of services benefit users?

Saves them time

They receive excellent service

Saves them unnecessary costs

None of the above

Any other? Please specify .....

.....

.....

32. Does the digitalisation of services help to render a fast service?

Yes       No

**APPENDIX C: Letter of request**



**UNIVERSITY OF LIMPOPO**

**TURFLOOP CAMPUS**

**Faculty of Humanities  
School of Languages and Communication Studies  
Private Bag X1112, Sovenga, 0727, South Africa  
Tel: (015) 268 4015, Fax: (015) 268 2868, Email:Solomon.bopape@ul.ac.za**

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The Head of Department  
*Limpopo Department of Sports, Arts and Culture*  
*Private Bag X9549*  
*Polokwane*  
*0700*

Dear Sir/Madam

**REQUESTING PERMISSION FOR MR IA KHANYA 201414493 TO CONDUCT RESEARCH AT LIMPOPO DISTRICT PUBLIC LIBRARIES.**

This serves to formally introduce the above named as a full-time MIS student in the Department of Media, Communication and Information Studies at the University of Limpopo. Mr IA Khanya has proposed to conduct research on a research project titled “**Digitalisation of library services as a magnifying factor towards improving public library services in Limpopo.**”

Mr IA Khanya’s research proposal has been approved by the Higher Degrees and Research Committee of the School of Languages and Communications. Mr IA Khanya would like to collect data for the research project by way of distributing the questionnaire to those deemed to be sources of relevant information and knowledge at Limpopo District public libraries. You are therefore requested to permit Mr IA Khanya to distribute questionnaires.

The researcher will share the findings of the study with the department and assist in the implementation of the recommendations. For any further information about Mr IA Khanya please do not hesitate to contact the undersigned.

Thank you for your kind assistance.

Yours sincerely

.....

Dr. S.T Bopape–Supervisor

.....

DATE

## Appendix D: Letter of approval from the Department to collect data



**LIMPOPO**  
PROVINCIAL GOVERNMENT  
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF  
**SPORT, ARTS AND CULTURE**  
HEAD OFFICE

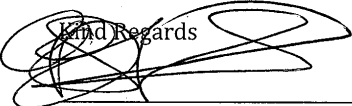
Ref. 2/9/9/2  
Enq. Mayevu M  
Cell. 0152844035  
Date. 05 May 2019

University of Limpopo  
Faculty of Humanities: School of Languages & Communication studies  
Private Bag X1112  
Sovenga  
0727

**Approval to conduct research in the Limpopo Department of Sport, Arts and Culture community libraries.**

1. Your letter of request dated 03 April 2019 bears reference.
2. The Limpopo Department of Sport, Arts and Culture is hereby granting permission to Mr. IA Khanya to conduct research in relation to **"Digitization of library services as a magnifying factor towards improving public library services in Limpopo"**
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.

Kind Regards

  
PHUKUNTSI M.J  
Acting Head of Department  
2019\04\08

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

## Appendix E: Ethics clearance certificate



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

**TURFLOOP RESEARCH ETHICS COMMITTEE**  
**ETHICS CLEARANCE CERTIFICATE**

**MEETING:** 06 March 2019

**PROJECT NUMBER:** TREC/22/2019: PG

**PROJECT:**

**Title:** Digitalization of library services as a magnifying factor towards improving public library services in Limpopo.  
**Researcher:** IA Khanya  
**Supervisor:** Dr. MA Dikotla  
**Co-Supervisor/s:** N/A  
**School:** Languages and Communication Studies  
**Degree:** Master of Information Studies

**PROF P MASOKO**  
**CHAIRPERSON: TURFLOOP RESEARCH ETHICS COMMITTEE**

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

**Note:**

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

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