



**Library and Information Science Students' Perceptions and Use of Library Services  
Post-COVID-19 at the National University of Science and Technology, Zimbabwe**

By

**TARIRO MUTEREKO**

B.Sc. (Hons) LIS (NUST), B.Sc. (Hons) LIS (UKZN)

Submitted in partial fulfilment of the requirements for the degree of

**MASTER OF INFORMATION STUDIES (MIS)**

Information Studies Programme, School of Social Sciences, University of KwaZulu-Natal,  
Pietermaritzburg, South Africa

**2024**

## Declaration


I, Tariro Mutereko, declare that:

- a) The research reported in this dissertation, except where otherwise indicated, is my original work.
- b) This dissertation/thesis has not been submitted for any degree or examination at any other university.
- c) This dissertation/thesis does not contain other persons' data, pictures, graphs, or other information unless expressly acknowledged as being sourced from different persons.
- d) This dissertation/thesis does not contain other persons' writing unless expressly acknowledged as being sourced from other researchers.

Where other written sources have been quoted, then:


- (i) Their words have been re-written, but the general information attributed to them has been referenced;
- (ii) Where their exact words have been used, their writing has been placed inside quotation marks and referenced.
- (iii) Where I have reproduced a publication of which I am an author, co-author or editor, I have indicated in detail which part of the publication was authored entirely by me and have fully referenced such publications.
- (iv) This dissertation/thesis does not contain text, graphics or tables copied and pasted from the internet unless expressly acknowledged, and the source is detailed in the dissertation and the References sections.

Candidate: Tariro Mutereko

Signed: 

Date: 9 January 2025

Supervisor: Prof Zawedde Nsibirwa

Signed 

Date: 10 January 2025

## **Dedication**

This dissertation is dedicated to my family, friends and Information science students.

## **Acknowledgements**

I want to convey my heartfelt gratitude and recognition to the individuals listed below for their support and involvement in this research:

- My supervisor, Prof Zawedde Nsibirwa, for her professional and expert guidance throughout this study.
- The library and information science student participants at the NUST who willingly gave up their time to complete the questionnaire.
- The NUST Institutional Review Board for permitting the study.
- My colleagues for their support and encouragement.
- My family, for their financial and emotional support.
- Above all, I thank Almighty God.

## **Abstract**

This study investigated Zimbabwe's National University of Science and Technology (NUST) library and information science students' perceptions, expectations, and use of library services during the COVID-19 pandemic. While COVID-19 still exists, it is no longer a pandemic. Libraries were affected by the pandemic. As such, exploring students' perceptions regarding library services in the post-COVID-19 era is necessary. The study focused on how the pandemic has affected the use of library services and students' perceptions of the changes made in response to the pandemic, using the NUST Library as a case study. A quantitative research approach was employed, utilising a survey design based on the LibQUAL model, which measures service quality across three dimensions: Affect of service, Information control, and Library as place. A census sampling technique was applied to incorporate the entire group of 60 students. The survey was conducted online using Google Forms, and 54 responses were received, yielding a 90% response rate.

The findings revealed that the pandemic significantly transformed the landscape of NUST Library services, with remarkable effects on students' perceptions and expectations of the services rendered. Students' expectations of service quality exceeded their perceptions throughout the three service quality dimensions, thus revealing significant gaps between expectations and perceptions of service quality. However, the size of the gaps between the different services varied. The most challenging services, that is, those with the largest gaps, were "responsive staff members", "approachable staff members", "supportive staff members", "organised collection", "diverse materials", "comfortable study spaces", and "safe and secure environment". However, students were generally satisfied with the library services provided at NUST. Recommendations based on the significant findings were made for library management.

## Table of contents

<b>Declaration</b> .....	<b>ii</b>
<b>Dedication</b> .....	<b>iii</b>
<b>Acknowledgements</b> .....	<b>iv</b>
<b>Abstract</b> .....	<b>v</b>
<b>List of tables</b> .....	<b>x</b>
<b>Figure</b> .....	<b>xi</b>
<b>List of acronyms</b> .....	<b>xii</b>
<b>Chapter One: Introduction to the Study</b> .....	<b>1</b>
<b>1.0 Introduction</b> .....	<b>1</b>
<b>1.1 Background of the study</b> .....	<b>1</b>
<b>1.2 Research problem</b> .....	<b>2</b>
<b>1.3 Rationale of the study</b> .....	<b>3</b>
<b>1.4 Purpose, objectives, and research questions</b> .....	<b>4</b>
1.4.1 Purpose of the study .....	4
1.4.2 Objectives of the study .....	4
1.4.3 Research questions .....	4
<b>1.5 Scope and limitations of the study</b> .....	<b>5</b>
<b>1.6 Definition of terms and concepts used</b> .....	<b>5</b>
<b>1.7 Organisation of the dissertation</b> .....	<b>7</b>
<b>1.8 Summary</b> .....	<b>8</b>
<b>Chapter Two: Theoretical Framework and Literature Review</b> .....	<b>9</b>
<b>2.0 Introduction</b> .....	<b>9</b>
<b>2.1 Theoretical models for assessing service quality</b> .....	<b>9</b>
2.1.1 Service quality defined .....	9
2.1.2 Service Quality (SERVQUAL) model .....	10
2.1.3 Library Quality (LIBQUAL) model .....	13
<b>2.2 Review of LibQUAL studies on library services</b> .....	<b>14</b>
2.2.1 LibQUAL studies done in Africa on students' perceptions of library services .....	15
2.2.2 International LibQUAL studies .....	17
<b>2.3 Review of LibQUAL studies on gaps between user expectations and user perceptions of library services</b> .....	<b>22</b>
2.3.1 African studies on gaps between user expectations and user perceptions .....	22
2.3.2 International studies on gaps between user expectations and user perceptions .....	24

2.4 Summary .....	26
<b>Chapter Three: Research Methodology .....</b>	<b>27</b>
3.0 Introduction .....	27
3.1 Research paradigm .....	27
3.2 Research design .....	28
3.3 Research approach.....	30
3.4 Population and sampling .....	31
3.4.1 Population.....	31
3.4.2 Sampling.....	31
3.5 Data collection techniques .....	31
3.5.1 Questionnaire and types of questions .....	32
3.6 Administration of the questionnaire.....	33
3.7 Response rate .....	34
3.8 Pre-testing the questionnaire.....	34
3.9 Validity and reliability of the instrument .....	35
3.10 Data analysis .....	35
3.11 Ethical considerations .....	36
3.12 Summary .....	37
<b>Chapter Four: Research Results .....</b>	<b>38</b>
4.0 Introduction .....	38
4.1 Section A: Demographic information.....	38
4.1.1 Respondents' gender.....	38
4.1.2 Respondents' age group.....	39
4.1.3 Respondents' level of study.....	39
4.2 Section B: NUST Library usage.....	40
4.2.1 Frequency of library usage post-COVID19.....	40
4.2.2 What the library is used for post-COVID-19.....	41
4.2.3 Usability and Functionality of NUST Library services post-COVID-19 .....	42
4.2.4 Challenges encountered while using NUST Library services post-COVID-19 .....	42
4.3 Section C: Perceptions of library services.....	43
4.3.1 Perceptions of respondents concerning Affect of service.....	43
4.3.2 Perceptions of respondents concerning Information control .....	44
4.3.3 Perceptions of respondents concerning Library as place.....	46
4.4 Section D: Expectations of library services.....	47
4.4.1 Respondents' expectations concerning Affect of service .....	48

4.4.2	Expectations of respondents concerning Information control .....	49
4.4.3	Expectations of respondents concerning Library as place.....	51
<b>4.5</b>	<b>Section E: Satisfaction with library services .....</b>	<b>52</b>
4.5.1	Satisfaction with the overall quality of library services.....	52
4.5.2	Further comments on NUST Library services.....	52
4.5.3	Specific areas falling short of expectations, aspects not meeting initial perceptions and impact on overall experience .....	53
<b>4.6</b>	<b>Gap between expectations and perceptions .....</b>	<b>54</b>
4.6.1	Gap between expectations and perceptions concerning Affect of service.....	54
4.6.2	Gap between expectations and perceptions concerning Information Control .....	55
4.6.3	Gap between expectations and perceptions concerning Library as place.....	56
<b>4.7</b>	<b>Summary .....</b>	<b>56</b>
<b>Chapter Five:</b>	<b>Discussion of Results .....</b>	<b>57</b>
<b>5.0</b>	<b>Introduction .....</b>	<b>57</b>
<b>5.1</b>	<b>Demographic information .....</b>	<b>57</b>
5.1.1	Respondents Gender .....	58
5.1.2	Respondents' age group.....	58
5.1.3	Respondents' level of study.....	58
<b>5.2</b>	<b>NUST Library usage patterns.....</b>	<b>59</b>
5.2.1	Frequency of use of library resources post-COVID-19.....	59
5.2.2	Library services used post-COVID-19 .....	60
5.2.3	Usability and functionality of NUST Library services post-COVID-19 .....	61
<b>5.3</b>	<b>Perceptions and expectations of NUST Library Services.....</b>	<b>62</b>
5.3.1	Affect of service .....	62
5.3.2	Information control.....	65
5.3.3	Library as place.....	68
<b>5.4</b>	<b>Satisfaction with library services .....</b>	<b>71</b>
5.4.1	Levels of satisfaction with library services.....	71
5.4.2	Discussion of open questions relating to user satisfaction and expectations.....	72
<b>5.2</b>	<b>Summary .....</b>	<b>74</b>
<b>Chapter Six:</b>	<b>Main Findings, Conclusions and Recommendations .....</b>	<b>75</b>
<b>6.0</b>	<b>Introduction .....</b>	<b>75</b>
<b>6.1</b>	<b>Summary of the study .....</b>	<b>75</b>
<b>6.2</b>	<b>Main findings and conclusions .....</b>	<b>76</b>
6.2.1	Demographics.....	76

6.2.2 Frequency of library use .....	77
6.2.3 Library services usage .....	77
6.2.4 Students' expectations regarding service quality post-COVID-19 (Research question 1)	78
6.2.5 Students' perceptions regarding service quality post-COVID-19 (Research question 3)..	79
6.2.6 Gap between user perceptions and user expectations of library service quality (Research question 4) .....	79
6.2.7 User satisfaction and ratings of services.....	81
<b>6.3 Recommendations .....</b>	<b>82</b>
6.3.1 Recommendations - Affect of service .....	82
6.3.2 Recommendations - Information control.....	83
6.3.3 Recommendations - Library as place.....	84
<b>6.4 Suggestions for further research.....</b>	<b>85</b>
<b>6.5 Summary .....</b>	<b>86</b>
<b>References .....</b>	<b>87</b>
<b>Appendices .....</b>	<b>103</b>
<b>Appendix 1: Questionnaire.....</b>	<b>103</b>
<b>Appendix 2: Ethical Clearance Approval .....</b>	<b>111</b>
<b>Appendix 3: NUST Institutional Review Board Approval.....</b>	<b>112</b>
<b>Appendix 4: Informed Consent.....</b>	<b>113</b>
<b>Appendix 5: Proof of Editing .....</b>	<b>115</b>

## List of tables

Table 1: Relationship between research questions and LibQUAL.....	14
Table 2: Gender.....	38
Table 3: Age groups.....	39
Table 4: Level of study .....	39
Table 5: Frequency of library usage post-COVID-19 .....	40
Table 6: What library used for .....	41
Table 7: Usability and functionality of NUST Library services.....	42
Table 8: Respondents' perceptions - Affect of service.....	43
Table 9: Respondent's perceptions - Information control .....	44
Table 10: Respondents' perceptions - Library as place .....	46
Table 11: Respondents' expectations - Affect of service .....	48
Table 12: Respondents' expectations - Information control.....	49
Table 13: Respondents' expectations - Library as place .....	51
Table 14: Respondents' satisfaction with the overall quality of library services .....	52
Table 15: Gap between expectations and perceptions - Affect of service.....	54
Table 16: Gap between expectations and perceptions - Information control .....	55
Table 17: Gap between expectations and perceptions - Library as place .....	56

**Figure**

Figure 1: Gap model of service quality..... 12

## List of acronyms

ARL	-Association of Research Libraries
BSC	-Balanced Scorecard Model
CRML	-Cecil Renaud Main Library
EFQM	-European Foundation for Quality Management
ICTs	-Information and communication technologies
LibQUAL	-Library Quality
LIS	-Library and Information Science
NUST	-National University of Science and Technology
SERVQUAL	-Service Quality
TQM	-Total Quality Management Model
UINSU	-Universitas Islam Negeri Sumatera Utara
UKZN	-University of KwaZulu-Natal
USC	-University of Southern California
Wi-Fi	-Wireless fidelity

# **Chapter One: Introduction to the Study**

## **1.0 Introduction**

This chapter serves as an introduction to this study that aimed to investigate the impact of the COVID-19 pandemic on library services at the National University of Science and Technology (NUST) in Zimbabwe. Bridging students' perceptions concerning the services received and their expectations of those services following the pandemic was an underlying rationale of the study. This introductory chapter covers the research problem, research questions, study objectives, purpose of the study, the significance of the study, scope and limitations, and definitions of essential terms used.

## **1.1 Background of the study**

According to Chigwada (2022), the higher and tertiary education system was greatly affected by the COVID-19 pandemic, leading to significant changes in service delivery in academic libraries. The NUST Library was no exception. The Library was established in 1992 (NUST Library, 2013) and is temporarily housed in the Bulawayo city centre, approximately 6.3 km away from the main campus, pending the construction of a state-of-the-art library on the university campus. The NUST has three branch libraries: the Medical School Library, the Graduate School of Business Library, and the Faculty of Built Environment Library. It provides all staff and students with information resources using the latest tools and methods to support the University's teaching, learning, and research activities. The NUST Library also offers various services to help its users in their academic and research endeavours. These services include reference assistance, interlibrary loan, document delivery, and an information literacy programme to improve students' research skills. The NUST Library was affected by the COVID-19 pandemic, leading to changes in service delivery. Academic libraries changed their service delivery methods to meet the new demands when teaching and learning were shifted online to curb the spreading of the virus (Chigwada, 2022).

In his study titled "Postgraduate students' perception of the library as an environment for reading, studying and researching at the University of KwaZulu-Natal Pietermaritzburg Campus", Kekana (2016) made it evident that while postgraduate students had high expectations for almost every library service, they had negative perceptions of some services. Various user categories had varying levels of satisfaction. The doctoral students' general

reaction suggested they were satisfied with most offerings. Whether services offered by libraries are used or not largely depends on how users perceive those services. Even though data shows how critical academic libraries are to educational institutions (Wong and Webb, 2011), the study by Matiwane (2017) on user perceptions of education students with regard to the quality of services at the Walter Sisulu University Library found that students were less satisfied with services such as prompt inter-library loans from other libraries, electronic database access, sufficient space, inadequate photocopying facilities, and inadequate computer workstations.

The COVID-19 pandemic significantly impacted the education system, forcing many institutions to adapt to new service delivery methods. The outbreak of the pandemic created a host of challenges, including the imposition of social distancing to prevent the spread of the virus. Furthermore, exchanging physical copies of information sources was considered risky as it could transmit the virus. As a result, physical libraries had to be closed for users (Rafiq, Batool, Ali, and Ullah, 2021) and new forms of library services had to be introduced (Durodolu, Chisita, and Dube, 2021). This was done to ensure continued access to academic information while complying with COVID-19 protocols. According to Molepo and Shokane (2021), academic librarians established book delivery and pickup services at regional offices to improve teaching, learning, and research. Some librarians improved their services by leveraging more cutting-edge technological resources, such as providing additional website content, online access to library guides, and even using artificial intelligence tools such as bots to accommodate library users' demands.

While COVID-19 still exists, it is no longer a pandemic. However, as outlined above, libraries were affected by the pandemic. As such, exploring students' perceptions regarding library services in the post-COVID-19 era is necessary. This research aimed to investigate how the pandemic has affected the use of library services as well as the perceptions of students of the changes made in response to the pandemic, using the NUST Library in Zimbabwe as a case study.

## **1.2 Research problem**

The COVID-19 pandemic significantly impacted library services at educational institutions, including the NUST Library. With the implementation of social distancing measures amidst

the pandemic and the need to minimise physical contact, there was a need for remote access to library resources and student services. COVID-19 thus brought the need for remote access to services and more e-resources, but in doing so the disparities in internet connectivity, remote access, and the digital divide were highlighted. Students value online resources (Salas-Pilco, Yang, and Zhang, 2022). To adapt to students' changing needs, the library introduced new services to address the challenges posed by the pandemic and the Fourth Industrial Revolution. Consequently, it is essential to investigate students' perceptions and use of library services in the post-COVID-19 era at the NUST Library. This study aimed to assess the pandemic's impact on the provision of library services and its effect on students' ability to access resources and services. Furthermore, the study explored students' perceptions of the measures implemented by the NUST Library to ensure their safety while using library resources and services.

While studies (for example, Mgqalelo, 2005; Posey, 2009; Sheeja, 2010; Nzivo and Chuanfu, 2013; Munohsamy, 2016; Udem, Ikenwe, and Ugwuamoke, 2020; and Oche, 2021) have been conducted to examine library users' perceptions before COVID-19, there is a paucity of literature on students' perceptions of library services offered post the pandemic. This study thus sought to address this gap in the literature. The findings of the study can provide insights into the effectiveness of the measures implemented by the NUST Library to provide library services during the pandemic. They can also inform the development of strategies to improve the provision of library services for students in a post-COVID-19 era. Furthermore, findings can assist in identifying areas that need improvement and providing recommendations for future planning of library services at the NUST.

### **1.3 Rationale of the study**

The study aimed to investigate how the COVID-19 pandemic affected the provision of library services at the NUST Library and how students perceived these changes. By exploring students' expectations, service usage patterns, and perceptions of service quality in the post-pandemic era, this research sought to fill a gap in understanding the evolving role of academic libraries in a transformed educational landscape. Furthermore, the study's rationale was grounded in the need to inform future strategies for improving library services and ensuring they meet students' evolving needs. By identifying areas for improvement and assessing the gap between users' expectations and perceptions, the study offers valuable insights for the NUST Library and contributes to the broader literature on library services during and after the

COVID-19 pandemic. The study's rationale also emphasises the importance of student perspectives in shaping the future of library services at the NUST and potentially other academic institutions facing similar challenges. Students are critical stakeholders in the educational process, and their experiences and perceptions of library services can provide essential guidance for improving service delivery and effectively meeting their needs.

## **1.4 Purpose, objectives, and research questions**

This section provides an overview of the study's purpose, objectives, and research questions.

### **1.4.1 Purpose of the study**

The purpose of a study is a statement of "why" the study is being conducted or the aim of the study. It elucidates what the study will do, which ought to reveal the statement of the problem (USC, 2024). The purpose of a study originates from the research topic and distinctly guides the study's development. This study aimed to assess the COVID-19 pandemic's impact on the provision of library services and how it has affected students' ability to access resources and services. Additionally, the study explored students' perceptions of the measures implemented by the NUST Library to ensure the safety of students while using library resources and services.

### **1.4.2 Objectives of the study**

The objectives are in line with the study's purpose and rationale. They were:

1. To identify students' expectations of the quality of services provided by the NUST Library post-COVID-19.
2. To examine how the COVID-19 pandemic has affected students' use of the NUST Library services.
3. To identify students' perceptions of the quality of services provided by the NUST Library post-COVID-19
4. To determine the gap between users' expectations and perceptions of library service quality.

### **1.4.3 Research questions**

In light of the objectives, the following research questions were posed:

1. What are students' expectations of the quality of library services provided by the NUST Library post-COVID-19?

2. How has the COVID-19 pandemic affected students' use of the NUST Library services?
3. What are the students' perceptions of the quality of library services provided by the NUST Library post-COVID-19?
4. What are the gaps between users' expectations and perceptions of library service quality?

### **1.5 Scope and limitations of the study**

The study specifically examined the impact of the COVID-19 pandemic on library services at the NUST Library, focusing on it as a case study rather than conducting a broader analysis of all academic libraries in Zimbabwe. The main purpose of the study was to investigate how the pandemic affected the delivery of library services, access to resources, and student's perceptions of the changes made in response. The study focused on students in the Library and Information Science Department (LISD) at the NUST as they are familiar with the various library services offered and frequently use the library for their practical sessions. Consequently, students not enrolled in library and information science (LIS) courses were excluded from the study. The purpose of the study was to identify areas for improvement, assess the gap between user expectations and perceptions, and propose strategies for enhancing library services to better meet the needs of students in an evolving educational landscape. The researcher did not encounter any issues during data collection.

### **1.6 Definition of terms and concepts used**

The purpose of this section is to define the key terms that are essential for understanding the study.

- **Library services**

According to Law Insider (2024), library services include: the provision of reading materials for easy access, the circulation of reading materials, services to help user's access library materials, educational and recreational audiovisual resources, or a combination of these services. Library services offered to users also include library orientation, reading areas, reference services, interlibrary loan services, online reservations, and information literacy training programmes. Tella (2020) lists the following library services: circulation, reference, online book reservations, book recommendations, printing, photocopying, interlibrary loan,

orientation and information sessions, selective dissemination of information, and audiovisual and multimedia sections.

- **Service quality**

The terms “service” and “quality” combine to form the term “service quality”. Quality refers to the criteria by which something is evaluated relative to other items of a similar kind, while service is defined as “any activity that one party can offer to another”. Service quality describes the outcomes of a service delivery system, linked to customer satisfaction, perceptions, and opinions formed based on various contributing variables and references (Vu, 2021). Service quality reflects a service provider’s capacity to effectively satisfy clients and enhance business performance (Ramya, Kowsalya, and Dharanipriya, 2019). It is determined by comparing customer expectations with actual service delivery (Jeyalakshmi and Meenakumari, 2016). A service that successfully meets clients’ demands and expectations is considered high quality (Sadaf and Rahela, 2019).

- **Student perception**

Student perception refers to how students interpret and understand information or experiences encountered in their learning environment. It can be described as students’ opinions or attitudes toward a particular subject or object (Rizky, 2016) – in this case, library services post-COVID-19. In this study, student perception focuses on students’ views and experiences regarding library services in the post-pandemic context, offering valuable insights into their expectations and satisfaction with these services.

- **User expectations**

Customer expectations encompass everything a customer anticipates from a service, product, or organisation. According to Bayraktar (2020), customers base their expectations on their prior experiences and knowledge, and what they have learnt and experienced.

- **User satisfaction**

The degree to which customers are satisfied with a company’s goods or services is measured by customer satisfaction. Information on customer satisfaction, such as ratings and surveys, can assist a business in deciding how to modify or enhance its goods and services (Bayraktar, 2020).

## **1.7 Organisation of the dissertation**

The dissertation is organised by chapter as follows:

### **Chapter One: Introduction to the Study**

This introductory chapter covered the following areas: background, research problem, rationale of the study, research purpose, objectives, and questions, scope and limitations of the study, and definitions of essential terms used. As with all the chapters in the study, it ends with a summary.

### **Chapter Two: Theoretical Framework and Literature Review**

This chapter thoroughly analyses the body of research on the study's subject. It contains an overview of the pertinent theories, ideas, and empirical studies on the research issue.

### **Chapter Three: Research Methodology**

This chapter outlines the study's methodology. It explains the study's data collection procedures, analysis methods, and research strategy. In addition, the sample size, sampling methodology, and ethical issues are outlined and discussed.

### **Chapter Four: Research Results**

Following the analysis of the collected data, this chapter presents the study's results using tables and figures for clarity.

### **Chapter five: Discussion of Results**

This chapter discusses the study's results in relation to the research questions underpinning the study and the relevant literature. The implications of the findings and their significance to future studies are also explored.

### **Chapter Six: Summary, Conclusions, and Recommendations**

The study's conclusions and recommendations are presented in this chapter, along with suggestions for further research. It begins with a summary of the study and ends with a chapter summary.

## **1.8 Summary**

This chapter provided an introduction to the study the purpose of which was to investigation the impact of the COVID-19 pandemic on the provision of library services at the NUST. The chapter covered the research problem and rationale, the research purpose, objectives, and questions, the study's scope and limitations, and the definitions of essential terms used in the study. It ended with an outline by chapter, of the dissertation. The chapter set the stage for the investigation into the impact of the pandemic on library services at the NUST and students' perceptions and expectations of these changes.

Chapter Two follows and comprises the theoretical framework and literature review.

# **Chapter Two: Theoretical Framework and Literature Review**

## **2.0 Introduction**

A literature review is a survey that collects books, journals, and other relevant resources on a given topic, field of study, or theory to provide a description, synopsis, and critical assessment of academic works. Post et al. (2020) describe a literature review as an evaluation of one or more collections of previously published studies. Its purpose is to keep readers current on the most recent research on a topic and lay the groundwork for future goals, such as funding more studies in the field. An effective literature review gathers information about a particular subject from various sources. It is well written with very little, if any, bias from the author. It is the foundation for a field of study (Cram, Templier, Mathieu, and Pare, 2020). The literature review, as a research approach, greatly aids the conceptual, methodological, and thematic growth of many domains (Snyder, 2019; Hullah and Houston, 2020). To produce good journal articles, academic theses and dissertations, and working papers, students, researchers, or scientists must be able to conduct a rigorous and explicit literature evaluation (Chigbu, Atiku, and Du Plessis, 2023). This chapter thoroughly analyses the body of research on the study's subject. It contains an overview of the pertinent theories, ideas, and empirical studies about the research issue.

## **2.1 Theoretical models for assessing service quality**

This section provides a descriptive analysis of the models used to measure library service quality. This study's main focus is on the LibQUAL model which is based on the SERVQUAL model. The SERVQUAL model provides a "gap analysis" of the quality of service, using Gap 5 (see below).

### **2.1.1 Service quality defined**

Researchers and practitioners agree that service quality is a difficult-to-define; it is an abstract concept that is hard to measure precisely (Bateson and Hoffman, 2011). Advances in quality offer several advantages that can significantly enhance a business's capacity to survive Hollensen (2010). In the literature, addressing customers' needs and expectations and fulfilling their needs and requirements are the main factors defining service quality (Bateson and Hoffman, 2011). According to Eshghi, Roy, and Ganguli (2018), service quality is defined as the overall rating given by the customers of a service. Sadaf and Rahela (2019) define service

quality as a service that satisfies customers' expectations and needs. Service quality, according to Indeed (2023), measures how well an organisation provides services to meet customer demands and expectations.

Several models have been developed to measure the quality of services and user perceptions. The Balanced Scorecard (BSC) model, the European Foundation for Quality Management (EFQM) model, the SERVPERF model, the LibQUAL+™ instrument, SERVQUAL, and the Total Quality Management (TQM) model are a few of the well-known models (Naidu, 2009). These models present various approaches for evaluating and improving customer perceptions and service quality.

### **2.1.2 Service Quality (SERVQUAL) model**

The SERVQUAL model was developed by Parasuraman, Zeithaml, and Berry (1988) and is grounded in the disconfirmation paradigm. The model denotes service quality as the discrepancy between what customers expect from services offered and how they perceive the services received (Zeithamal, Parasuraman, and Berry 1985). The model aims to accurately measure consumer perceptions of service quality, which depend on the gap between expected and perceived service. This gap, in turn, is influenced by factors within the service provider's control, such as service delivery and marketing (Zeithamal, Parasuraman, and Berry, 1990).

According to Parasuraman, Zeithaml, and Berry (1985), the SERVQUAL model was created with 10 service quality dimensions: tangibles, reliability, responsiveness, communication, credibility, security, competence, courtesy, knowing the client, and access. However, some of these dimensions overlapped and were later reduced to five. These dimensions are:

- Tangibles - physical facilities, equipment, and staff
- Reliability - capacity to accomplish services consistently and accurately
- Responsiveness - preparedness to assist library users
- Assurance - acquaintance and courtesy of staff members and their capacity to instigate trust and self-confidence
- Empathy - caring, individualised attention the firm provides to its customers.

A study by Ladhari (2009) found that the SERVQUAL model is an effective tool to measure service quality across various industries. To ensure reliable and valid results, this model's most relevant dimensions must be selected based on the specific service being evaluated.

#### ***2.1.2.1 Gap model of service quality***

Parasuraman, Berry, and Zeithaml (1985) established the Gap model of service quality, which was later refined by Zeithaml and Bitner (2003). Brown and Bond (1995) describe the Gap model as one of the most well-received and heuristically valuable contributions to the services literature. For over a decade, it has provided a foundation for research in services marketing, particularly in hospitality marketing. The methodology identifies four specific gaps that contribute to a fifth gap, which represents the discrepancy between consumer expectations and actual service delivered.

According to Nitecki and Hernon (2000), the SERVQUAL survey instrument is based on the Gap model. It utilises five gaps, namely:

1. The gap between customers' expectations and management's perceptions of these expectations;
2. The gap between management's perceptions of customers' expectations and service quality specifications (service standards);
3. The gap between service quality specifications and actual service delivery;
4. The gap between actual service delivery and what is communicated to customers about it; and
5. The gap between customers' expected services and perceived service delivered.

The Gap model of service quality is depicted in Figure 1 below:

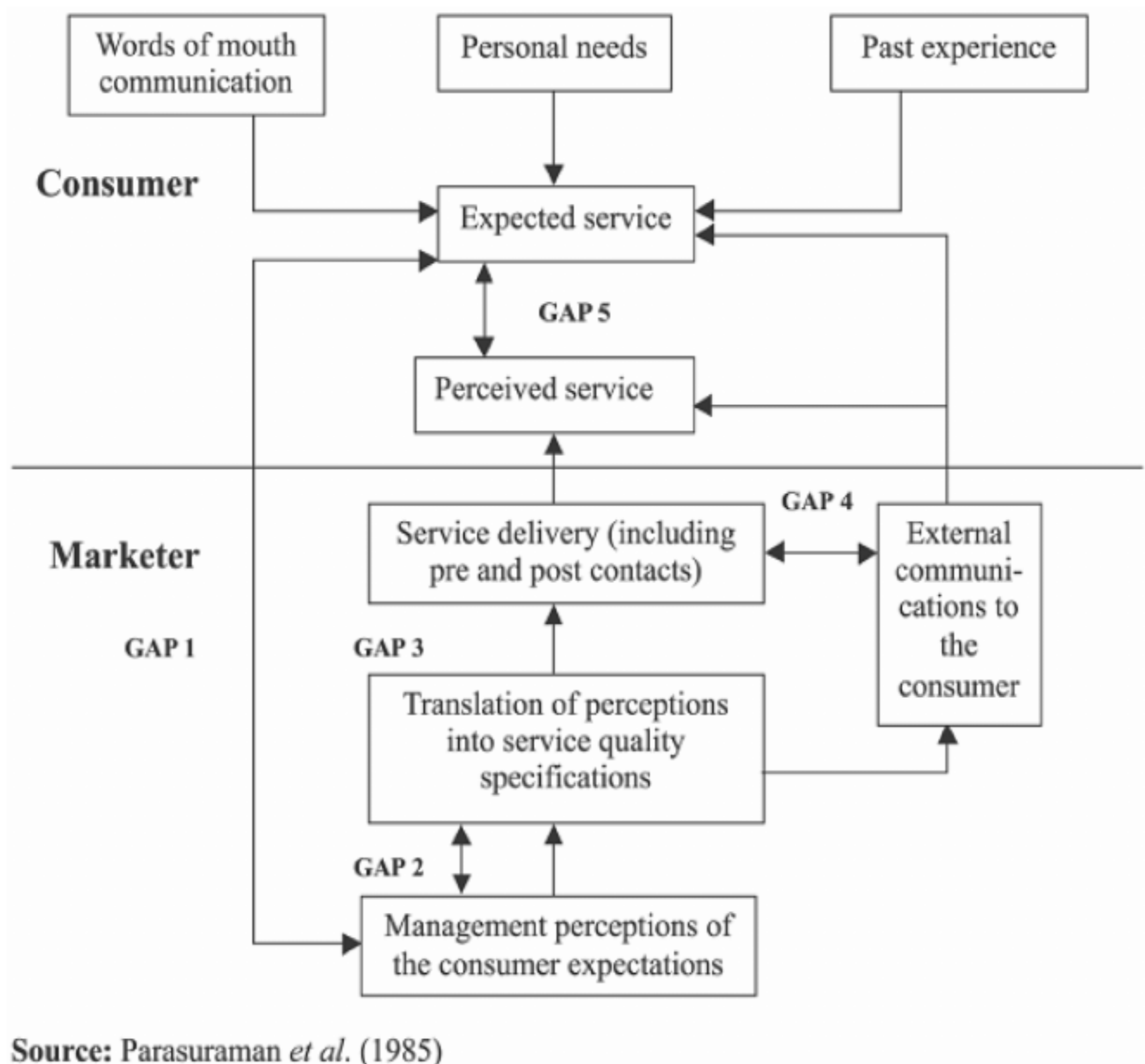


Figure 1: Gap model of service quality

By applying the Gap model, a study can identify particular areas of discrepancy in the service delivery process and establish effective methods to bridge these gaps. This study focused on the fifth gap, which is more customer-oriented (Parasuraman, Zeithaml, and Berry, 1985). The gap represents the disparity between customers' perceptions and expectations (Alsaffar, 2020). These expectations may arise from word-of-mouth communication, storytelling, personal needs, or past experiences. The SERVQUAL measurement instrument, designed to measure this gap, provides the model with a significant advantage in measuring, comprehending, and improving service quality (Gow, 2014).

The Gap model was used in the study to compare students' expectations of library service quality with their perceptions of the services received. It assisted in identifying opportunities for improvement in the service delivery chain and guided the NUST Library to improve its services and effectively meet students' evolving needs. Incorporating this framework into the study design allowed a comprehensive assessment of service quality at the NUST Library post-COVID-19, resulting in actionable insights for improving the library experience for LIS students as well as the broader student body.

### **2.1.3 Library Quality (LIBQUAL) model**

The LibQUAL model, established for libraries by SERVQUAL, served as the foundation for this study. The LibQUAL+™ instrument is derived from the Gap theory of service quality and the SERVQUAL instrument. The SERVQUAL protocol is based on discrepancy theory constructs and is anchored by a single precept: the SERVQUAL instrument measures service quality delivery across the five aforementioned dimensions: reliability, assurance, empathy, responsiveness, and tangibles (Asefeh, Kazempour and Ashrafi-rizi, 2010). According to Cook, Heath, Thompson and Webster (2003), SERVQUAL defines the concept of service quality. LibQUAL is a web-based protocol for assessing the quality of library services and has been utilised in hundreds of various types of libraries worldwide (Thompson, Cook, and Kyrillidou, 2006).

LibQUAL+™ is a popular instrument for libraries to “identify best practices, analyse deficits, and effectively allocate resources” (LibQUAL, 2018). It is used to measure service quality from the users' viewpoint. According to the Association of Research Libraries (2015), LibQUAL was launched in 2000 as an experimental effort to measure perceptions of library services. It is an effective, comprehensive market survey for the context of research libraries; it analyses service quality across various aspects (Cook, et al., 2001). LibQUAL measures three dimensions: Affect of service, Information control, and Library as place (Miller, 2008).

The survey instrument assesses library users' minimal, perceived, and desired levels of service quality across the three dimensions (LibQUAL, 2017). LibQUAL measures library customers' perceptions of service quality and identifies differences between minimum, desired, and perceived service expectations (Bhanu, 2017). Information control refers to how users can access and manage information resources, Affect of service refers to how successfully library workers satisfy users' requirements and expectations, and the Library as place refers to how

welcoming and conducive the physical library setting is to learning. The survey’s three dimensions help in understanding how well students can access and manage information resources. The results from this survey enable academic libraries to better understand their users’ needs and tailor their services accordingly. Furthermore, LibQUAL has demonstrated good reliability and validity across different contexts (Cook and Heath, 2000; Hernon and Calvert, 1996). Table 1 below shows how the three dimensions are linked to the study’s research questions.

Table 1: Relationship between research questions and LibQUAL

RESEARCH QUESTIONS	LINK TO LibQUAL DIMENSIONS
What are student’s expectations of the quality of library services provided by the NUST Library post-COVID-19?	Affect of service, Information control, Library as place
How has the COVID-19 pandemic affected students’ use of services at the NUST Library?	Affect of service . information control
What are the students’ perceptions of the quality of library services provided by the NUST Library post-COVID-19?	Affect of service, Information control, Library as a place
What are the gaps between users’ expectations and perceptions of library service quality?	Affect of service, Information control, Library as place

## 2.2 Review of LibQUAL studies on library services

LibQUAL is known worldwide, widely used, and a standardised instrument for assessing library service quality and collecting user input (Jackson, 2015; Atkinson, 2017). As noted, the LibQUAL+™ instrument measures the quality of services perceived by library users and highlights discrepancies between the minimal, desired, and perceived service expectations (Partap, 2017). According to Ncwane’s (2016) literature analysis, the LibQUAL+™ instrument has been used in many studies worldwide to assess user satisfaction and service quality in academic libraries. Over a thousand libraries have conducted surveys using the instrument, with over 1.5 million users participating (Kyrillidou, 2011). Similarly, the Association of Research Libraries (2015) claimed that “there have been 2,753 institutional surveys, which have been implemented across 1,343 institutions in over 29 countries, 19 language translations, and over 2.1 million respondents”. This section provides an overview of several LibQUAL

studies conducted locally and internationally in academic settings. The studies' findings and their significance are summarised.

### **2.2.1 LibQUAL studies done in Africa on students' perceptions of library services**

Zulu (2022) in his study, assessed the expectations and perceptions of fourth-year law students and their level of satisfaction with the services provided by the Law Library on the University of KwaZulu-Natal's (UKZN) Pietermaritzburg (PMB) Campus. The SERVQUAL model served as a framework for the study, and the LibQUAL+™ questionnaire was used as per SERVQUAL. No sampling was done and all 174 final-year law students enrolled on the PMB Campus in the first semester of 2021 were polled. A total of 103 students answered the questionnaire, yielding a "good" response rate of 59.2%. Discrepancies between expectations and perceptions of library services were discovered in every case. Regarding library service satisfaction, most respondents were satisfied with how they were treated and the overall quality of the services provided. This LibQUAL study highlights the significance of the Library as place dimension in availing physical facilities for library users. The study's findings indicate that user expectations regarding the Library as place dimension were positive, with satisfaction levels ranging from 60% to 65%. Users not only expect pertinent library resources but also a conducive environment for studying, group discussions, writing, and other academic activities.

Khaola and Mabilikoane (2015) conducted a LibQUAL study to evaluate students' perceived levels of service quality, satisfaction with the library, frequency of usage, and potential correlations between these constructs, at the National University of Lesotho (NUL). A sample of 400 students was given self-administered questionnaires to complete in class. Descriptive and inferential statistics were applied to analyse the data. The LibQUAL items' factor analysis produced three factors, as predicted: the Library as place, Information control, and Affect of service. The extent to which library users can easily access and control information was perceived by the respondents to be low, as was the staff's level of service. Additionally, most respondents said they hardly ever utilised the library's website. All characteristics of the quality of library services were strongly and favourably correlated with patron satisfaction. Despite solid correlations between other library service quality indicators and website usage, regression research revealed only a marginally significant association between Information control and library website use. There was no correlation between library usage frequency and satisfaction. According to this study, LibQUAL is applicable in Lesotho and findings suggest that the impact

of the service and Information control aspects of library service quality at NUL need to be improved.

Marowa (2015) conducted a study to determine industrial engineering technology students' perceptions of the services offered at the Doornfontein Campus Library at the University of Johannesburg. SERVQUAL and LibQUAL+™ questionnaires were modified for this purpose. An exploratory factor analysis was used to establish the dimensions of service quality. The paired samples t-test was used to analyse the data using SPSS Version 22 and the discrepancy between the students' perceived services and their expectations was measured. Findings revealed an average negative gap between students' expectations and perceptions in all LibQUAL and SERVQUAL categories. Students' expectations were more significant than their perceptions in every area of service quality. Furthermore, a comparison of all SERVQUAL and LibQUAL characteristics revealed that students' assessments of the quality of the services they received differed. An expectation mean of 4.57 was observed in the Library as place dimension (Marowa, 2015). The findings of the study relate to this dimension of the LibQUAL model, which captures students' expectations and perceptions regarding the library surroundings, space, and conveniences.

Matiwane (2017) conducted a LibQUAL study to determine the expectations and perceptions of student library users regarding the quality of services offered by the Walter Sisulu University Libraries (WSUL) on the Butterworth Campus. The study employed a survey to determine both undergraduate and graduate education students' expectations and perceptions regarding their satisfaction with library services. A modified version of the LibQUAL+™ self-administered questionnaire was utilised to collect data from 200 students. Of these, 12 postgraduate students and 103 undergraduate students responded, yielding a 58% response rate. According to Matiwane (2017), the study results revealed that the highest expectation (94 or 82%) concerned a safe and secure place to study and this was also reflected in their highest perception (78.3%). This finding indicated that a safe and secure environment for studying was crucial for the respondents, and the library was praised for meeting this need. The subsequent most essential expectations (76%) were evenly split between a well-lit library and a quiet study environment.

Parbie, Phuti, and Barfi (2021) conducted a LibQUAL study on users' perceptions of the quality of services at the Sam Jonah Library, University of Cape Coast in Ghana. The LibQUAL+™ questionnaire gathered information from 400 respondents using both open and

closed questions. Data from the questionnaire and descriptive statistics, including frequencies and percentages, were analysed using the Statistical Package for the Social Sciences (SPSS) version 21. Additionally, inferential statistics were employed to determine the correlation between gender and the adequate quantity of library resources. According to the study findings, most respondents indicated that the library had sufficient computers to satisfy their needs. They also confirmed that the library was suitably located for learning and equipped with comfortable tables and chairs for efficient learning. However, postgraduate students did not think the library provided a conducive learning atmosphere. Respondents also noted that the library's printing resources were insufficient. Overall, students' expectations exceeded their initial perceptions of the quality of services provided by the Sam Jonah Library.

Also in Ghana, Baada et al. (2019) conducted a LibQUAL-based study to assess users' perceptions of the quality of public library services in the greater Accra Region. A convenience sampling strategy was used and 180 users of public libraries in the region were surveyed. Interpretive methods were used to analyse the collected data. The findings demonstrated users' dissatisfaction with the depth and quality of current print and electronic library resources, as well as the facilities and equipment. The study revealed that users of public libraries were largely dissatisfied with the quality of service provided across all branch libraries, citing inadequate resources in terms of up-to-date print and electronic reading materials, state-of-the-art infrastructure, and reading spaces that aligned with current trends (Baada et al., 2019).

### **2.2.2 International LibQUAL studies**

In Indonesia, Sayekti et al. (2022) conducted a LibQUAL study to assess library users' satisfaction with the information control system. Forty-nine thousand eight hundred and ninety-two active library users at the Universitas Islam Negeri Sumatera Utara (UINSU) Library in Medan participated in a descriptive survey. Of the total, 100 completed surveys were selected by proportional random sampling. The study demonstrated that the UINSU Library's Information control quality exceeded users' expectations. Respondents viewed the information services as easy to navigate and satisfactory. The survey revealed that the Library used social media, user education initiatives, and exhibitions to promote information services. The findings suggested that the Library must improve the quality of its information services, encompassing information content, access protocols, search speed, user-friendliness, interface, and accessibility from off-campus. Furthermore, to better understand user expectations for

Information control, the Library must regularly conduct service quality evaluations using tools such as LibQUAL.

In a study titled “Analysis (LibQUAL) on loyalty and library satisfaction; a case study in YARSI University Library Service Center”, Huda et al. (2020) analysed several factors influencing user satisfaction and loyalty. These included the impact of information access and instructions (Information control) on user satisfaction; the effect of officer performance (Affect of service) on user satisfaction; and the impact of infrastructure and facilities (Library as place) on user satisfaction. Structural equation modelling (SEM) using Lisrel 8.8 software was employed for data analysis. One hundred and eighty YARSI University students participated in the survey. The study measured the effect size for categorical outcomes using relative risk. The findings suggest that the LibQUAL components directly, significantly, and favourably affect user satisfaction. Additionally, user loyalty is directly, significantly, and favourably influenced by library satisfaction. Furthermore, through user satisfaction, the LibQUAL components have a positive and significant indirect effect on loyalty.

Rilwanu and Maidabino (2020) assessed postgraduate students’ expectations and perceptions of service quality at federal universities in Northwestern Nigeria using the three dimensions of the LibQUAL model. A survey research design was utilised to conduct quantitative research. Four hundred and ten copies of the questionnaire were distributed, and 367 were completed and returned. The acquired data were examined using descriptive statistics, including frequency and percentages. Inferential statistics, specifically Pearson correlation, were used to test the hypotheses using SPSS version 20.0, with a significance level of 0.05. Findings revealed that postgraduate students expect university libraries to provide high-quality services to satisfy their research needs. It was also found that postgraduate students rated the service quality as satisfactory. However, regarding the three LibQUAL dimensions, there was a general need for improvement, as users also held negative perceptions about the quality of services provided (Rilwanu and Maidabino, 2020)

Partap and Rao (2020) conducted a study titled “Measuring users’ perception about library service quality in select university libraries of Haryana and Punjab of States, India: A LibQUAL study”. The study involved 348 participants, with students comprising approximately 75% of the sample. Except for one service – “Library has quiet space for individual activities” – there were negative gaps between the desired and perceived levels of

service across all three LibQUAL dimensions. Nevertheless, it was determined that the two libraries in question were offering users a satisfactory minimum level of service (Partap and Rao, 2020). The services with the widest gaps in both libraries were: “Electronic resources of the library are accessible from my home or office,” “Library has community spaces for group learning and group study,” and “Library staff instils confidence in users” (Partap and Rao, 2020). In light of these findings, the authors noted that the library users were dissatisfied with the services and products provided to meet their desired expectations.

Users’ expectations and perceptions of the quality of library services at Mirpur University of Science and Technology (MUST) were examined by Batool, Zaheer, and Khalid (2020). The LibQUAL+™ instrument, specifically intended to measure users’ perceptions of library service quality, was used to collect data using a questionnaire survey. The results demonstrated that users were not satisfied with the quality of library services and had very high expectations for the services provided. The findings indicated that male students had higher expectations for library services compared to their female counterparts, and students, generally, had higher expectations than faculty members. Participants expected better service, improved staff conduct, a wider variety of library material formats, and improvements to the physical spaces and atmosphere of the library. This study provides a baseline for improving and growing the library’s current offerings. Results regarding the Library as place dimension reveal that the library is not meeting users’ minimum (acceptable) and desired service levels, highlighting the need for improvements to the library infrastructure (Batool, Zaheer, and Khalid, 2020). Regarding the Affect of service dimension, results indicate that users perceived a high minimum (acceptable) service level across the statements relating to courteous, responsive, knowledgeable, caring, and understanding staff and staff that are willing to help users, suggesting that these services were deemed essential and had a significant impact on users. The desired service levels for all statements relating to Affect of service were also rated highly.

Mendoza (2024) conducted a LibQUAL study to assess customer satisfaction levels in terms of Information control, Library as place, and Affect of service. The study also examined users’ satisfaction with the internet/online/web services, circulation, reference, and information services. It defined and evaluated the quality of library services across institutions and developed practical quality assessment instruments for local development, including a user-centred assessment of the library’s collection-related services. According to the study’s findings, students are moderately satisfied with the library’s services across all the LibQUAL

dimensions, including their impact on the learning environment, the library as a physical space, and Information control in a flexible learning environment. Additionally, the findings revealed that while students are only moderately satisfied with internet/online/web services, they are highly satisfied with the library's information, circulation, and reference services.

In China, Gyau, Liu, and Kwakye (2021) evaluated the Jiangsu University Library's service quality from the perspective of 201 international students. The results showed that while the students had high expectations for the services they received, they had mixed perceptions about them across all three dimensions. The most notable deficiencies were found in the Information control and Affect of service dimensions. While the variables related to Information control and Affect of service were rated unfavourably, the Library as place dimension showed positive differences across five service assertions. The three services with the highest ratings (positive gaps) were: "A comfortable and inviting location," "A library space that inspires study and learning," and "A getaway for study, learning, or research". The authors concluded that "the results showed there is the need for immediate attention in those services having negative and wide gap scores," while acknowledging that language barriers may have influenced perceptions of some services (Gyau, Liu and Kwakye, 2021).

The findings of the study by Mallya and Payini (2019) on evaluating students' perceptions of library service quality found disparities between postgraduate (PG) students' expectations and perceptions of service quality at the CRM Library. The study examined how undergraduate (UG) and PG students perceive different library services. To achieve this, the study modified the widely used LibQUAL model by adding 22 items divided into three dimensions as suggested by the model. Data were collected through a questionnaire distributed to final-year students in both UG and PG schools, and the data were analysed using SPSS software. According to the findings, PG students were primarily satisfied with the services offered by the WGSMA library, whereas UG students were only marginally satisfied. The mean scores of UG and PG students differed significantly across all 22 LibQUAL variables. The difference in perceptions between UG and PG students may stem from their varying familiarity with libraries. PG students may have higher information retrieval competence and greater familiarity with the materials available in the library. Regarding the Affect of service dimension, UG students rated related variables highly, indicating satisfaction with the service quality provided by library staff. They particularly appreciated the hospitality of the library staff, emphasising the importance of interactions between library personnel and students in enhancing the overall

library experience. In contrast, UG students expressed dissatisfaction with variables related to the Information control dimension, specifically concerning the availability and accessibility of print and electronic resources. PG respondents, however, rated the Library as place dimension positively, indicating satisfaction with the library as both a physical and virtual space for study.

Dahan et al. (2015) customised a new measuring tool for assessing library service quality and user perspectives based on the LibQUAL model to assess students' perceptions and satisfaction levels with services provided by the University of Mpumalanga Library. A customised survey instrument was developed using the model as a guide, comprising 30 items assessing user satisfaction across four service dimensions, along with five additional items evaluating general customer satisfaction with services. The Cronbach's alpha ranged from 0.813 to 0.942, significantly exceeding the recommended value of 0.7, indicating strong internal reliability of the constructs. According to the study's findings, positive values were observed for both gap analyses across all service quality parameters. Feedback from 382 respondents revealed that users' perceptions of the quality of services received exceeded their acceptable thresholds for both desired and minimal service levels. Overall, respondents expressed satisfaction with the services they received.

Lastly, Kumar and Mahajan (2019) conducted research titled "Library performance assessment of service quality through LibQUAL: The case of Maharshi Dayanand University (MDU), Rohtak in India". The survey results indicated that library users had the highest desired expectations in the Library as place dimension among the three LibQUAL dimensions. Based on mean ratings of 6.45, 6.41, and 6.19, the actual library performance was reported as highest in the Library as place dimension, followed by Information control and Affect of service. However, it was found that the overall Perceived library service quality fell below users' desired expectations. The study employed a printed version of the LibQUAL+™ survey instrument to evaluate the central library's service quality from the users' perspective. Using a stratified random sampling method, 120 questionnaires were distributed, with 94 completed, yielding a response rate of 78.33%. Data analysis was conducted using SPSS and Excel.

## **2.3 Review of LibQUAL studies on gaps between user expectations and user perceptions of library services**

Consumer perceptions of received service are often compared to their expectations to assess service quality. Promoting high-quality services aims to close the gap between customer perceptions and expectations. Known as the Difference Analysis model (Soltanpanah, Khaksar, Ghasri, 2010), SERVQUAL measures the difference between customer expectations and perceptions to determine the quality of the service provided. To deliver better, higher-quality services, service providers must bridge the gap between user perceptions and expectations.

This section reviews the literature on the gaps between user perceptions and expectations. The reviewed literature indicates numerous studies focusing on these gaps, highlighting their role in determining the satisfaction levels among academic library users. The LibQUAL studies discussed aimed to identify the gap between users' perceptions and expectations of service quality, with both international and local studies examined.

### **2.3.1 African studies on gaps between user expectations and user perceptions**

Kekana (2016) investigated postgraduate students' perceptions of the Cecil Renaud Main Library (CRML) on the UKZN's Pietermaritzburg Campus as an environment for studying, reading, and performing research. The study surveyed eight postgraduate diploma students, 65 honours students, 47 master's students, and 49 PhD students from the School of Social Sciences. A customised LibQUAL+™ questionnaire was used to obtain data from respondents, and the gap (Gap 5) was determined using the SERVQUAL model. A total of seven (87.5%) postgraduate diploma students, 48 (73.8%) honours students, 27 (57.4%) master's students, and 23 (46.9%) PhD students participated, yielding an overall response rate of 105 (62.13%). Data were analysed using SPSS24 to determine response frequencies. These findings revealed discrepancies between users' expectations and perceptions of service quality at the CRML, with gaps varying across individual services listed in each questionnaire section. The most problematic services were identified in the areas of access to information, library equipment, library staff, and the Library as place. Key services with significant gaps included appropriate computer workstations, properly functioning computers, an efficient short loan lending service, a quiet library environment, and assistance in staying updated on developments within students' academic fields. Numerous insights were gained from the study. In particular, the study highlighted that postgraduate students' had low perceptions of certain library services but maintained high expectations for almost every service (Kekana, 2016).

Buthelezi (2020) conducted a LibQUAL study titled “Adult users’ perceptions of Nongoma Public Library’s (NPL) services”. The study examined how adult users perceived the library services provided by the NPL in KwaZulu-Natal (KZN). It aimed to determine adult library users’ expectations and perceptions of the services provided and whether gaps existed between these two aspects. A convenience sample of 262 persons was drawn from the 819 registered adult library users. Of these, 113 users completed the questionnaire, yielding a response rate of 43.1%, which was considered acceptable for analysis and reporting. The quantitative study utilised the LibQUAL+™ survey instrument, updated and modified for application in a public library setting. The survey data were analysed using SPSS to determine the frequency of responses, and they were displayed as tables and figures. The survey results affirmed the utility of the LibQUAL+™ instrument in assessing public library services and highlighted its relevance in this context. The findings revealed that users’ expectations generally exceeded their perceptions of the quality of library services. However, most adult users regarded the overall quality of services as good and acknowledged the library’s excellence in service provision.

Ngcobo (2019) examined the quality of services provided by the UKZN libraries from the perspective of library users. The study aimed to identify gaps between user expectations and perceptions of service quality, specifically regarding after-hours services. It was underpinned by two theoretical frameworks: the LibQUAL and the SERVQUAL models. Using a pragmatic paradigm and a mixed methods approach, 366 students, academic staff, and library personnel completed the questionnaire and five individuals were interviewed. The questionnaire had both open and closed questions with the latter predominating. Qualitative data were analysed using NVIVO and quantitative data were processed using IBM SPSS Version 25. The LibQUAL+™ survey instrument was employed to measure the gap between users’ expectations and their perceptions of the actual service provided by the library. The results revealed a modest gap between expectations and perceptions of service quality, although certain significant gaps required the library administration’s attention. The extent of these gaps varied across specific services. Overall, students and staff rated the quality of library services positively, indicating a general sense of satisfaction.

Ncwane (2016) examined the quality of service provided by the Mangosuthu University of Technology’s Natural Sciences Library (MUT-NSL) from the perspectives of library users.

The study aimed to identify the gaps between user expectations and perceptions of service quality and to assess customer satisfaction with library services. The study sample comprised 318 undergraduate students, 164 postgraduate students, and 89 employees. Of the 482 students and 89 staff surveyed, 323 completed the questionnaire, with a response rate of 56.56%. The LibQUAL+™ survey instrument was used to assess the gap between users' expectations for excellence and their perceptions of library services. The questionnaire included both open and closed questions, with the latter being more prevalent. The instrument focused on three key service quality components: Access to information, Personnel service, and Library facilities. The results revealed a minor overall gap between users' expectations and their perceptions of the MUT-NSL's service quality. However, several significant shortcomings were identified, requiring attention from the library administration. The extent of these gaps varied across individual services, highlighting specific areas in need of improvement.

### **2.3.2 International studies on gaps between user expectations and user perceptions**

A study by Chaudhry et al. (2021) at the Punjab Group of Colleges Libraries investigated the gap between the perceptions and expectations of library users regarding service quality. The SERVQUAL instrument was used to measure service quality based on users' perceptions and expectations. The findings revealed that respondents had high expectations for quality library services. However, the overall mean perception score was lower than expected, indicating a mismatch between what users anticipated and what they experienced. The results showed that the gap between users' expectations and perceptions ranged from 0 to -1. Despite this gap, respondents appreciated the library staff's welcoming and caring approach and expressed satisfaction with the staff's ability to provide timely services.

In Iran, Neshat and Dehghani (2013) conducted a study titled "Review of the current gap between clients' expectations and perceptions of received service in national libraries by using a gap analysis model". The study aimed to assess service quality in a national library using user feedback gathered through the LibQUAL survey and a gap analysis methodology. Due to time, financial, and population constraints, a sample of 332 participants was selected. The findings revealed that, in most cases, librarians were unable to meet users' minimum expectations. Users perceived the quality of library resources as being below their minimal expectations for service. The study concluded that the results from the National Library were comparable to findings from university libraries, suggesting that the tool is versatile and reliable across different library contexts. Furthermore, Iran's National Library has been better able to serve its primary user

groups through insights gained from the LibQUAL survey, demonstrating the latter's reliability and effectiveness in various types of libraries.

Ghaedi et al. (2020) examined the gaps between users' expectations and their perceptions of the service quality in the college libraries of Shahid Beheshti University of Medical Sciences. The study employed the LibQUAL model to assess service quality from the users' perspective. The LibQUAL+™ questionnaire was distributed to library users across 13 college libraries' with 119 valid responses collected for analysis. The findings revealed that the college libraries failed to meet both the minimum expectations of their users and their desired service levels, preventing complete user satisfaction. A significant gap between users' expectations and perceptions of service quality was observed. Of the three dimensions, Affect of service was identified as the most fulfilling. Additionally, the study demonstrated a statistically significant relationship ( $P < 0.001$ ) between service quality and satisfaction with the education level of the users. The researchers emphasised the need for university administrators to ensure the equitable distribution of library services across all the colleges.

Mahmood et al. (2020) used the LibQUAL+™ instrument to assess the quality of library services in 22 postgraduate colleges in Punjab Province, Pakistan. A convenience sample of 1,100 participants – 50 from each college – who had utilised library services was recruited, and physical copies of the questionnaire were distributed (Mahmood et al., 2021: 4). The participants included both staff members and students. The results revealed a positive gap across all three LibQUAL dimensions (desired score minus perceived score). The most significant gaps were observed in the Information control dimension in the following areas (as expressed by participants): “I can find information on my own using the library's website”, “I can access the library's electronic resources from my home or office”, “The library has print and electronic journal collections I need for my work”, “The library has electronic information resources I need”, and “The library has modern equipment that lets me easily access the needed information” (Mahmood et al., 2021). The services falling under the Affect of service dimension, which focuses on staff-related services, were perceived less negatively compared to the Library as place dimension, which addresses the physical space and surroundings of the library.

## **2.4 Summary**

This chapter provided an overview of the concept of service quality and discussed the most significant and relevant models used to evaluate it. The focus was on their application in assessing library services. The LibQUAL model was identified as the framework for this research to assess students' perceptions of library services at the NUST Library in the post-COVID-19 context. Relevant LibQUAL studies, both local and international, were reviewed, with a focus on the gaps between user expectations and perceptions, with attention given to their methods, findings, and conclusions.

Chapter Three follows and comprises the research methodology adopted for the study.

## **Chapter Three: Research Methodology**

### **3.0 Introduction**

Methodology is the systematic, theoretical analysis of the methods applied to a field of study. It comprises the theoretical analysis of the methods and principles associated with a branch of knowledge. Typically, it encompasses paradigms, theoretical models, phases, and quantitative or qualitative techniques. According to Chinelo (2016), methodology refers to the systematic and theoretical analysis of the approaches used in a field of study. It includes concepts such as phases, theoretical models, paradigms, and quantitative or qualitative techniques. To be more precise, it focuses on the structured methods researchers use to design a study to ensure accurate and reliable results that address the aims, questions, and objectives of the research (Jansen and Warren, 2023). Goundar (2012) asserts that research methodology is a means for systematically resolving the research problem. It describes how research is conducted as a discipline, emphasising scientific investigation. The traditional classification of research methodologies into qualitative and quantitative categories has created a significant rift among researchers, notably in the social sciences (Onwuegbuzie and Leech, 2005). Methodology, therefore, encompasses the overall research strategy guiding the research process, and aligning the chosen methods with the study's objectives.

This chapter provides an account of the processes and research methodology adopted for this study. It discusses the research paradigm, research design, population and sampling, validity and reliability of the data collected, and data analysis.

### **3.1 Research paradigm**

According to Creswell (2009), the research paradigm refers to a researcher's worldview and approach to conducting research. This study employed the positivist paradigm, which holds that knowledge can be expanded via the scientific process and that an objective reality can be investigated via empirical observation and measurement. According to Bhattacharjee (n.d.), positivism simplifies social reality into concise ideas and principles, adopting a "reductionist" stance. The University of Nottingham (2021) states that positivism is based on measurement and reason, emphasising that knowledge can be revealed through objective, quantifiable observation of an activity, action, or reaction. From a positivist perspective, if something cannot be measured in this way, it cannot be known. Scientific knowledge is derived from

observational data collection, independent of theory and values. This suggests that if something cannot be seen, measured, or quantified, it is considered meaningless.

Quantitative data-collection techniques are directly linked to positivism. One of the primary goals of positivist research is to establish causal relationships or explanatory correlations that ultimately result in the prediction and control of the phenomenon being studied. According to Ryan (2018), positivism aligns with the natural science tenet that objects must exhibit logical relationships within and between themselves, and objective research seeks to uncover these relationships and provide a scientific justification for them. To collect quantitative data to answer research questions and contribute to theory development, positivist researchers employ various techniques, including natural experiments, less rigorous quasi-experiments, large- or small-scale surveys using closed-ended questionnaires, and standardised tests. These techniques produce numerical data, which is then subsequently analysed using descriptive or inferential statistical methods (Alharthi and Rehman, 2016).

### **3.2 Research design**

The research design, also referred to as the research strategy, is a structured plan aimed at answering specific research questions (McCombes, 2019). According to Mweshi and Sakyi (2020), research design involves organising and conducting empirical research using both quantitative and qualitative techniques across cross-sectional and time-series data collection in various locations and timeframes. The research design can be described as the framework of research methods and techniques chosen by a researcher (Question Pro, 2021). This framework enables researchers to focus on methodologies appropriate to their topic and plan their investigations for successful outcomes. The design phase determines which tools to use and how they are applied (Question Pro, 2021).

The research design also outlines the methods and procedures for collecting, analysing, and interpreting data. In other words, the research design, which is part of the research proposal, describes how the researcher plans to address the main problem of the study (Bouchrika, 2024). According to Gimblett (2006), selecting an appropriate research design establishes a logical and coherent framework for integrating various study components to effectively address the research problem. The choice of research design is influenced by the nature of the research

problem, the target audience, and the researcher's experience. A research design has four primary concepts that form the foundation of any research project:

- i. The strategy,
- ii. The conceptual framework,
- iii. The question of who or what will be studied, and
- iv. The tools and procedures for collecting and analysing empirical data (Punch, 2005).

Survey research systematically gathers data on people's preferences, beliefs, and actions through interviews or standardised questionnaires (Bhattacharjee, n.d). Ponto (2015) states that this approach allows for flexible participant recruitment, varied data collection methods, and diverse instrumentation techniques. According to Ponto (2015), survey research often employs quantitative techniques, such as numerically evaluated questionnaire items. Surveys offer several advantages compared to other research methods. For example, they are particularly effective for collecting a variety of intangible data, including political views, opinions on immigration and new legislation, habits (such as drinking or smoking), and factual data (such as income) (Bhandarjee, n.d.). Additionally, survey designs examine the frequency and relationships between sociological and psychological variables, focusing on opinions, preferences, biases, and beliefs (Muchengetwa, 2016).

The survey design was adopted for this study because most studies reviewed in Chapter Two also utilised this approach, for example, Rilwanu and Maidabino (2020) and Matiwane (2017). Furthermore, the use of the LibQUAL+™ questionnaire requires this methodological approach, as LibQUAL-based studies are typically conducted using a survey design.

There are several types of surveys, including cross-sectional designs, longitudinal designs and their variants (such as panel and cohort studies), comparative designs, experimental and related designs (like quasi-experiments), and case study designs (Dangal, 2021). A descriptive survey design, specifically the LibQUAL+™ survey instrument, was used in this study. Descriptive surveys focus on behaviour, attitudes or beliefs to understand the target population's qualities (Lau, 2024). According to QuestionPro (2024), descriptive research is a methodology that describes a characteristic of the population or phenomenon under study. It emphasises the "what" of the research topic rather than the "why" of the subject being studied. Descriptive research can yield essential knowledge and insights on a subject, subsequently informing future studies, programme selection, and policy decisions (Sirisilla, 2023).

This study aimed to explore how students perceive and use library services at the NUST Library in the post-COVID-19 period. Survey research was chosen as the best one-time data-gathering approach to evaluate the current state of affairs. Furthermore, this approach makes it possible to simultaneously compare multiple groups or variables. Data on all variables, gathered only once, support this (Wang and Cheng, 2020). By collecting data at a specific point in time, researchers can compare students' expectations for service quality, their use of library services, and their perceptions post-COVID-19. This approach allows for statistical analysis to identify trends, correlations, and relationships between relevant variables.

### **3.3 Research approach**

Research can be conducted using three general approaches: mixed, qualitative, and quantitative (Creswell and Plano-Clark, 2007; Teddlie and Tashakkori, 2009). In mixed-methods research, the researcher uses quantitative and qualitative methods to complement each other, as each method has limitations when used separately. This study adopted a quantitative research approach. According to Sridhar (2010), quantitative research is the systematic empirical study of phenomena, quantitative data, and their relationships. There are specific steps for choosing a sample and population, establishing an investigational strategy, collecting and analysing data, presenting the results, offering an interpretation, and structuring the research to fit the requirements of either survey or experimental research (Cresswell, 2009).

Measurable data are used in quantitative analysis to establish facts and identify trends in the study (Creswell 2009). Quantitative research focuses on numerical data (such as statistics) to determine the extent of a problem or test a hypothesis. In contrast, qualitative research methods focus on non-numerical data (such as words) to understand the problem or condition under study.

This study employed a quantitative research approach. Quantitative analysis uses measurable data to establish facts and identify trends in research (Creswell, 2009). According to Pawar (2020), quantitative research measures numerical figures, quantities, and amounts, which are widely employed in economics and commerce.

### **3.4 Population and sampling**

This section covers the population and sampling strategy used in the study.

#### **3.4.1 Population**

The set or collection of all the units to which the research findings are applied is called the population (Shukla, 2020). It comprises every unit to which the research findings can be generalised. In other words, the population represents all the units under study with various characteristics relevant to the research. The DLIS students at the NUST comprised the study's population. At the time of the survey, there were 34 postgraduate and 26 undergraduate students in the department (NUST Statistics, 2024). As they use the library for practicals and are familiar with its services, they were identified as the study's target audience; all other students were excluded.

#### **3.4.2 Sampling**

A sample is a portion of the population that fully represents the population, and sampling involves choosing a sample from the population (Shukla, 2020). In survey research, sampling is crucial, particularly for populations too large to be examined in their entirety (Kachoka, 2010). Because investigating the entire population may be impractical, time-consuming, and costly, researchers use samples to gather data and perform analyses that provide insight into the characteristics and behaviours of the larger group (Ponto, 2015). According to Pandey and Pandey (2021), sample designs can be probability or non-probability-based. In this study, the researcher did not use any sampling techniques but instead employed a census to investigate the entire population. Census sampling seeks full coverage, offering a thorough understanding of the traits or behaviours of the entire group, in contrast to sampling techniques that focus on a portion of the population. A census eliminates sampling error and provides data on all individuals in the population (Singh and Masuku, 2016). The researcher used a census survey because, according to Nanjundeswaraswamy and Divakar (2021), this method is appropriate for a very small population, presumably less than 200 or when the study needs to take into account the data for every entity in the population. (Muyembe and Anselemo, 2023).

### **3.5 Data collection techniques**

According to Muhammad (2016), data collection is the systematic process of gathering and assessing information on pertinent variables to test hypotheses, evaluate results, and provide

answers to research questions. There are various methods for gathering data, and they can differ significantly in terms of cost, time, and other resources available to the researcher. Surveys and experiments are two primary methods for collecting data. Observation, in-person interviews, telephone interviews, and mailing questionnaires or schedules are some of the techniques that can be used to gather data for a study (Pandey and Pandey, 2021). In this study, and in line with the LibQUAL framework, the researcher employed questionnaires to collect data.

### **3.5.1 Questionnaire and types of questions**

A questionnaire is a research instrument comprising a series of questions and prompts to gather data from respondents (Muhammad, 2016). According to Sreejesh (2014), a questionnaire is fundamentally a prearranged set of questions given to respondents with explicit guidelines outlining the format and requirements for selection. Questionnaires have both advantages and disadvantages. Rashid (2020) states that the questionnaires are cost-effective, even when addressing a large and widely dispersed population. This approach ensures impartiality and credibility in data gathering by eliminating interviewer bias and allowing respondents to answer questions in their own words. Additionally, respondents are given sufficient time to provide thoughtful answers, which improves the depth and quality of the data collected. A limitation of questionnaires is their typically low response, which might result in potential bias from non-response – a challenge that is difficult to quantify accurately (Rashid, 2022).

The LibQUAL+™ instrument was used to conduct the survey. The 16 core questions in the instrument are categorised under three key areas or dimensions: Affect of service, Information control, and Library as place. As alluded to in an earlier chapter, approximately 1.5 million library users from 1,200 academic institutions worldwide have, since 2000, participated in LibQUAL surveys to assess the quality of their library services (Panahi, Bazrafshani, and Mirzaie, 2023). The questionnaire, in English, has been translated and adapted into several languages, such as Arabic, Urdu, French, Welsh, and Swedish (Association of Research Libraries, 2012), as well as Spanish (Rehman, Kyrillidou, and Hameed, 2017). This has allowed librarians to compare assessment results from other academic institutions and identify best practices in library services worldwide. The survey questionnaire used for this study covered demographic information, library usage patterns, perceptions of library services, expectations, and satisfaction levels. It provided a comprehensive picture of students' experiences with library services post-COVID-19. While comprising, in the main, closed

questions for quantitative analysis, a few open questions were incorporated for qualitative analysis.

The questionnaire comprised five sections and 16 questions. Section A established the demographic characteristics of respondents (gender, age and level of study). Section B established respondents' usage of the NUST Library. Sections C and D contained the 22 "core service items", which measured respondents' expectations and perceptions of service quality through the three above-mentioned dimensions of service quality, namely, Affect of service, Information control, and Library as place (Green and Kyrillidou, 2011). The questionnaire used is available in Appendix 1 and at <https://forms.gle/xwSck5ZYEswnuqSN7> .

Questionnaire questions are commonly divided into two broad categories: closed and open. Responses to open questions are more extended and more in-depth. One word or a few brief sentences can be used to respond to a closed question (Jadoon, n.d.), which makes completing questionnaires more straightforward and quicker. While closed questions require a prepared list of answers (and the respondents to choose from those), open questions allow respondents to answer in their own words. However, Taherdoost (2021) notes that most questions used in surveys tend to be closed.

Closed questions provide various response options, such as rating scales, multiple choice, and checklists. Users may notice some redundancy in the questions, which is required to ensure a valid and trustworthy survey instrument. As noted earlier, the questionnaire used in the current study had some open questions, allowing respondents to respond in their own words. The comments from the students offered sufficient data for qualitative analysis.

### **3.6 Administration of the questionnaire**

The social media platform, WhatsApp, and email were used to administer and distribute the questionnaires electronically. In October 2024, the researcher contacted DLIS lecturers and shared the Google form link, which they then forwarded to the students in the department via WhatsApp groups and email. Data were collected from the 1st to the 16th of October. For every completed questionnaire, an email notification was sent to the researcher, allowing for close monitoring of the responses. Reminders were constantly sent to students to encourage them to complete the questionnaire. In total, 54 students completed the questionnaire.

### **3.7 Response rate**

The Association of Research Libraries (2021) states that it usually takes 10 minutes to complete the 3-scale LibQUAL+™ survey instrument with 22 core questions and some researchers have reported high response rates in these surveys. The response rate is calculated by dividing the total number of survey respondents by the total number of eligible subjects in the sample. For web-based surveys, response rates of more than 30% are considered robust. In this study, out of the 60 participants that were approached, 54 responded to the questionnaire, yielding an excellent response rate of 90%. A high response rate is necessary to ensure that surveys and prospective observational studies produce results that are valid, dependable, and generalisable (Booker, Austin, and Balasubramanian, 2021).

### **3.8 Pre-testing the questionnaire**

A pre-test is "a critical assessment of the survey instrument that will help evaluate if your survey can function efficiently as a trustworthy and valid social science research tool" (Ruel, Wagner, and Gillespie, 2016). It is a crucial component of quantitative studies, as it reflects the careful consideration required to develop effective survey questions. Pre-testing is a critical stage that directly impacts the questionnaire's quality (Taherdoost, 2021). To ensure accurate data collection, conducting a pretest is essential (Hashim et al., 2022).

To ensure the questionnaire was straightforward to answer and to identify any errors or confusion before conducting the study, a pretest was performed on ten journalism and media studies students who were in the same faculty as the DLIS students and who also frequently make use of the library. Google Forms was used for the pre-test to facilitate the distribution of the questionnaires and pre-test forms. Previous research has demonstrated that students are more likely to respond when information is disseminated through reputable sources and the channels of their choice for social media (Ali, 2020). An additional benefit of using an electronically distributed questionnaire is that it provides the researcher with complete access to selected respondents who might otherwise be hard to contact using traditional methods (Sekaran and Bougie, 2016). The pandemic has forced educational institutions to move to online teaching and learning. Thus, it could have been difficult for the researcher to distribute the questionnaire by hand. Google Forms has a function that automatically tabulates results,

which is both time- and cost-efficient. The pretest was conducted on the 26th and 27th of September and no issues were encountered, so no corrections were made to the questionnaire.

### **3.9 Validity and reliability of the instrument**

Evaluating a research instrument's validity and reliability is essential to ensure the accuracy and consistency of the information gathered. The literature has extensively documented the research conducted by the Association of Research Libraries (ARL) and Texas A&M University on the validity and reliability of LibQUAL assessments (Lane et al., 2012). However, only a few reports have been published regarding the reliability and validity assessments and cross-cultural implementation of locally modified versions of the instrument.

Test-retest reliability, internal consistency reliability, criterion-related validity, construct validity, content validity, and inter-rater reliability are some of the techniques used to assess validity and reliability. Reliability refers to the consistency of the instrument's results, and analysis is conducted to examine internal consistency after the instrument has been administered to a test group. Reliability is the degree to which measuring the same population or attribute again yields the same results. Every survey question should, in theory, have the same meaning for all respondents – including those who administer it. Therefore, careful design and refinement are required (Christopher and Udoh, 2020).

Validity refers to whether an instrument measures what it is intended to measure. It is the degree to which the survey question measures the concept it was designed to measure (the project's purpose) (Christopher and Udoh, 2020). This study was validated by using the highly regarded LibQUAL+™ survey instrument, which, as noted, has been used in many other research investigations. Also as noted, to assess validity, the questionnaire was pretested on students who frequently use the library but were not LIS students.

### **3.10 Data analysis**

Data analysis entails examining the tabulated data to uncover underlying truths or meanings. It transforms the collected raw data into concepts and facts that can be understood qualitatively or quantitatively (Dawit, 2020). The analysis characterises and summarises the data, identifies correlations and differences between variables, compares variables, and determines the project's outcomes, regardless of whether the data is qualitative or quantitative. This study

employed quantitative analysis. The researcher used Excel to analyse data and interpret the study's findings. The LibQUAL+™ survey instrument was administered online through Google Forms, which is an online tool for creating “forms” to collect data (Ramaraj, 2019). The collected data could be viewed in a spreadsheet since Google Forms is integrated with Google Sheets. Google Forms generates charts and graphs that display percentages and frequencies. Therefore, the data were analysed using Excel and presented as tables and text.

### **3.11 Ethical considerations**

Given the challenges in conducting research and the importance of ethics in this context, universities make great efforts to guarantee the safety and dignity of study participants (Silverman, 2009). The UKZN Humanities and Social Science Research Ethics Committee aims to ensure that ethical guidelines are followed when conducting research. Approval to conduct the study was requested from the Committee and approval was subsequently granted (see Appendix 2 for the Ethical Clearance Certificate).

Ethical considerations in research are guidelines that influence the study's concepts and methods. Research ethics are essential for maintaining scientific integrity, upholding human rights and dignity, and fostering collaboration between science and society. These guidelines ensure that research participants are safe, informed, and willing to participate. To protect participants from harm, whether intentional or not, the researcher must achieve a balance between pursuing significant research objectives and adhering to ethical research methods and procedures. When gathering information from individuals, scientists and researchers must always follow ethical guidelines (Bhandari, 2021).

The willingness of individuals is essential for conducting surveys and obtaining the primary data required for research. Many countries have implemented laws to ensure the protection of research participants. For example, the UKZN research ethics policy was adopted for this purpose. Researchers must obtain every participant's “voluntary informed consent” (BERA, 2004) before any data collection takes place. An informed consent letter (see Appendix 4) was provided to each participant, outlining the study's ethical principles, confidentiality and anonymity concerns, and the primary goal and objectives of the research. Ethical considerations were adhered to in accordance with UKZN policy.

### **3.12 Summary**

This chapter outlined and discussed the research methodology employed in the study. It described and explained the study's design (survey), population and sampling, data collection instrument (the LibQUAL+™ questionnaire), and distribution. This was followed by a discussion of the response rate achieved and the validity and reliability of the research instrument. The chapter then detailed the data analysis process and concluded with a brief overview of the ethical issues involved in conducting the study.

The presentation of findings is presented in Chapter Four which follows.

## Chapter Four: Research Results

### 4.0 Introduction

This chapter presents the data collected using the LibQUAL+™-based questionnaire. The questionnaire was administered to NUST LIS students registered for the 2024 academic year. The survey was conducted online using Google Forms, and 54 responses out of 60 yielded a 90% response rate. A 90% response rate implies that the audience surveyed was highly engaged and that the respondents felt compelled to offer feedback concerning library services after COVID-19. Each question asked will be briefly described and the results for each question are presented using tables and charts. The chapter begins with findings from Section A: demographic information, followed by Section B: the NUST Library usage, Section C: Perceptions of library services, Section D: Expectations of library services, and Section E: Satisfaction with library services.

*Notes:*

- N = the total number of respondents.
- All percentages are rounded to one decimal point; as a result, total percentages may at times exceed 100%.

### 4.1 Section A: Demographic information

This section contained demographic questions asked to help understand the respondents' backgrounds. Three questions related to gender, age group, and level of study were asked.

#### 4.1.1 Respondents' gender

Table 2: Gender

N=54

GENDER	COUNT	PERCENTAGE
Female	32	59.3
Male	22	40.7
Prefer not to Say	0	0
Total	54	100

The study had more female respondents, 32 (59.3%), than male, 22 (40.7%), as seen in Table 2 above.

#### 4.1.2 Respondents' age group

Table 3 below displays the respondents' age range. Most respondents, 35 (64.8%), were in the 21–30 age range. One of the respondents (1.9%) was over 50, 9.3% (five) were under 20, and 13 (24.1%) were between the ages of 31 and 40.

Table 3: Age groups

N=54

AGE GROUP	COUNT	PERCENTAGE
under 20	5	9.3
21-30	35	64.8
31-40	13	24.1
over 50	1	1.9
<b>Total</b>	<b>54</b>	<b>100.1</b>

#### 4.1.3 Respondents' level of study

Table 4: Level of study

N=54

LEVEL OF STUDY	COUNT	PERCENTAGE
Undergraduate	25	46.3
Postgraduate	29	53.7
<b>Total</b>	<b>54</b>	<b>100</b>

Table 4 shows the level of study of the respondents. There were slightly more postgraduate students, constituting 29 (53.7%) of the total respondents, with undergraduate students comprising 25 (46.3%).

## 4.2 Section B: NUST Library usage

The questions asked in this section aimed to determine the frequency of library usage, what the library is used for, and the overall usability of library services post-COVID-19. The section had a total of four questions, and the findings are presented below.

### 4.2.1 Frequency of library usage post-COVID19

Table 5: Frequency of library usage post-COVID-19

N=54

USAGE	COUNT (RESPONDENTS)	PERCENTAGE %
Daily	3	5.6
Weekly	23	42.6
Monthly	19	35.2
Once a year	4	7.4
Never	5	9.3
	54	100.1

Table 5 summarises the NUST Library usage. Most respondents, 23 (42.6 %), use the library weekly, while 19 (35.2%) respondents use the library monthly. Only a few respondents, three (5.6%) use the library daily, and four (7.4%) once a year. Unexpectedly, five (9.3%) respondents said they never use the library.

#### 4.2.2 What the library is used for post-COVID-19

Table 6: What the library is used for

N=54

STATEMENT	STRONGLY AGREE		AGREE		NEUTRAL		DISAGREE		STRONGLY DISAGREE	
	COUNT	%	COUNT	%	COUNT	%	COUNT	%	COUNT	%
Research and study	12	22.2	35	64.8	6	11.1	1	1.9	0	0.0
Access to books and resources	10	18.5	31	57.4	11	20.4	2	3.7	0	0.0
Online databases and digital resources	10	18.5	31	57.4	11	20.4	2	3.7	0	0.0
Computer and Internet access	9	16.7	26	48.1	16	29.6	2	3.7	1	1.9
Group study and collaboration	7	13.0	32	59.3	13	24.1	2	3.7	0	0.0
Reference services	7	13.0	27	50.0	10	18.5	8	14.8	2	3.7
Study Spaces	6	11.1	33	61.1	13	24.1	2	3.7		0.0
LIS practical's	14	25.9	30	55.6	5	9.3	5	9.3		0.0
Digital literacy support	3	5.6	23	42.6	14	25.9	8	14.8	6	11.1
Library staff expertise and assistance	4	7.4	17	31.5	20	37.0	8	14.8	5	9.3
Quiet spaces	8	14.8	22	40.7	18	33.3	5	9.3	1	1.9
Special collection services	5	9.3	12	22.2	14	25.9	14	25.9	9	16.7
Interlibrary loans	4	7.4	3	5.6	11	20.4	12	22.2	24	44.4

Respondents were presented with a list of possible reasons (statements) for library use and asked to indicate their agreement with the statements on a five-point scale ranging from strongly agreeing to strongly disagreeing. Table 6 shows that most respondents use the library for Research and study with 47 (87%) either strongly agreeing or agreeing, LIS practicals 44 (81.5%), Access to books and resources 41 (75.9%), Online databases and digital resources 41 (75.9%), Group study and collaboration 39 (72.3%), and Study spaces 39 (72.2%).

Significantly fewer respondents use the library’s Special collection services, 17 (31.5%), and Library staff expertise and assistance, 21 (38.9%), while only a very few, seven (13%), use the library for Interlibrary loans.

#### 4.2.3 Usability and Functionality of NUST Library services post-COVID-19

Table 7: Usability and functionality of NUST Library services

N=54

USABILITY AND FUNCTIONALITY OF THE NUST LIBRARY	COUNT	PERCENTAGE
Excellent	4	7.4
Very good	10	18.5
Good	24	44.4
Fair	10	18.5
Poor	6	11.1
Total	54	99.9

When asked how they would rate the usability and functionality of NUST Library services post-COVID-19, most respondents, 24 (44.4%), rated the library’s usability as “Good”. A combined total of 14 (26%) rated the usability of the library as “Excellent” and “Very good”. However, six (11.1%) respondents rated the usability of the library as “Poor”, and 10 (18.5%) respondents perceived the overall usability of the library as “Fair”.

#### 4.2.4 Challenges encountered while using NUST Library services post-COVID-19

Question 2.4, an open one, on the challenges encountered while using the NUST Library services, yielded 29 responses. Of the 29 responses received, eight respondents commented with a “No” and two others commented with a “None”. Verbatim comments from two respondents were:

*“As part-time students, it is hard to access resources, and there is little assistance from staff”.*  
*“Attitude of librarians and closing times”.*

Other comments concerned difficulty accessing dissertations from previous years, problems with slow or little responses from staff members regarding access to resources, problems with access to off-campus resources, the library being too small to accommodate everyone, poor

internet connectivity, and noise in the library. It is evident that most respondents' responses reflected a general discontent with the library's offerings.

### 4.3 Section C: Perceptions of library services

This section aimed to understand the respondents' perceptions of library services post-COVID-19. A five-point Likert scale was used for respondents to state their level of agreement or disagreement with a series of statements concerning the various dimensions of the LibQUAL model. The findings are presented in Tables 8, 9, and 10 below.

#### 4.3.1 Perceptions of respondents concerning Affect of service

Table 8: Respondents' perceptions - Affect of service  
N=54

STATEMENT	RESPONSE									
	STRONGLY AGREE		AGREE		NEUTRAL		DISAGREE		STRONGLY DISAGREE	
	COUNT	%	COUNT	%	COUNT	%	COUNT	%	COUNT	%
The library provides staff members who are:										
Responsive (helpful in addressing your inquiries and providing assistance )	2	3.7	16	29.6	28	51.9	7	13.0	1	1.9
Knowledgeable (they know library resources and services to support users effectively)	7	13.0	16	29.6	25	46.3	5	9.3	1	1.9
Approachable (staff that you feel comfortable approaching with questions or concerns?)	3	5.6	15	27.8	20	37.0	14	25.9	2	3.7
Courteous (Staff that is polite, respectful, and customer-focused?)	5	9.3	17	31.5	23	42.6	8	14.8	1	1.9
Supportive (Staff that support and guide you in navigating the library's services and resources.	4	7.4	10	18.5	26	48.1	7	13.0	1	1.9

Table 8 shows respondents' perceptions of library services regarding the Affect of service dimension. It shows that a significant portion of respondents, 28 (51.9%), are neutral about staff Responsiveness, with only 18 (33.3%) agreeing or strongly agreeing that staff are responsive. Similarly, 26 respondents (48.1%) are neutral about staff Support. The high percentage of disagreement with the aspect of staff being Approachable, 16 (29.6% combined), is cause for concern indicating that many respondents feel uncomfortable approaching staff. While 22 (40.8%) agree and strongly agree that staff are Courteous, a notable 23 (42.6%) remain neutral about this aspect. Overall, high percentages (37% and above) of neutral respondents are noted throughout the statements relating to the Affect of service dimension.

#### 4.3.2 Perceptions of respondents concerning Information control

Table 9: Respondent's perceptions - Information control

N=54

STATEMENT	RESPONSE									
	STRONGLY AGREE		AGREE		NEUTRAL		DISAGREE		STRONGLY DISAGREE	
	COUNT	%	COUNT	%	COUNT	%	COUNT	%	COUNT	%
<b>The library provides :</b>										
<b>Accessible Information (The library ensures that information resources are easily accessible.)</b>	4	7.4	21	38.9	15	27.8	14	25.9	0	0.0
<b>Organised information (The library ensures that information sources are well organised and can be located efficiently)</b>	3	5.6	20	37.0	27	50.0	8	14.8	0	0.0
<b>Search Tools (The library offers user-friendly search interfaces and retrieval tools that enable users to search for and retrieve information successfully)</b>	5	9.3	21	38.9	24	44.4	6	11.1	2	3.7
<b>Diverse Information Sources ( The library provides many information</b>	5	9.3	16	29.6	24	44.4	9	16.7	0	0.0

<b>sources, including books, journals, databases, and digital resources, to support your diverse information needs)</b>										
<b>Information Literacy Support (The library offers support to help you develop information literacy skills, such as evaluating sources and conducting research effectively.)</b>	6	11.1	19	35.2	15	27.8	11	20.4	3	5.6
<b>User Training (The library provides training sessions or workshops to educate you on how to navigate and utilise information resources effectively)</b>	7	13.0	15	27.8	16	29.6	11	20.4	5	9.3

The statements in Table 9 with which the least number of respondents strongly agreeing and agreeing combined were Diverse information sources with a total of 21 (38.9%) respondents, User training, 22 (40.8%) respondents, and Organised information with a total of 23 (42.6%) respondents. The two statements with the most significant number of respondents disagreeing and strongly disagreeing combined were User training with 16 (29.7%) respondents and Accessible information with 14 (25.9%) respondents.

### 4.3.3 Perceptions of respondents concerning Library as place

Table 10: Respondents' perceptions - Library as place

N=54

STATEMENT	RESPONSE									
	STRONGLY AGREE		AGREE		NEUTRAL		DISAGREE		STRONGLY DISAGREE	
	COUNT	%	COUNT	%	COUNT	%	COUNT	%	COUNT	%
<b>The library provides :</b>										
<b>Physical Spaces (The library offers different study spaces, such as quiet study areas and group study rooms)</b>	10	18.5	30	55.6	11	20.4	3	5.6	0	0
<b>Technology Infrastructure (The library provides access to computers and other technology tools to support research and information access.)</b>	6	11.1	32	59.3	13	24.1	3	5.6	0	0
<b>Comfortable Environment (The library creates a comfortable and welcoming atmosphere with seating, lighting, and ambience conducive to study and research.)</b>	6	11.1	23	42.6	21	38.9	3	5.6	1	1.9
<b>Safety and Security (The library ensures users a safe and secure environment by implementing security measures, emergency protocols, and adequate supervision.)</b>	7	13.0	16	29.6	26	48.1	5	9.3	0	0

Table 10 indicates that respondents have different perceptions regarding library services related to Library as place. Most respondents, 40 (74.1%), agreed and strongly agreed that the library

offers different Study spaces, such as quiet study areas and group study rooms. However, 11 (20.4%) were neutral about this aspect. A few respondents, three (5.6%), disagreed that the library provides Study spaces. Similar to the response concerning Study spaces, 38 (70.4%) respondents agreed that the library provides Technology infrastructure, 13 (24.1%) were neutral, and three (5.6%) disagreed. Twenty-nine (53.7%) respondents had positive perceptions about the library providing a Comfortable environment, while a surprising 21 (38.95) were neutral, and four (7.5%) respondents thought the library did not provide a Comfortable environment. Lastly, the highest number of respondents, 26 (48.1%), were neutral about Safety and security in the library. Twenty-three (42.6%) respondents agreed that the library is a safe place, while five (9.3%) perceived the library as unsafe and insecure.

#### **4.4 Section D: Expectations of library services**

This section aimed to understand the respondents' expectations of library services post-COVID-19. As with perceptions (Section C above), a five-point Likert scale was used for respondents to state their level of agreement or disagreement with a series of statements concerning the various dimensions of the LibQUAL model. The findings are presented in Tables 11, 12, and 13 below.

#### 4.4.1 Respondents' expectations concerning Affect of service

Table 11: Respondents' expectations - Affect of service

N=54

STATEMENT	RESPONSE									
	STRONGLY AGREE		AGREE		NEUTRAL		DISAGREE		STRONGLY DISAGREE	
	COUNT	%	COUNT	%	COUNT	%	COUNT	%	COUNT	%
The library provides:										
Responsive Assistance: I expect the library staff to be responsive and helpful when I have inquiries or need assistance locating resources.	39	72.2	12	22.2	2	3.7	0	0	1	1.9
Knowledgeable Support: I expect the library staff to sufficiently understand the library's services and resources to provide accurate and helpful guidance.	41	75.9	11	20.4	1	1.9	1	1.9	0	0
Approachable (staff that you feel comfortable approaching with questions or concerns?)	39	72.2	13	24.1		0.0	1	1.9	1	1.9
Courteous Interactions: I expect the library staff to engage with me politely and respectfully, creating a positive and welcoming environment.	37	68.5	15	27.8	1	1.9		1.9	1	1.9
Personalised Support: I expect the library staff to tailor their assistance to meet my specific needs and preferences to improve my user experience.	37	68.5	15	27.8	0	0.0	1	1.9	1	1.9

The results presented in Table 11 demonstrate that most respondents had high expectations for the different statements concerning the Affect of service dimension. All statements received high levels of agreement (both agree and strongly agree), with 94.4% or more of respondents doing so. Concerningly, a small percentage (3.7% or less) of respondents disagreed with the statements or were neutral.

#### 4.4.2 Expectations of respondents concerning Information control

Table 12: Respondents' expectations - Information control

N=54

STATEMENT	RESPONSE									
	STRONGLY AGREE		AGREE		NEUTRAL		DISAGREE		STRONGLY DISAGREE	
	COUNT	%	COUNT	%	COUNT	%	COUNT	%	COUNT	%
<b>The library provides:</b>										
<b>Accessible Resources: I expect the library to provide easy access to a wide range of information resources, including books, journals, databases, and digital materials.</b>	30	55.6	11	20.4	1	1.9	2	3.7	10	18.5
<b>User-Friendly Search Tools: I expect the library to offer intuitive search interfaces and tools that efficiently discover relevant information.</b>	28	51.9	14	25.9	1	1.9	2	3.7	8	14.8
<b>Well-Organised Collection: I expect the library to maintain a well-organised and structured collection of resources to streamline the information retrieval process.</b>	28	51.9	14	25.9	0	0.0	4	7.4	8	14.8
<b>Updated and Diverse Materials: I expect the library to regularly update its collection with current and diverse materials to meet various academic and research needs.</b>	29	53.7	11	20.4	3	5.6	3	5.6	8	14.8
<b>Interlibrary Loan Services: I expect the library to provide interlibrary loan services to access materials unavailable in the library's collection.</b>	24	44.4	10	18.5	3	5.6	5	9.3	4	7.4

<b>Information Retrieval Assistance: I expect the library to provide information retrieval and navigation assistance to help users locate desired materials efficiently.</b>	31	57.4	10	18.5	2	3.7	3	5.6	8	14.8
<b>User Training Programs: I expect the library to conduct training programs or workshops to educate users on effectively utilising information resources.</b>	26	48.1	0	0.0	16	29.6	6	11.1	6	11.1

The results depicted in Table 12 show that respondents have high expectations regarding the NUST Library providing Accessible resources, User-friendly search tools, and Well-organised collections, with over 75% agreeing or strongly agreeing. A notable 76% of respondents either strongly agreed or agreed that the library should provide easy access to a wide range of information resources. Furthermore, 42 (77.8%) respondents either strongly agreed or agreed that intuitive search interfaces are essential for efficiently discovering relevant information. The importance of a Well-organised collection is stressed, as 41 (75.9%) respondents agreed that the library should maintain structured resources to streamline information retrieval. Updated and diverse materials are similarly valued, with 29 (53.7%) respondents strongly agreeing on the need for current and diverse materials and 11 (20.4%) agreeing. The provision of Interlibrary loan services is expected by 34 (62.9%) of respondents, and 41 (75.9%) either strongly agreed or agreed that libraries should provide Information retrieval assistance. Furthermore, 26 (48.1%) expect User training programmes to educate them on effectively utilising information resources. High expectations, that is high levels of agreement, are notable throughout all the statements.

#### 4.4.3 Expectations of respondents concerning Library as place

Table 13: Respondents' expectations - Library as place

N=54

STATEMENT	RESPONSE									
	STRONGLY AGREE		AGREE		NEUTRAL		DISAGREE		STRONGLY DISAGREE	
	COUNT	%	COUNT	%	COUNT	%	COUNT	%	COUNT	%
<b>The library provides:</b>										
<b>Comfortable Study Spaces: I expect the library to provide comfortable and conducive study areas that cater to various study preferences and needs.</b>	24	44.4	18	33.3	0	0.0	5	9.3	4	7.4
<b>Physical Spaces (The library offers different study spaces, such as quiet study areas and group study rooms)</b>	28	51.9	12	22.2	12	22.2	4	7.4	8	14.8
<b>Safe and Secure Environment: I expect the library to prioritise safety and security measures to ensure a secure environment for all users.</b>	24	44.4	17	31.5	1	1.9	4	7.4	8	14.8
<b>Technology Access: I expect the library to offer access to modern technology tools, such as computers, printers, and scanners, to support research and learning.</b>	28	51.9	12	22.2	5	9.3	2	3.7	7	13.0

Table 13 reveals a strong expectation on the part of respondents for the library to provide Physical and Comfortable study spaces, with 40 (74.1%) and 42 (77.7%) respondents agreeing and strongly agreeing, respectively. Moreover, 40 (74.1%) of respondents agreed and strongly agreed that libraries should offer Technology access. A Safe and secure library environment is

also important, with 41 (75.9%) respondents either agreeing or strongly agreeing with the statement. However, several respondents remained neutral, while as much as 22.2% of respondents either disagreed or strongly disagreed with the statements. Overall, respondents had high expectations with all the statements concerning Library as place, with 74% of respondents and above agreeing or strongly agreeing with what they expect from the library.

#### 4.5 Section E: Satisfaction with library services

This section comprised one closed question and two open ones.

##### 4.5.1 Satisfaction with the overall quality of library services

In the first question, respondents were asked how satisfied they were, overall, with the quality of services provided by the NUST Library post-COVID-19.

Table 14: Respondents' satisfaction with the overall quality of library services

N=54

OVERALL SATISFACTION WITH QUALITY OF LIBRARY SERVICES	COUNT	PERCENTAGE
VERY SATISFIED	6	11.1
SATISFIED	27	50.0
NEUTRAL	19	35.2
VERY DISSATISFIED	2	3.7
TOTAL	54	100

Table 14 shows that half of the respondents, 27 (50%), were satisfied with the quality of services provided by the NUST Library. Six (11.1%) respondents were very satisfied, while 19 (35.2%) were neutral, and two (3.7%) were very dissatisfied with the services provided.

##### 4.5.2 Further comments on NUST Library services

In the first of the two open questions, respondents were asked if they had further comments on the NUST Library services. Only 19 of the 54 respondents gave a response. A summary of the responses is presented below:

- \* Infrastructure needs to be improved
- \* No group discussions inside the library should be allowed (disturbs other students)
- \* Library is “lagging”

- \* Library has insufficient computers (three respondents)
- \* Little assistance from staff and unresponsive staff (three respondents)
- \* Slow Wi-Fi and internet (four respondents)
- \* Library does not accommodate the whole university
- \* Library resources are hard to navigate
- \* Library is too small – insufficient space for seating and study (three respondents)
- \* Lack of off-campus e-resources.

As is evident from the above, physical space, IT, and staffing issues were highlighted by the 19 respondents.

#### **4.5.3 Specific areas falling short of expectations, aspects not meeting initial perceptions and impact on overall experience**

The second open question was multi-faceted and read as follows: “Are any specific NUST Library services areas falling short of your expectations post-COVID-19? What aspects did not meet your initial perception, and how did that impact your overall experience?”

A range of comments were received and some are reported verbatim below:

- \* *“Access to e-resources fell short of my expectations”*
- \* *“I expected access to resources to be very easy so that we can access them from the comfort of our homes”*
- \* *“Off-campus e-resources inaccessible”*
- \* *“I expected library e-resources to be easily accessible but the struggle continues”.*

Respondents pointed out critical areas for improvement, even though several said they had no problems or were happy with the services. Information access issues were identified as crucial. Some respondents again raised the issue of group discussions in the library disturbing other students, highlighting the need for online access and designated quiet spaces. Poor internet connectivity and the need for more computers were again cited in several comments, as were unresponsive staff and the need for more accessible resources.

## 4.6 Gap between expectations and perceptions

Users' expectations and perceptions of service quality are quantified in this section. One of the key objectives of the study, and in line with the Gap theory of service quality, was to determine the gap between users' expectations and perceptions of service quality at the NUST Library. The researcher followed the methodology used in Simba's (2006) study to calculate the gaps: "The positive and negative responses, namely, strongly agree and agree, disagree and strongly disagree, are combined respectively to form one positive (agree) and negative (disagree) response". The "agree" total of perceptions was subtracted from the "agree" total of expectations to find the difference between the expectations and perceptions categories. The higher the number in the "agree" column in the "difference" column, the greater the gap is, the lower the number, the smaller the gap.

### 4.6.1 Gap between expectations and perceptions concerning Affect of service

Table 15: Gap between expectations and perceptions - Affect of service

N=54

STATEMENT	RESPONSE									
	EXPECTATIONS			PERCEPTIONS			DIFFERENCE			
Statements	Agree	Neutral	Disagree	Agree	Neutral	Disagree	Agree		Neutral	Disagree
The library provides staff members who are :	count	count	count	count	count	Count	count	%	count	count
<b>Responsive</b>	51	2	1	18	28	8	33	61.1%	-16	-7
<b>Knowledgeable</b>	52	1	1	23	25	6	29	53.7%	-22	-5
<b>Approachable</b>	52	0	2	18	20	16	34	63.0%	-18	-14
<b>Courteous</b>	52	1	1	22	23	9	30	55.6%	-21	-8
<b>Supportive</b>	52	0	2	14	26	8	38	70.4%	-14	-6
<b>TOTAL</b>	<b>259</b>	<b>4</b>	<b>7</b>	<b>95</b>	<b>122</b>	<b>47</b>	<b>164</b>		<b>-91</b>	<b>-40</b>

According to the results depicted in Table 15 regarding the Affect of service dimension, there is a significant gap between user expectations and perceptions for every service attribute, with all gaps being over 53.7%. For every statement respondents' expectations significantly

exceeded their perceptions. The following three services had the highest discrepancy between agreement for expectations and perceptions:

- The library provides responsive staff members, 33 (61.1%)
- The library provides approachable staff members, 34 (63.0%)
- The library provides supportive staff members, 38 (70.4%).

#### 4.6.2 Gap between expectations and perceptions concerning Information Control

Table 16: Gap between expectations and perceptions - Information control

N=54

STATEMENT	RESPONSE									
	EXPECTATIONS			PERCEPTIONS			DIFFERENCE			
The library provides :	Agree	Neutral	Disagree	Agree	Neutral	Disagree	Agree		Neutral	Disagree
<b>Accessible Resources</b>	41	1	12	25	15	14	16	29.6%	-16	-2
<b>Search Tools</b>	42	1	10	26	24	8	16	29.6%	-25	2
<b>Organised Collection</b>	42	0	12	23	27	8	19	35.2%	-27	4
<b>Diverse Materials</b>	40	3	11	21	24	9	19	35.2%	-27	2
<b>Information Retrieval Assistance</b>	41	2	11	25	15	14	16	29.6%	-17	-3
<b>User Training Programs</b>	26	16	12	22	16	16	4	7.4%	-32	-4
<b>TOTAL</b>	<b>232</b>	<b>23</b>	<b>68</b>	<b>142</b>	<b>121</b>	<b>69</b>	<b>90</b>		<b>-144</b>	<b>-1</b>

Table 16 outlines the gaps between user expectations and perceptions regarding the Information control dimension. The most notable gaps (that is, the most significant discrepancies between agree for expectations and agree for perceptions) are apparent in the following two services:

- The library provides an Organised collection, 19 (35.2%)
- The library provides Diverse materials, 19 (35.2%).

### 4.6.3 Gap between expectations and perceptions concerning Library as place

Table 17: Gap between expectations and perceptions - Library as place

N=54

STATEMENT	RESPONSE									
	EXPECTATIONS			PERCEPTIONS			DIFFERENCE			
	Agree	Neutral	Disagree	Agree	Neutral	Disagree	Agree	Neutral	Disagree	
<b>The library provides:</b>										
<b>Physical Spaces</b>	40	12	12	40	11	3	0	0.0%	1	9
<b>Comfortable Study Spaces</b>	42	0	9	29	21	4	13	24.1%	-21	5
<b>Technology Access</b>	40	5	9	38	13	3	2	3.7%	-8	6
<b>Safe and Secure Environment</b>	41	1	12	23	26	5	18	33.3%	-25	7
<b>TOTAL</b>	163	18	42	130	71	15	33		-53	27

The discrepancies between user expectations and perceptions of the Library as place dimension are illustrated in Table 17. There is no difference in agreement regarding Physical spaces as the difference is 0%, that is, expectations and perceptions about Physical spaces align. The most significant gaps are found in Comfortable study spaces, with a 24.1% gap and a Safe and secure environment with a gap of 33.3%.

### 4.7 Summary

This chapter included text and tables presenting the answers to each question in the survey questionnaire. The data were primarily quantitative. The chapter began with findings from Section A on demographic information, followed by Section B on the NUST Library usage. Sections C and D presented findings on the expectations and perceptions of library services across the three service quality dimensions: Affect of service, Information control, and Library as place. Findings on user satisfaction with library services were also outlined, and lastly, results regarding the gap between expectations and perceptions were provided.

Chapter Five follows; it discusses the results presented above.

## **Chapter Five: Discussion of Results**

### **5.0 Introduction**

This chapter discusses the findings regarding the research problem in light of the research objectives and the literature reviewed in Chapter Two. The study aimed to assess the quality of services provided by the NUST Library in the context of the post-COVID-19 pandemic. The pandemic considerably altered the educational landscape, prompting changes in how libraries provide their services. Libraries shifted to a digitally-focused approach to service delivery, and this shift created a need to evaluate the impact of these changes on users' perceptions and expectations regarding the services offered. The objectives of the study were:

1. To identify student's expectations of the quality of the services provided by the NUST Library post-COVID-19.
2. To examine how the COVID-19 pandemic has affected students' use of the NUST Library services.
3. To identify students' perceptions of the quality of services provided by the NUST Library post-COVID-19.
4. To determine the gap between users' expectations and perceptions of library service quality.

The study findings are discussed in line with the research objectives, emphasising how the transition to the post-COVID era has affected students' engagement with library services. The findings related to respondents' demographics, their usage of the NUST Library services, their satisfaction levels, and their expectations and perceptions of the quality of services will be discussed. This will be followed by a discussion of the gaps between expectations and perceptions. In terms of the latter, the researcher kept in mind that the gap between expectations and perceptions is considered significant if the difference exceeds 25% and insignificant if it is below 25% (Simba, 2006).

### **5.1 Demographic information**

This section discusses findings related to the respondents' demographics, namely, gender, age group, and level of study.

### **5.1.1 Respondents Gender**

Of the 60 registered students in the DLIS, 54 students completed the questionnaire, of which the majority were female, 32 (59.3%) and 22 (40.7%) male. The researcher could not obtain the gender statistics for postgraduate students, but there were more female undergraduates than males. These findings are similar to those of Kekana (2016), who had more females (60%) than males (40%). In Udem, Ikenwe, and Chinenye's study on undergraduates' perceptions of library service quality, 56.3% of respondents were female and 43.7% male. They assumed that female respondents visited the library more frequently than males. Danbabale's (2015) study on gender and the use of library resources, found no significant difference between male and female use of the library. The results explicitly showed that the gender difference in accessing information materials in the library is insignificant because both males and females actively use the library. The current study's findings suggest that more females were enrolled in the LIS programme than males.

### **5.1.2 Respondents' age group**

As illustrated in Table 3, the majority of respondents, 40 (74.1%), were between the ages 19 and 30 years; as such, they can be categorised as Generation Z, born between the mid-to late-1990s and 2010s. According to McKinsey (2024):

Generation Z refers to people born between 1996 and 2010. They are the second-youngest generation, between millennials and Generation Alpha. The digital age, climate anxiety, a shifting financial landscape, and COVID-19 have shaped Gen Z's identity. They are known as 'digital natives – the first generation to grow up with the internet.

This implies that the Generation Z is digitally literate and generally familiar with digital platforms and technology. In the current study, no issues were reported regarding accessing the questionnaires. The younger demographic is expected to consist primarily of undergraduate students, with a few postgraduate students, as students in Zimbabwe typically start university at 19-20 years old.

### **5.1.3 Respondents' level of study**

The findings reveal that 29 (53.7%) respondents were postgraduate students, making up the largest group, while 25 (46.3%) were undergraduates. This aligns with the university statistics on postgraduate and undergraduate registration. The higher number of postgraduate students

reflects a growing emphasis on advanced degrees in the job market, indicating a broader societal demand for higher education qualifications.

## **5.2 NUST Library usage patterns**

The questions in Section B aimed to understand respondents' frequency of library use, what they use the library for, and the overall usability of library services post-COVID-19. The section had four questions, and they are discussed below. This section relates to the study's second objective: "To examine how the COVID-19 pandemic has affected students' use of the NUST library services".

### **5.2.1 Frequency of use of library resources post-COVID-19**

Findings in Table 5 reveal that the highest number of respondents, 23 (42.6%), use the library weekly followed by 19 (35.2%) who use the library monthly. Only three (5.6%) respondents use the library daily and four (7.4%) use the facility once a year. Unexpectedly, five (9.3%) respondents said they never use the library. These findings are contrary to the findings by Buthelezi (2020), which revealed that most respondents, 101 (89.4%), use the library once a month or more. In the current study, there is a mix of frequent and infrequent library users. The 23 (42.6%) respondents who visit the library once a week, reflect a relatively high level of engagement with library resources. It suggests that these respondents value the library's services and appreciate their importance in assisting with academic work post-pandemic.

It is perhaps not unsurprising that only 5.6% of respondents visit the library on a daily basis. This low daily frequency could be due to the distance (approximately 6.3 km). This distance could be a significant barrier to more frequent library use, especially in the post-COVID environment, where users have developed a dependency on digital resources and services. This is reflected in statements relating to human interactions, for example, findings in Table 5 reveal that Interlibrary loans has a low percentage of use with only seven (13%) respondents agreeing and strongly agreeing that they use the library for this purpose. Thus, the shift to digital-centric services has changed how students perceive physical library visits, leading to limited interactions with staff members. This physical "obstacle" might restrict library resource availability and lessen the library's appeal and visibility to particular respondents.

The fact that five (9.3%) respondents said they never use the library is an unexpected statistic and may require further investigation, considering that libraries are essential information hubs. This finding is distressing, bearing in mind that the library is an essential source of information and that LIS students need to access library resources in terms of the practical component of some of their courses.

### **5.2.2 Library services used post-COVID-19**

According to the findings in Table 6, the vast majority of respondents, 47 (87%), use the library for Research and study. This is followed by 39 (72.3%) respondents using the library for Group study and cooperation, and the same percentage (72.3%) using the library as a Place to study. These findings suggest that respondents perceive the library as a physical space promoting their collaboration and learning needs. This aligns with the Library as place dimension of the LibQUAL framework, which assesses how users view the physical environment of the library and its role in promoting learning.

As alluded to earlier, the results demonstrate that respondents utilise the library less often for services requiring interaction with library staff, such as Interlibrary loans 10 (13%) and Staff assistance and expertise 21 (38.9%). The comparatively low use of library staff for assistance could indicate that respondents are comfortable with and confident in using library resources independently. However, the high percentage of respondents remaining neutral with regard to how they perceive library staff members as reflected in Table 8 might be why only a few respondents use the library for Staff assistance and expertise. While the results suggest that respondents might not be making the most of the human interaction-based services offered by the library, the relatively high percentage of disagreement (29.6%), with the statement concerning library staff being Approachable, indicates that respondents feel uncomfortable approaching staff in the post-pandemic era.

The findings show that Interlibrary loans, 10 (13%), is the most underutilised service in the library, suggesting that users need to be made aware of the service and how it works. Contrary to this study's results, Kaapo (2021) revealed that respondents were aware of interlibrary loan facilities. Furthermore, the findings indicate that respondents believe the library to be a reliable source of information based on their use of Online databases and digital resources, 41 (75.9%) and their Accessing books and materials, 41 (75.9%). The high use of books and materials accentuates the continual importance of physical resources, implying that while digital services

and resources became prominent during COVID-19, users still view physical collections as necessary in their academic endeavours post-pandemic. In a similar vein, Motiang, Wallis, and Karodia (2014) in their study on users' satisfaction with library services rendered at the Medunsa Campus of the University of Limpopo, found that most users used the library to access books and did so weekly, which aligns with the current study's findings.

### **5.2.3 Usability and functionality of NUST Library services post-COVID-19**

Before COVID-19, library services were essentially characterised by traditional service delivery, where physical books and other materials, physical interactions, and group study spaces were the chief means of delivering services. The pandemic necessitated the adoption of the Fourth Industrial Revolution to deliver library services. According to Rafiq and Batool (2021), COVID-19 sped up academic library technology acceptance and usage among library professionals and users. In this transformation, many changes happened, and users might perceive these changes differently, hence the need to understand the usability and functionality of the NUST Library post-pandemic.

Question 2.3 asked respondents to rate the overall usability and functionality of the library post-COVID-19. As reflected in Table 6, 24 (44.4%) respondents were generally satisfied with the usability of the library rating it as "Good". This favourable outcome suggests the library has met its users' basic usability requirements, indicating a positive perception. Swapna, Jagdish, and Manjula (2017) studied users' perceptions and expectations at the Mysore University Library. It was found that 37% of the respondents gave the library an average rating, while 32% rated the services rendered by the library as excellent. However, 10 (18.5%) respondents evaluated the usability of the library as "Fair," and six (11.1%) categorised it as "Poor". There is thus a relatively significant portion of users who perceive the library's resources or services as insufficient in meeting their needs. This finding is especially significant in light of the transformations that academic libraries experienced during the pandemic. The usability ratings provide valuable insights into user opinions and experiences of library services post-COVID-19. While the respondents were not asked why they rated the library as they did, there could be several reasons why the six (11.1%) respondents rated the usability of the NUST Library as poor, including a lack of awareness. Eke's (2020) study, aimed at measuring the usability of library services, revealed that user education, perceptions, lack of adequate spaces, quality of services, lack of library and information skills, and computer literacy were significant factors affecting library services usability. The research conducted by Victor and Biokuromoye

(2014) examined the elements influencing undergraduate students' utilisation of library resources and services at Niger Delta University in Bayelsa State, Nigeria. The results indicated that subpar service quality adversely impacted library usage. Additionally, it was highlighted that insufficient space within the library and a lack of user education are significant obstacles hindering effective use of the library.

### **5.3 Perceptions and expectations of NUST Library Services**

The COVID-19 pandemic has significantly transformed students' perceptions of library services, particularly as online learning and digital resources have become essential. With physical libraries closed during lockdown periods, students increasingly relied on online materials, subsequently modifying their expectations regarding library services. Unfortunately, there is a paucity of literature on how students expect and perceive library services in the post-COVID-19 context (a paucity that the current study attempted to address). Students expect robust digital access to library resources, as they prefer the convenience of studying autonomously from various locations (Okonoko, Abba, and Arinola, 2020). As explained in the questionnaire, "*Expectations*" refers to what you want or expect in terms of services provided by the library, and "*Perceptions*" refers to your experience with the services the library now offers". Sections C and D of the questionnaire listed various statements related to the quality of services provided by the NUST Library. Respondents were asked to indicate how they perceived or expected library service under three dimensions, namely, Affect of service, Information control, and Library as place. The findings relating to each dimension are discussed below, followed by a discussion of the gap between expectations and perceptions.

#### **5.3.1 Affect of service**

The statements under this dimension focused on the quality of the services provided by the library staff. Six statements concerning users' interactions with staff were used to operationalise Affect of service, the focus being on "the human dimension of service quality" (ARL, 2012). Users' perceptions and expectations of staff members' utility, competence, reliability, and concern are included in this dimension. Findings related to this "human dimension of service quality" are discussed below.

##### ***5.3.1.1 Perceptions of library services - Affect of service***

According to the survey results in Table 7, there is a worrying pattern in how respondents perceive the services provided by the NUST Library in terms of the Affect of service

dimension. While 18 (33.3%) respondents agreed and strongly agreed with the statement that “Libraries provide responsive staff members”, a substantial percentage (51.9%) remained neutral. This neutrality suggests an uncertainty toward staff engagement despite such engagement being essential in ensuring a positive library experience. A similar trend emerged regarding staff Approachability, with 16 (29.6%) respondents disagreeing and strongly disagreeing that they felt comfortable asking library staff for help, and 20 (37%) remaining neutral in this regard. Neutral responses are noted throughout the dimensions, with percentages ranging from 37% to 52%. These findings regarding neutrality resonate with Zulu’s (2022) study, which also showed high neutrality responses in the Affect of service dimension, ranging from 23.3% to 37.9%. The high number of respondents remaining neutral points to a missed opportunity by the library to engage with users and offer the (human) support they require. The neutral responses together with the relatively high percentage of respondents either disagreeing or strongly disagreeing with the statements suggest a negative attitude toward library staff on the part of respondents. According to Buthelezi (2020), library staff are expected to provide high-quality service to their users, and library users expect dedicated and professional staff. However, this does not appear to be the case in the current study, as reflected by the low perceptions.

These findings are contrary to what other studies have revealed concerning the Affect of service dimension. For example, in Ncwane’s (2016) study, students’ perceptions regarding staff members were high, ranging between 70% and 80%. The respondents’ low perceptions regarding library staff members when compared to other studies, can be better understood by examining the gaps between user perceptions and expectations (see 5.3.1.3 below).

### ***5.3.1.2 Expectations of library services - Affect of service***

Within the constantly changing environment of higher education, academic libraries serve as essential support resources for students as they progress through their studies. However, anticipating the needs and expectations of users can be challenging. Students who experienced remote and isolated learning during the pandemic might have faced distinct difficulties. The findings in Table 11 reveal that respondents, generally, had high expectations for the Affect of service dimension, with 94.4% or more respondents either agreeing or strongly agreeing with the various statements comprising the dimension. The need for responsive, knowledgeable, approachable, courteous, and supportive library staff is emphasised.

These findings are consistent with existing literature. For example, findings from research by Kekana (2016) revealed that users of the CRML on the Pietermaritzburg Campus of the UKZN also had high expectations for library staff (albeit slightly lower). The range of expectations was 76% to 83%. These findings show that users have been able to interact with librarians, but the interaction is still not at the most desirable level expected by students.

### ***5.3.1.3 Gaps between expectations and perceptions - Affect of service***

There are substantial gaps between user expectations and perceptions concerning the NUST Library's Affect of service dimension as shown in Table 15. All the statements' gaps were significant (well above the 25% threshold). The lowest, yet still significant gap, concerned the statement relating to Knowledgeable staff members, with a 29 (53.7%) difference. These findings suggest that the student respondents' expectations of library services in terms of library staff needed to be met, especially regarding their approachability, support, and responsiveness.

The findings indicate a gap of 63% between expectations and perceptions concerning Approachable staff, a gap of 70.4% concerning Supportive staff, and a gap of 61.1% concerning Responsive staff. Given these findings in particular, it is evident that much could be done in terms of respondents' perceptions being more aligned with their expectations vis a vis the Affect of service dimension.

These gaps correspond with the existing literature on service quality in library environments. According to Parasuraman et al. (1988), the SERVQUAL model emphasises the gap between expected and perceived service, which is a crucial factor in determining the quality of a service. The results are consistent with research by Jain and Gupta (2015), who similarly found notable gaps between users' expectations and perceptions of the services in academic libraries. According to their research, there are frequently gaps concerning users' interactions with staff, particularly regarding responsiveness and support, which is detrimental to user satisfaction.

Libraries that successfully align service delivery with user expectations see improved satisfaction and increased utilisation of library resources. The findings suggest that the NUST Library must prioritise improving staff engagement and support to better meet its users' evolving needs post-pandemic. Additionally, research in various academic contexts has demonstrated that gaps between user expectations and perceptions of actual services frequently

result in dissatisfaction (Jain and Gupta, 2015). Despite high expectations, the perceptions concerning interactions with library staff could deter respondents from utilising library resources to the maximum.

### **5.3.2 Information control**

The information control dimension concerns the library providing a collection that is accessible, organised, and diverse and in so doing meets the needs of library users. Singh (2017) suggests that the effectiveness of academic libraries is rooted in the quality of their services, which address users' requirements and consequently support the goal of improving education. A primary aim of the library is to compile a comprehensive array of diverse materials for users to utilise. Library staff must help users locate resources that fulfil their informational needs and teach them practical ways to do this. Digital libraries have emerged as vital educational tools, providing access to a vast range of constantly available, current resources that can be easily accessed from any location with internet connectivity (Vrana, 2017).

#### ***5.3.2.1 Perceptions of library services - Information control***

Table 9 depicts the findings relating to how the study respondents perceived the various aspects or statements relating to the Information control dimension. Several issues are pointed to, especially regarding the availability of Diverse information sources, User training, and the Organisation of information. According to the findings, just 21 (38.9%) respondents agreed or strongly agreed that the library offers Diverse information sources. Perceptions regarding Organised information and User training were also largely negative, with 23 (42.6%) and 22 (40.8%) respondents respectively, agreeing with the statement.

According to the findings, respondents believe that the NUST Library needs to adequately satisfy their demands regarding the range of information available and the efficiency of training programmes to assist them in using these resources. Predominantly troubling are the low levels of agreement 21 (38.9) with the statement "The library provides diverse information", which suggests a lack of a wide-ranging collection that satisfies students' diverse interests and educational needs. Kumar and Kumar (2020) emphasise the value of a library having a diversity of resources for effective learning and research and their findings align with the findings of the current study.

Furthermore, the relatively high number of respondents who disagreed or strongly disagreed with the library providing User training 14 (29.7%) and Accessible information 16 (29.7%) suggest a critical gap in how libraries support users in locating and utilising information effectively. The respondents' opinions relating to Information control point to several vital gaps that need to be filled. The lack of consensus on Organised information, User training, and Diverse information sources emphasises the library's need to improve these areas. The library would better serve the requirements of its users and assist their academic pursuits by increasing the diversity of resources, providing thorough user training, and ensuring that material is readily available and well-organised.

### ***5.3.2.2 Expectations of library services - Information control***

The survey findings regarding respondents' expectations of library services relating to the Information control dimension show that they strongly agree on essential factors that support efficient access to and use of information. In particular, 41 (75%) respondents agreed or strongly agreed that libraries should offer Easily accessible materials, Tools that are easy to use, and Well-structured collections. The transition brought about by COVID-19 has underscored the necessity for easy access to educational resources and tools, as numerous students might have encountered difficulties in utilising online materials during the pandemic. There is strong agreement among respondents that libraries should not only supply conventional resources but also improve their digital services to address the varied requirements of students.

Additionally, 42 (77.8%) respondents agreed that user-friendly search tools are required for retrieving relevant information quickly. These findings align with research by Allison and Mering (2018), which revealed that information discovery tools enrich user satisfaction and search experience. The focus on user-friendly interfaces aligns with a trend in library science, which contends that making material easily accessible is crucial for encouraging user engagement.

Expectations for the statement related to the provision of Interlibrary loans were high, with 34 (62.9%) respondents either agreeing or strongly agreeing. Even higher were the expectations for statements concerning the provision of Information retrieval assistance, and the provision of User training with 41 (75.1%) and 42 (77.8%) respondents, respectively, either agreeing or strongly agreeing with the statements. The former underscores the need for students to have

full support in their research endeavours, while the latter (user training) points to students understanding how important it is to become proficient in navigating and using library resources.

Thus, according to the survey results, respondents have high expectations for services related to the Information control dimension. Respondents expect Accessible materials, User-friendly tools, and Organised collections that improve their ability to find and use information efficiently and effectively. Saleh (2014) investigated the information needs of remote library users in the University of Maiduguri's Distance Learning Programme. From the findings, it is evident that the users expect sufficient information resources to be available in full-text online and accessible remotely, including electronic journals, full-text databases, digitised collections, and e-books. Odu and Omini (2018) suggested that users desire to access library services conveniently through mobile devices; therefore, libraries should improve their offerings to align with 21st-century user expectations.

Agreement and strong agreement concerning Accessible resources, 41 (76%), as shown in Table 12, emphasise how important it is for libraries to regularly review and update their collections to ensure they are comprehensive and current. This is consistent with recent studies showing how libraries that prioritise access to a wide range of information resources benefit students (Jha and Jha, 2021). Similarly, Matiwane (2017) found that users expected assistance accessing electronic databases and locating relevant information, demonstrating the importance of accessible resources. Mierzecka, Kisilowska, and Suminas (2017) investigated researchers' expectations concerning the online presence of academic libraries. Their findings highlight that access to online resources is a significant need among researchers who expect their academic library materials to be accessible online.

### ***5.3.2.3 Gap between expectations and perceptions - Information control***

As alluded to, in an ideal situation, user perceptions ought to surpass expectations and the difference between what customers expect and what they get is known as the gap (Ahmad et al., 2021). This gap could be advantageous or detrimental. A positive gap indicates that clients have received the level of service they were expecting. A negative gap, on the other hand, suggests that service delivery does not meet users' expectations. In LibQUAL-based studies (such as the current one) users' expectations are significant as failure to meet them may

negatively influence users' perceptions of the quality of the services provided (Filson et al., 2023).

Also as noted, gaps between expectations and perceptions that can be considered significant are those above the 25% threshold, while those below 25% could be considered insignificant. Table 16 shows statements where the percentage gap between expectations and perceptions concerning the Information control dimension could be considered significant. These are:

- Accessible resources 16 (29.6%)
- Search tools 16 (29.6%)
- Organised collection 19 (35.2%)
- Diverse materials 19 (35.2%)
- Information retrieval assistance 16 (29.6%).

User training programs, three (7.4%), was the only statement with an insignificant gap. The survey's results regarding the gap between user expectations and perceptions concerning Information control suggest significant deficiencies in the NUST Library's ability to meet user requirements. As reflected in the bulleted list above, the gaps concerning Organised collection and Diverse materials (each at 35%) suggest that there are problems with these services that need to be addressed. These gaps (as well as the other three gaps listed) further suggest that respondents believe the library needs to better meet their information needs, and not doing so may impair their academic performance as well as their satisfaction levels with the services provided by the library. The significant gaps between user expectations and perceptions relating to Information control underscore the urgent need, in particular, for the NUST Library to improve the organisation of its collection and diversify its resources.

### **5.3.3 Library as place**

According to Partap and Rao (2020), the Library as place dimension, which consists of five statements, refers to the physical space and other amenities that the library offers. Library as place is "the physical environment of the library for individual study, group work, and inspiration". According to the Association of Research Libraries (2021), the following are the LibQUAL statements that measure the Library as place dimension:

- (1) A place to find inspiration for learning and study;
- (2) a peaceful area for individual activities;

- (3) a comfortable and appealing location;
- (4) a place for learning, research, or study; and
- (5) a community area.

Several aspects of users' sense of place must be considered when evaluating the concept of Library as place. Kim's (2016) study highlights how users perceive academic libraries by identifying the dimensions that shape their perceptions of the academic library as a place.

### ***5.3.3.1 Perceptions of library services - Library as place***

As expected and consistent with prior dimensions, respondents' perceptions of the Library as place could have been better aligned with expectations. The survey results on the respondents' perceptions of library services regarding the Library as place dimension show a range of positive answers as well as a noticeable lack of agreement. Findings in Table 10 indicate that a large majority of 40 (74.1%) respondents agreed that the library offers a variety of study places, including quiet study areas and study rooms for groups. Nonetheless, a sizable percentage, 11 (20.4%), remained neutral in their response, suggesting hesitancy about the suitability or accessibility of these areas. Furthermore, a small minority of three (5.6%) respondents disagreed with the claim that the library provides appropriate areas for study, suggesting that there may be room for improvement in this regard.

Concerning Technology infrastructure to support research and information access, 38 (70.4%) respondents either agreed or strongly agreed with this statement. However, as with the previous statement, there was a sizeable percentage, 13 (24.1%), neutral respondents, indicating that in as much as respondents are aware of the technology infrastructure, they do not necessarily interact and make use of the computers or were ambivalent about the library's role in this regard.

While 29 (53.7%) respondents perceived the environment as comfortable, the high neutrality rate of 21 (38.9%) shows that respondents' comfort levels may differ significantly. Moreover, four (7.5%) respondents disagreed that the library offers a Comfortable environment, and this finding, together with the neutral response, suggests a further area for improvement. Providing users with a pleasant learning environment is crucial since it encourages them to use the library's resources (Amarasekara and Marasinghe, 2020). Ensuring a clean, comfortable, and welcoming environment for users who choose to sit and study in the library is crucial. As Tetteh

and Nyantakyi-Baah (2019) point out, a library's atmosphere and facilities are essential for providing users with excellent and satisfying services.

Perceptions regarding the Safety and security of the NUST Library highlight yet another concern. Although 23 (42.6%) respondents agreed that the library was safe and secure, a significant number, 26 (48.1%), were neutral, and five (9.3%) respondents considered the institution unsafe. The high level of neutrality concerning this aspect or statement, together with the negative responses, emphasises how crucial it is to design a safe workplace that satisfies user expectations. According to Amarasekara and Marasinghe (2020), providing a conducive learning environment for library users is essential as it motivates them to utilise library resources. The library environment must be clean, conducive and welcoming to the users who want to sit and study there. Tetteh and Nyantakyi-Baah (2019) reiterate that the environment and infrastructure of a library are crucial factors in delivering superior and gratifying services to users.

#### ***5.3.3.2 Expectations of library services - Library as place***

Findings relating to the respondents' expectations regarding various statements of the Library as place dimension were comparable to the previous two dimensions – neutral responses were below 22%, disagreements (both strongly disagree and disagree) were generally low (21% and below), and agreement (both strongly agree and agree) with the various statements ranged from 73% to 77%. The statement that had the highest number of strongly agree and agree responses was “I expect the library to provide comfortable study areas that cater to various study preferences and needs” with 42 (77.7%) responses. The statements with which most respondents, 12 (22.2%), disagreed and strongly disagreed were: “The library offers different study spaces, such as quiet study areas and group study rooms” and “I expect the library to prioritise safety and security measures to ensure a secure environment for all users”. Thus, while expectations were generally high, they were not as high as those in the Information control dimension.

Similar trends with the two dimensions can be seen in Ncwane's (2016) analysis. Respondents in his study also expressed high expectations for the Library as place in terms of the availability of physical spaces, comfortable study areas, technology access, and safety and security. The results of this study are also consistent with those of Kekana (2017) who found that postgraduate students have higher expectations for the CRML (UKZN) in terms of the Library

as place dimension: 75 (71.4%) respondents expected the library to be a quiet place, 79 (75.2%) expected the library space to inspire user study and learning, 75 (71.4%) expected the provision of library space for group studying and learning, and 83 (79%) respondents expected the library to be a safe and secure place for study (Kekana, 2017). Additionally, Matiwane's (2017) study found that the most expectations (82%) were for a secure and safe study environment. Both studies emphasise the importance of the Library as place dimension. Standards concerning this dimension are high because they stem from an informed appreciation on the part of students of the need for a library to be a comfortable and safe multi-purpose space that meets their diverse study and learning needs.

### ***5.3.3.3 Gap between expectations and perceptions - Library as place***

Table 17 displays the gap differences for the dimension Library as place. The survey results show that user expectations and perceptions are aligned concerning physical spaces, as evidenced by the 0% gap. Technology access with a gap of 3.7% and Comfortable study spaces with a gap of 24.1% also show a negligible gap (below 25%), indicating relative satisfaction with the provision of these services. In comparison, the statement with the most significant gap is a Safe and secure environment (33%). Given this finding, the NUST Library should consider investigating and, if necessary, responding to the safety and security concerns identified in this study.

## **5.4 Satisfaction with library services**

Motiang, Wallis, and Karodia (2014) characterise user satisfaction as “an assessment of a product or service based on the extent to which that product or service fulfils the needs and expectations of the user”. This section discusses findings related to the respondents' satisfaction with the quality of library services.

### **5.4.1 Levels of satisfaction with library services**

Question 5.1 of the questionnaire requested respondents to indicate their overall satisfaction with the quality of library services offered by the NUST Library after the COVID-19 pandemic. The findings in Table 14 reflect varying levels of satisfaction and dissatisfaction among the respondents regarding the quality of services offered. Only half, 27 (50%), of the respondents expressed satisfaction, indicating that there is significant room for improvement. A small percentage, six (11.1%), of respondents were very satisfied, suggesting that only a few

respondents believed that the library significantly exceeded their expectations. Furthermore, a considerable percentage of respondents, 19 (35.2%), remained neutral, and two (3.7%) were very dissatisfied. This distribution highlights the need for the NUST Library to strive toward achieving more consensus among respondents (as library users) concerning the quality of the services it provides and this will entail investigating and attending to issues identified in this study.

The LIBQUAL framework, which was developed to assess the quality of library services, identifies three fundamental dimensions: Information control, Affect of service, and Library as place. The overall satisfaction levels presented in Table 14 can be better understood and contextualised through these dimensions. These three dimensions significantly and positively impact library user satisfaction, with their combined effect serving as the most significant predictor of overall satisfaction (Valizadeh, Haghi, and Ghaedi, 2020).

The strong dissatisfaction expressed by two (3.7%) respondents may point to potential gaps in support or service delivery, suggesting that library staff may need to interact with users more post-COVID-19. Table 8 reflects high percentages of neutrality on the part of respondents concerning statements in the Affect of service dimension. These statements relate to library staff members and the fact that many respondents would not commit themselves (remained neutral) to these statements could suggest that there is indeed room for improvement regarding staff members' approachability, support offered, courteousness, and knowledge of library resources.

#### **5.4.2 Discussion of open questions relating to user satisfaction and expectations**

Questions 5.2 and 5.3 were open ones the first of which concerned respondents providing further comments regarding their satisfaction levels with the quality of services offered by the NUST Library post-COVID-19. Only 19 comments were received, with some respondents stating that they had no comment, one respondent commenting that they were satisfied, and 14 respondents providing comments expressing dissatisfaction. Some of the negative comments from respondents were as follows:

- \* *“There should not be group discussions inside the library. It disturbs other students”.*
- \* *“NUST has a few computers, little help from staff and slow WI-FI.”*
- \* *“NUST Library resources are hard to navigate, and there is little assistance from staff”.*

- \* *“WIFI is slow”*.
- \* *“Access to e-resources fell short of my expectations”*.
- \* *“I expected access to e-resources to be very easy so we can access them from the comfort of our homes”*.
- \* *“The library space and infrastructure need improvement”*.

Even though they do not represent all respondents, such comments are of concern. Respondents highlighted problems related to the accessibility of computers, availability of staff support, and sluggish Wi-Fi. These issues are especially significant in the post-pandemic context where proficiency in digital skills and, crucially, access to technology has become crucial for academic achievement. With students increasingly dependent on online resources for their education, having sufficient technological support within the library is vital. A shortage of computers and internet connectivity problems such as low bandwidth, can impede students' capacity to interact with digital content efficiently, underscoring the necessity for libraries to improve their infrastructure to facilitate remote learning and research.

Several comments related to library staff. This resonates with findings from a study conducted by Buthelezi (2020) on adult users' perceptions of library services provided by Nongoma Public Library in Kwazulu-Natal. One of the study respondents stated:

*“Some staff are not willing to help and usually fight with library users. I find some staff members unprofessional and need to learn about the library, yet they are there to assist users”*.

As alluded to, it is now more important than ever to access e-resources, particularly while learning remotely. According to research, students frequently anticipate libraries offering user-friendly platforms that make digital materials accessible (Liu, 2019). The comments about noisy group discussions in the library highlight the necessity of quiet study spaces since students appreciate a distraction-free, comfortable study space.

Weak internet connectivity and insufficient computers, as pointed to above, were some of the issues raised by respondents. These findings are similar to findings conducted by Kaapu (2021) who used LibQUAL to evaluate user satisfaction with library services at the Aloe Park South African Police Service (SAPS) Library in Pretoria, South Africa. Findings revealed that respondents were dissatisfied with the internet and computers provided by the library. Kaapu (2021) commented that given the Fourth Industrial Revolution, it is necessary to examine and

pay attention to the resources and services that participants are dissatisfied with, such as the sluggish internet and the inadequate number of computers. The University of Stellenbosch (LibQUAL, 2016) conducted a survey to understand the expectations of students and staff with regard to improving library services. The survey's findings align with the current study in that some of the frequently raised concerns were issues of Wi-Fi connectivity, few computers, and noise in the library. It is evident that to improve the overall user experience, strong IT support and sufficient facilities are expected, and libraries need to address these issues to increase student involvement and satisfaction.

Question 5.3, as previously mentioned, was multi-faceted, and respondents only responded to the first part of the question which concerned whether any NUST Library services were falling short of their expectations post-COVID-19. Their responses were similar to those of question 5.2. While some of the 20 respondents who answered this question indicated their satisfaction with the library services, others pointed to a range of areas and concerns they were dissatisfied with. However, the issues of internet connectivity and resource accessibility dominated the responses. This is supported by the findings in Table 12 (expectations concerning the Information control dimension), which reveal that 41 respondents (76%) had high expectations regarding Accessible resources.

## **5.2 Summary**

This chapter discussed the findings presented in the preceding chapter. The data presented in that chapter was primarily quantitative. This chapter began with a discussion of the findings from Section A of the survey questionnaire which concerned the demographics of the study respondents. Section B concerned the usage of the NUST Library. Sections C and D presented and discussed the findings on the expectations and perceptions of library services across the three service quality dimensions: Affect of service, Information control, and Library as place. The gaps between expectations and perceptions were discussed and the chapter ended with a discussion of findings related to user satisfaction with the services offered by the NUST Library.

## **Chapter Six: Main Findings, Conclusions and Recommendations**

### **6.0 Introduction**

This dissertation's final chapter presents the research's main findings, conclusions and recommendations based on the results presented in Chapter Four and their discussion in Chapter Five. As outlined in Chapter One, the study aimed to determine LIS students' perceptions and use of library services post-COVID-19 at the NUST. The main questions the study sought to answer were:

- 1 What are the students' expectations of the quality of library services provided by the NUST Library post-COVID-19?
- 2 How has the COVID-19 pandemic affected students' use of library services at the NUST Library?
- 3 What are the students' perceptions of the quality of services provided by the NUST Library post-COVID-19?
- 4 What are the gaps between users' expectations and perceptions of library service quality?

The chapter commences with a summary of the study.

### **6.1 Summary of the study**

**Chapter One** served as an introduction to the research that aimed to investigate the impact of the COVID-19 pandemic on library services at the NUST. The chapter began with the background of the study. This was followed by the research problem, rationale and purpose of the study, the study's objectives and research questions, and its scope and limitations. The chapter ended with the definitions of terms and concepts used in the study, and the overall structure, by chapter, of the study.

**Chapter Two** provided the theoretical framework and the literature review. In terms of the former, it presented an overview of the service quality models, while in terms of the latter, a selection of LibQUAL studies done internationally and in South Africa were reviewed. Studies on the gap between user expectations and user perceptions were also reviewed.

**Chapter Three** presented the study's methodology, explaining the research paradigm, design, and approach on which the study was grounded. Furthermore, the population and sampling technique were discussed. The data collection methods, validity and reliability, data analysis, and ethical considerations were also outlined and discussed.

**Chapter Four** presented the research results in line with the questions posed in the questionnaire. It consisted of six sections: demographic information, library usage, perceptions of library services, expectations of library services, satisfaction, and lastly, the gap between expectations and perceptions. Findings were presented in the form of tables and text.

**Chapter Five** discussed the findings presented in Chapter Four in light of the relevant literature as presented in Chapter Three and the objectives of the study as presented in Chapter One.

**Chapter Six**, the current chapter, presents the research's main findings, conclusions and recommendations. It also provides suggestions for further research.

## **6.2 Main findings and conclusions**

This section provides the main findings and conclusions arrived at based on the main findings.

### **6.2.1 Demographics**

The main findings were that the majority of respondents were female 32 (59.3%), in the 21-30 years age group, and were postgraduate students.

The NUST DLIS comprises more female than male students, reflecting an imbalance of 18.6%, and the sample reflects this demographic. The 35 (64.8%) respondents between 21-30 years align with Zimbabwe's distinctive university attendance age. Furthermore, the number of postgraduate respondents was slightly higher than that of undergraduate students by 7.4%. The excellent response rate of both undergraduate and postgraduate LIS students increases the credibility of the findings and reflects a positive engagement with the study on the part of the student respondents.

### **6.2.2 Frequency of library use**

The findings revealed that 23 respondents (42.6%) use the NUST Library weekly. The low frequency of library utilisation generally might be due to the distance between the physical library and the main campus. The distance between the library and the main campus (6.3 km) is probably a significant deterrent, reducing accessibility to library services and resources.

### **6.2.3 Library services usage**

The majority of respondents used the library for Research and study 47 (87%), LIS practicals 44 (81.5%), Access to books and resources 41 (75.9%), and Online databases and digital resources 41 (75.9%). Services least used by respondents were Interlibrary loans, seven (13%), Special collection services, 17 (31.5%), and Library staff expertise and assistance 21 (38.9%). Moreover, the findings revealed that 24 (44.4%) respondents rated the overall usability and functionality of the NUST Library services post-COVID-19 as “Good”.

The results presented above show that LIS students are making good use of the primary services offered by the NUST Library, mainly utilising it for research and study, their practicals, and accessing physical books and digital databases. This implies that the library fulfils its primary objective of supporting scholarly activities and improving education. However, their low involvement in Interlibrary loans, Special collection services, and Library staff expertise and assistance suggests a significant opportunity for improvement in these areas, particularly with regard to Interlibrary loans.

Most respondents rated the overall usability and functionality of the NUST Library services as satisfactory. This implies that although the library fulfils fundamental requirements, there is potential for advancing and promoting services that are only sometimes utilised and increasing usage of those that are utilised more often. The post-COVID-19 pandemic period, with its increased demand for varied and adaptable learning resources, necessitates that the library must adapt by ensuring access to essential services while proactively fostering engagement with specialised resources and knowledge. By promoting broader awareness of its services and increasing visibility, the library can more effectively assist students in navigating the intricacies of their academic journeys, thus reinforcing its role of providing an essential educational resource in a rapidly changing environment.

#### **6.2.4 Students' expectations regarding service quality post-COVID-19 (Research question 1)**

The first research question was to determine the respondents' expectations of the quality of services provided by the NUST Library post-COVID-19. LibQUAL's three dimensions (Affect of service, Information control, and Library as place) provided the basis for the main findings and conclusions. The expectations ranged from 48%-96% throughout the three dimensions. Expectations relating to the Affect of service dimension ranged from 94%-96%, Information control ranged from 48%-78%, and the Library as place dimension was 74%-78%. Expectations were generally high with regard to all the statements comprising the three dimensions.

These findings are similar to those of other studies reviewed in Chapter Two. Regarding the Affect of service dimension (aspects relating to the qualities of library staff), respondents had higher expectations than those concerning the other two dimensions. These findings show that while respondents have been able to interact with library staff, the interactions are falling short of the desirable level expected. The fact that 94% or more respondents agreed and strongly agreed that they expect the library to provide staff members who are courteous, supportive, responsive, approachable, and knowledgeable is a clear indication that respondents highly value these staff qualities.

Concerning the Information control dimension, expectations were high but not as high as those of the Affect of service dimension. However, given the high levels of agreement and strong agreement with the various statements of this dimension, it is evident that respondents expect the NUST Library to provide them with Accessible materials, User-friendly tools, and Organised collections that improve their ability to find and use information efficiently and effectively.

Equally, the Library as place dimension had high expectations but not as high as the other two dimensions. Respondents had high expectations relating to the library being a Comfortable and Safe and secure environment. These findings underscore the vital role of physical settings and spaces in improving user experience within the NUST Library.

### **6.2.5 Students' perceptions regarding service quality post-COVID-19 (Research question 3)**

The findings relating to respondents' perceptions of the three dimensions were mixed and thus somewhat inconclusive. They were, however, lower than expectations (sometimes significantly so). Positive perceptions are seen in statements relating to the Knowledgeability and Responsiveness of library staff, Study spaces, and Technology; while negative perceptions are seen in statements relating to Information literacy and User training. The findings also showed high percentages of neutral responses throughout the dimensions. For example, neutral responses in the Affect of service dimension ranged from 37% to 52%, Information control neutral responses ranged from 28% to 50%, and Library as place from 20% to 48%. These neutral responses show that respondents neither agreed nor disagreed with the various statements comprising the three dimensions.

Considering the above findings, it can be concluded that perceptions were generally low compared to expectations, the high percentage of neutral respondents is a concern as it implies a high level of uncertainty in that respondents selecting this option might not have had experiences that warranted a definite negative or positive response. The high percentage of neutral responses could also indicate shortcomings in the NUST Library's communication with its users.

### **6.2.6 Gap between user perceptions and user expectations of library service quality (Research question 4)**

Gaps between user expectations and user perceptions denote the differences that may arise between what users expect from a service and their actual experience of that service. Research question 4 aimed to answer the question: "What are the gaps between users' expectations and perceptions of library service quality?" The main findings and conclusions will be summarised in terms of LibQUAL's three dimensions.

#### ***6.2.6.1 Affect of service***

The Affect of service dimension was the only dimension where all the statements had gaps exceeding the 25% threshold and thus considered significant. The following three statements had the largest discrepancy between agreeing for expectations and agreeing for perceptions:

The NUST Library currently provides staff members who are:

- “Responsive (helpful in addressing your inquiries and providing assistance)”, 33 (61.1%)
- “Approachable (staff that you feel comfortable approaching with questions or concerns)”, 34 (63.0%)
- “Supportive (staff that support and guide you in navigating the library’s services and resources)”, 38 (70.4%).

These gaps (including the remaining two concerning Courteous and Knowledgeable staff) emphasise a crucial area for improvement, especially in the aftermath of the COVID-19 pandemic, a period during which students have come to depend more on library services for academic assistance within a hybrid learning context. As educational institutions evolve their teaching approaches and increase their dependence on digital resources, the importance of library staff as learning facilitators has grown significantly. Perceived shortcomings in staff engagement could impede students’ ability to effectively navigate library offerings and access necessary support, ultimately affecting their academic achievements. By addressing these issues through improved staff training, cultivating a more supportive environment, and improving responsiveness, student experiences and outcomes can be significantly improved, positioning the library as a more effective educational resource in this evolving landscape.

#### ***6.2.6.2 Information control***

Five of six statements related to the information control dimension exceeded 25%. The following services had the most significant discrepancy between agree for expectations and agree for perceptions:

The library currently provides:

- “Organised information (The library ensures that information sources are well organised and can be located efficiently)”, 19 (35.2%)
- “Diverse information sources (The library provides many information sources, including books, journals, databases, and digital resources, to support your diverse information needs)”, 19 (35.2%)

Given the above findings, it can be concluded that these gaps underscore an urgent necessity for the NUST Library to reassess how it organises its collection and the diversity of the information resources in that collection. This is particularly important post-COVID, where

students rely on a wide variety of materials that should be easily accessible to aid their education. With the advancement of educational practices and the increasing demand for a wide range of digital and physical resources, the library must adapt to these demands by ensuring that the library collection is effectively organised and includes a diverse range of materials.

### ***6.2.6.3 Library as place***

The library as place was the only dimension that did not have a majority of statements with a gap exceeding the 25% threshold. As indicated below, there was one statement gap that exceeded this threshold and one which was just under the threshold:

The library currently provides:

- “Comfortable environment (the library creates a comfortable and welcoming atmosphere with seating, lighting, and ambience conducive to study and research”, 13 (24.1%)
- “Safety and security (the library ensures users a safe and secure environment by implementing security measures, emergency protocols, and adequate supervision” 18 (33.3%).

The findings concerning the Library as place above highlight a disparity (gap) between students’ expectations and perceptions, particularly with respect to Comfort and Safety and security issues. The need for students to come to campus for physical face-to-face learning after the pandemic has made a conducive and secure learning environment crucial. As students seek out comfortable and safe environments that help support their academic pursuits, library staff need to increase the perceived level of comfort and safety of students’ learning environments. By investing in ergonomic furniture, instituting appropriate maintenance procedures, and adopting safety protocols, the library can cultivate an inviting ambience that fulfils and surpasses student expectations.

### **6.2.7 User satisfaction and ratings of services**

The findings revealed that respondents were generally satisfied with the quality of service offered by the NUST Library with 27 (50%) being satisfied; six (11.1%) being very satisfied, 19 (35.2%) remaining neutral, and two (3.7%) being very dissatisfied. The relatively high percentage (just over a third) of respondents who remained neutral is of concern and it could

have been revealing to determine why they refused to commit themselves either way. Several respondents expressed dissatisfaction with specific aspects of library services via the open questions asked. These aspects included problems relating to the internet, off-campus information access, staff members, and the library environment. Issues about off-campus access to e-resources indicate that respondents expect smooth access to electronic resources, and these expectations still need to be met. Furthermore, some concerns were related to infrastructure and limited space in the library. All these factors hinder students from successfully utilising the NUST Library.

### **6.3 Recommendations**

Research recommendations are proposals for steps to be implemented according to the results of a research investigation. Recommendations are essential for converting research outcomes into practical insights that can impact actual practices and policy choices (Wojcik, 2024). Based on the research results and the conclusions drawn, several recommendations are put forward for the NUST Library administration to consider and implement. Once again, the three dimensions of service quality provide a framework.

#### **6.3.1 Recommendations - Affect of service**

The Affect of the service dimension relates to users' perceptions of library staff competency, abilities, and support (LibQUAL, 2015). It deals with how the client or user is treated in the library. Staff in the library are supposed to be helpful and knowledgeable. However, findings indicate that this was only sometimes the case with the NUST Library staff, as reflected by the significant gaps between perceptions and expectations as highlighted above, and in the comments regarding the problems encountered by respondents. The most notable gaps were observed in terms of staff being Responsive, Approachable, and Supportive. The library administration can implement the following two recommendations to address these concerns and improve user satisfaction:

- First, the NUST Library should invest in inclusive staff training programmes focusing on customer service skills, communication, and problem-solving. It can foster a more responsive setting by equipping staff with the tools to respond effectively to user inquiries and needs. Training sessions could include scenario-based learning to help staff develop the skills to handle diverse user interactions confidently and effectively.

- Second, the NUST Library should create user feedback systems to allow users to weigh their interaction with the staff. This could be done in the form of short surveys or suggestion boxes. If the library receives enough feedback from its users, it will at least know the exact areas of concern and hence put pressure on the staff to improve their services. Analysing feedback regularly can advise ongoing training and development initiatives, ensuring staff remain aligned with user expectations.

By implementing these recommendations, the NUST Library can bridge the significant gap between user expectations and perceptions regarding all three dimensions. This, in turn, will improve the overall user experience and foster a more positive and collaborative library environment.

### **6.3.2 Recommendations - Information control**

According to Sayekti et al. (2022), Information control is a dimension used for measuring service quality from a content perspective, measuring access to information resources, and measuring the scope of content offered by libraries, as well as convenience, navigation ease, timeliness, equipment availability, and user independence in resource use. The Information control dimension, in essence, concerns the library's collection. It assesses whether the collection is adequate to satisfy the demands of library users (Barfi et. al., 2023). Library resources must always be readily available and accessible to users, and they must also be relevant. Three recommendations in this regard emerge from the findings:

- First, the NUST Library needs to identify and acquire diverse materials that reflect the needs and interests of its users. This could include formally or informally requesting suggestions from students and academic staff regarding the types of resources that are lacking in the library or that they consider under-represented. By extending the collection to include digital, multimedia, and multilingual texts and resources, the library can better meet the information needs and enhance the experience of its users (both students and staff) from different academic and cultural backgrounds.
- Second, adopting user-friendly technology is crucial for improving access to information. The NUST Library should invest in an updated online catalogue that provides advanced search options, enabling users to filter results based on various

criteria such as format, subject, and availability. Additionally, integrating mobile-friendly applications into library services will improve the ease of access to features such as searching the library catalogue, reserving materials, or receiving notifications about new books. These services can be accessed by students both off and on campus, utilising the functionality of their handheld devices.

- Third, promoting regular improvements through consistent user feedback would help boost the services provided by the NUST Library. The library should, therefore, establish mechanisms for receiving users' feedback, such as suggestion boxes, online surveys, or focus groups, to advise on, for example, the organisation of the collection and the diversity of resources. By actively engaging with users and catering to their needs, the library can provide services that better meet user expectations, ultimately bridging the gap between perceived and actual service quality.

By implementing these recommendations, the NUST Library can make substantial strides in improving Information control, thus ensuring that it meets user expectations for an organised collection and the provision of a diverse range of materials.

### **6.3.3 Recommendations - Library as place**

Library as place is defined as “the physical environment of the library for individual study, group work, and inspiration” (ARL, 2012). This dimension concerns the library as a physical space that encourages study, quietness, and isolation – a place for introspection and a setting conducive to contemplation (Barfi et.al., 2023). A Comfortable and Safe and secure environment emerged as a significant concern in this study. To respond to this concern the following recommendations are offered:

- First, for the NUST Library to offer a safe and secure environment that addresses students' concerns, some stringent safety features should be adopted. This may include improving surveillance infrastructure, implementing entrance barrier control systems, and increasing the presence of security guards at entry and exit points during peak usage to reassure users. Furthermore, the library should develop clear emergency protocols and convey them to students, nurturing trust in their safety as they utilise library services and resources. Thus, by emphasising security and comfort, the NUST Library

can create a supportive environment for students regarding their changing needs in the post-pandemic period, reassuring them that their well-being is a priority.

- Second, there is a need to redesign study areas to provide comfort and quietness. This can be achieved by introducing ergonomic furniture, such as adjustable chairs and desks, to accommodate extended study periods and cater to different preferences. Moreover, creating distinct zones within the library, such as quiet zones for individual study and collaborative spaces for group discussions, will enable users to find a comfortable space that suits their learning style. Elements like plants and natural light should be incorporated to enhance the ambience and create an environment conducive to contemplation and focused study.

#### **6.4 Suggestions for further research**

As noted in Chapter One, the study was delimited to LIS students at NUST. A suggestion for future research would be to conduct research with students from different academic departments to evaluate their perceptions and expectations of library services. Different departments may have varying academic requirements, perceptions, and expectations concerning library services and resources. For example, science students might emphasise the importance of research journals and lab manuals, whereas humanities students could focus more on historical documents and literary analysis. Recognising these variations would allow the library to tailor its services and collection more effectively to meet diverse student needs. If this suggestion is adopted, subsequent investigation might reveal the specific hurdles that various departments encounter in accessing library resources, such as challenges relating to database access or the sufficiency of physical study areas. Additionally, findings might indicate that other departments are extremely satisfied with library resources and services and that their perceptions align with their expectations (as was not the case with the Department of LIS in this study).

Another suggestion is to investigate the effectiveness of user feedback systems and their influence on improving library services. The current study revealed many neutral responses concerning perceptions of library services, suggesting a lack of communication between library users and staff members. Investigating feedback techniques could uncover successful strategies

for engaging users and modifying services based on their suggestions, thus minimising uncertainty.

## **6.5 Summary**

This, the concluding chapter of the research, provided a concise summary of the previous five chapters, along with the essential findings and conclusions of the study. Subsequently, recommendations derived from these findings and conclusions were presented. The chapter concluded with suggestions for further research.

This investigation aimed to assess LIS students' perceptions and expectations and use of library services post-COVID-19 at the NUST in Zimbabwe. It employed a standardised instrument known as LibQUAL+™, grounded in the Gap theory of service quality, to achieve this aim. The results indicated that, overall, students expressed satisfaction with the quality of services provided by the library, even though their perceptions regarding these services exceeded their expectations.

## References

Abdullah, R., Muhammad, R., and Amin, S. 2014. Writing a literature review research paper: A step-by-step approach. *International Journal of Basic and Applied Science*, 3: 47-56. [https://www.researchgate.net/publication/311735510\\_Writing\\_a\\_Literature\\_Review\\_Research\\_Paper\\_A\\_step-by-step\\_approach](https://www.researchgate.net/publication/311735510_Writing_a_Literature_Review_Research_Paper_A_step-by-step_approach) Accessed 14 April 2024.

Abutabenjeh, S., and Jaradat, R. 2018. Clarification of research design, methods, and methodology: a guide for public administration researchers and practitioners. *SAGE Journals*, 36 (3): 237-258. <https://doi.org/10.1177%2F0144739418775787> Accessed 2 June 2024.

Alsaffar, H. 2020. GAP Model of Service Quality and Customer Relationships. <https://www.researchgate.net/publication/> Accessed 03 April 2024.

Amarasekara, K. and Marasinghe, I. 2020. User Satisfaction with Library Resources and Services: A survey was conducted in the main library of the Open University of Sri Lanka. *Journal of the University Librarians Association of Sri Lanka*, 23 (2): 27. DOI:10.4038/jula.v23i2.8007.

Ameen, K. 2021. COVID-19 pandemic and role of libraries. *Library Management* 42 (4/5): 302–304. <https://www.emerald.com/insight/content/doi/10.1108/LM-01-2021-0008/full/html> Accessed 22 April 2024.

Amin, S. 2014. Writing a literature Research Research paper: A step-by-step approach. *International Journal of Basic and Applied Science*, 3 (1):47-56.

Andrade, C. 2020. Sample size and its importance in research. *Indian Journal of Psychological Medicine*, 2 (1). [https://doi.org/10.4103/IJPSYM.IJPSYM\\_504\\_19](https://doi.org/10.4103/IJPSYM.IJPSYM_504_19) Accessed 12 June 2024.

Ashaver, D., and Bem-Bura, M. D. 2013. Students' perception of library services in universities in Benue State. *IOSR Journal of Research and Method in Education*, 1 (5): 41-48. <https://www.iosrjournals.org/iosr-jrme/papers/Vol-1%20Issue-5/H0154148.pdf> Accessed 2 April 2024.

Ashiq, M., Jabeen, F., and Mahmood, K. 2022. Transformation of libraries during Covid-19 pandemic: A systematic review. *Journal of Academic Librarianship*, 48 (4): 102534. <https://doi.org/10.1016/j.acalib.2022.102534> Accessed 20 April 2024.

Association of Research Libraries. 2015. LibQUAL+® 2015 Survey Results - academic libraries and quality: An analysis and evaluation framework. *New Review of Academic Librarianship*, 23 (4): 421-441.

Association of Research Libraries. 2019. LibQUAL+® monthly update. Available <https://www.libqual.org/news/1295>. Accessed 21 June 2024.

Association of Research Libraries. 2021. LibQUAL survey. [https://www.libqual.org/documents/LibQual/notebooks/287\\_6.pdf](https://www.libqual.org/documents/LibQual/notebooks/287_6.pdf) Accessed 18 October 2024.

Atef, T. M. 2011. Assessing the ability of the Egyptian hospitality industry to serve special needs customers. *Management Leisure* , 16: 31-242. doi: 10.1080/13606719.2011.583410

Baada, F. N. A., Baayel, P., Bekoe, S., and Banbil, S. 2019. Users' perception of the quality of public library services in the greater Accra region of Ghana: An application of the LibQUAL+ model. *Library Philosophy and Practice*, 1-33.

[https://www.researchgate.net/profile/Frederic-Baada/publication/333093346\\_Users'\\_Perception\\_of\\_the\\_Quality\\_of\\_Public\\_Library\\_Services\\_in\\_the\\_Greater\\_Accra\\_Region\\_of\\_Ghana\\_An\\_Application\\_of\\_the\\_LibQUAL\\_Model/links/5cdb45f2a6fdccc9dda3cf9/Users-Perception-of-the-Quality-of-Public-Library-Services-in-the-Greater-Accra-Region-of-Ghana-An-Application-of-the-LibQUAL-Model.pdf](https://www.researchgate.net/profile/Frederic-Baada/publication/333093346_Users'_Perception_of_the_Quality_of_Public_Library_Services_in_the_Greater_Accra_Region_of_Ghana_An_Application_of_the_LibQUAL_Model/links/5cdb45f2a6fdccc9dda3cf9/Users-Perception-of-the-Quality-of-Public-Library-Services-in-the-Greater-Accra-Region-of-Ghana-An-Application-of-the-LibQUAL-Model.pdf)  
Accessed 4 June 2024.

Barfi, K. A., Parbie, S. K., Filson, C. K., Teye, M. V., Kodua-Ntim, K., and Ayensu, E. 2023. Assessing the quality of services at an academic library. *Heliyon*: 12.

<https://doi.org/10.1016/j.heliyon.2023.e22449> Accessed 1 November 2024.

Bayraktar, C. A. 2020. Content suggestion for mobile applications to facilitate student life in technical universities: The ITU Mobile. *Engineering education trends in the digital era*: 242-266. IGI Global.

Bhandari, P. 2021. Ethical considerations in research | types and examples.

<https://www.scribbr.com/methodology/research-ethics/> Accessed 9 June 2024.

Bhanu, P. 2017. Evaluating library service quality using LibQUAL+TM tool: A case study of Punjab Agricultural University. *Ludhiana*, 2 : 12-19.

[https://www.researchgate.net/publication/334989154\\_Evaluating\\_Library\\_Service\\_Quality\\_Using\\_LibQUALTM\\_Tool\\_A\\_Case\\_Study\\_of\\_Punjab\\_Agricultural\\_University\\_Ludhiana](https://www.researchgate.net/publication/334989154_Evaluating_Library_Service_Quality_Using_LibQUALTM_Tool_A_Case_Study_of_Punjab_Agricultural_University_Ludhiana)  
Accessed 14 April 2024.

Bhattacharjee, A. n.d . Social science research: principles, methods, and practices.

[http://scholarcommons.usf.edu/oa\\_textbooks/3/](http://scholarcommons.usf.edu/oa_textbooks/3/). Accessed 4 June 2024.

Business Bliss Consultants FZE. 2018. Service quality concepts.

<https://ukdiss.com/litreview/service-quality.php?vref=1> Accessed 4 June 2024.

Casteel, A., and Bridier, N. L. 2021. Describing populations and samples in doctoral student research. *International Journal of Doctoral Studies*, 16: 339-362.

<https://doi.org/10.28945/4766> Accessed 2 June 2024.

Chaudhry, M. S., Bhatti, M. Z., Shahzad, K., Sulehri, I. G., Hussain, I., and Ullah, M. U. 2021. Users' perceptions and expectations of quality services in libraries of Punjab Group of Colleges, Lahore. *Library Philosophy and Practice*, 1.

<https://search.ebscohost.com/login.aspx?direct=true&profile=ehostandscope=siteandauthy&pe=crawlerandjrnl=15220222&AN=154632784&dh=5%2BJJ%2BbDHvEo3k%2BFgA%2BQ0TwPOwTMYqnuXax1kB5U3L%2FZSb2TOPF%2FgiA8lZOGESv3Q2eB5kv32x%2Bb9qOinyw0Q%3D%3D&andcr1=c> Accessed 23 April 2024.

Chigbu, U. E., Atiku, S. O., and Du Plessis, C. C. 2023. The Science of literature reviews: searching, identifying, selecting, and synthesising. *Publications*, 11 (1): 2. <https://doi.org/10.3390/publications11010002> Accessed 4 June 2024.

Chigwada, J. 2022. The Impact of COVID-19 on Academic Library Service Delivery in Zimbabwe. *International Journal of Librarianship*, 7 (1): 43-55. <https://doi.org/10.23974/ijol.2022.vol7.1.222> Accessed 22 March 2024.

Chinelo. I. 2016. Fundamentals of research methodology and data collection. Lambert Academic Publishing. [https://www.researchgate.net/publication/303381524\\_Fundamentals\\_of\\_research\\_methodology\\_and\\_data\\_collection?enrichId=rgreq-8341d90fd52786d21b87f4e1d22dddafa-XXX&enrichSource=Y292ZXJQYWdlOzMwMzM4MTUyNDtBUzozNjM4NDU4NTcxMDM4NzNAMTQ2Mzc1OTAyMDk2MQ%3D%3D&el=1\\_x\\_2&esc=publicationCoverPdf](https://www.researchgate.net/publication/303381524_Fundamentals_of_research_methodology_and_data_collection?enrichId=rgreq-8341d90fd52786d21b87f4e1d22dddafa-XXX&enrichSource=Y292ZXJQYWdlOzMwMzM4MTUyNDtBUzozNjM4NDU4NTcxMDM4NzNAMTQ2Mzc1OTAyMDk2MQ%3D%3D&el=1_x_2&esc=publicationCoverPdf) Accessed 22 March 2024.

Chisita, C.T., Chiparausha, B., Tsabetse, V., Olugbara, C.T. and Letseka, M. 2022. Remaking academic library services in Zimbabwe in the wake of the COVID-19 pandemic. *The Journal of Academic Librarianship*, 48 (3): 102521.

Christopher, I. and Udoh, E. 2020. The determinants of survey design in a research undertaking. *International Journal of Recent Research in Commerce Economics and Management (IJRRCEM)*, 7 (1): 29-37. <https://www.paperpublications.org/upload/book/THE%20DETERMINANTS%20OF%20SURVEY-1467.pdf> Accessed 20 June 2024.

Connell, R. S., Wallis, L., and Comeaux, D. 2021. The Impact of COVID-19 on the use of academic library resources. *Information Technology and Libraries*, 40 (2). <https://doi.org/10.6017/ital.v40i2.12629> Accessed 3 April 2024.

Cook, C. and Heath, F. 2001. Users' perceptions of library service quality: A LibQUAL qualitative study. *Library Trends*, 49 (4): 548-84.

Cook, C., Heath, F., Thompson, B., and Webster, D. 2003. LibQUAL Preliminary results from 2002. *Performance Measurement and Metrics*, 4 (1): 38-47. [www.emeraldinsight.com/10.1108/14678040310471239](http://www.emeraldinsight.com/10.1108/14678040310471239) Accessed 22 March 2024.

Cook, C., Thompson, B., Heath, F., and Thompson, R. 2001. LibQUAL+: Service quality assessment in research libraries. *IFLA Journal*, 27 (4): 264-268. <https://journals-sagepub-com.ukzn.idm.oclc.org/doi/epdf/10.1177/034003520102700410> Accessed 12 July 23.

Cram, W., Templier, M., and Pare, G. 2020. (Re)considering the concept of literature review reproducibility. *Journal of the Association for Information Systems*, 1. 10.17705/1jais.00630.

Creswell, J. W., and Creswell, J. D. 2018. Research design: Qualitative, quantitative, and mixed methods approaches. Sage Publications.

Cronin, P., Ryan, F., and Coughlan, M. 2008. Undertaking a literature review: A step-by-step approach. *British Journal of Nursing*, 17 (1): 38-43.

Dahan, S. M., Taib, M. Y., Zainudin, N. M., and Ismail, F. 2015. Surveying users' perception of academic library services quality: A case study in Universiti Malaysia Pahang (UMP) Library. *The Journal of Academic Librarianship*, 42 (1): 38-43. <https://doi.org/10.1016/j.acalib.2015.10.006> Accessed 4 June 2024.

Danbabale, A. 2015. The gender dimension of library use: The case of Federal University, Lokoja. *Information Impact: Journal of Information and Knowledge Management*, 6 (1): 30-40.

Dangal, M. 2021. Survey Design Research What are examples of Survey Design Types? [https://www.researchgate.net/publication/349502367\\_Survey\\_Design](https://www.researchgate.net/publication/349502367_Survey_Design) Quantitative research Accessed 2 June 2024.

De Groote, S., and Scoulas, J. M. 2021. Impact of COVID-19 on the use of the academic library. *Reference Services Review*, 49 (3/4): 281-301. <https://doi.org/10.1108/RSR-07-2021-0043> Accessed 3 April 2024.

Dennis, B.W. and Bower, T. 2008. Using Content Analysis Software to Analyze Survey Comments. *Portal: Libraries and the Academy*, 8 (4): 423- 437.

Derek, J. and Kerryn, W. 2020. What is research methodology? A plain-language explanation and definition (with examples). <https://gradcoach.com/what-is-research-methodology/> Accessed 14 June 2024.

Dibekulu, D. 2020. An overview of data analysis and interpretations in research : 1-27. 10.14662/IJARER2020.015.

Dragan D and Topolšek D .2014. Introduction to structural equation modelling: review, methodology and practical applications. *The International Conference on Logistics and Sustainable Transport*, 6: 19-21.

Dube, T.V. and Jacobs, L. 2023. Academic library services extension during the COVID-19 pandemic: considerations in higher education institutions in the Gauteng Province, South Africa. *Library Management*, 44 (1/2): 17-39. <https://doi.org/10.1108/LM-04-2022-0039> Accessed 28 March 2024.

Durodolu, O., Chisita, C.T. and Dube, T.V. 2021. Flattening the curve of fake news in the epoch of infodemic: an epistemic challenge, in Blankenship, R. *Handbook of Research on Deep Fakes, Fake News, and Misinformation in Online Teaching and Learning Technologies. IGI Global*: 143-161.

Eke, F. M. 2020. Measurement of usability of library services and factors affecting the use of these services/resources in academic libraries: A case of the library, Federal University of Technology, Owerri.

Farida, N., Kadek.A., Putra, D., and Asmarany, C. 2021 Positive Impact of COVID-19 Pandemic on Library Service. <https://umlib.um.edu.my/images/library%20publication/icolis/2021/Positive%20Impact%20of%20COVID-19%20Positive%20Impact%20of%20COVID-19.pdf> Accessed 18 April 2024.

- Feigenbaum, A. V. 1988. Total quality developments into the 1990s—an international perspective. *Total Quality Management: An IFS Executive Briefing*, IFS Publications, Kempston.
- Foster, M., and Whittle, S. 1989. The quality management maze. *The TQM Magazine*, 1:3.
- Gauder, B. 2011. Perceptions of Libraries, 2010: Context and Community. A Report to the OCLC Membership. OCLC Online Computer Library Center, Inc.  
[https://www.oclc.org/content/dam/oclc/reports/2010perceptions/2010perceptions\\_all.pdf](https://www.oclc.org/content/dam/oclc/reports/2010perceptions/2010perceptions_all.pdf)  
 Accessed 22 March 2024.
- Ghaedi, R., Valizadeh-Haghi, S., Ahmadi, E., Zeraatkar, Z., and Baghestani, A. R. 2020. Gaps between users expectations and their perceptions on service quality of college libraries of Shahid Beheshti University of Medical Sciences: a case study. *Journal of Library and Information Technology*, 40 (2): 20-31.
- Goundar, S. 2012. Chapter 3 - Research Methodology and Research Method.  
[https://www.researchgate.net/publication/333015026\\_Chapter\\_3\\_Research\\_Methodology\\_and\\_Research\\_Method](https://www.researchgate.net/publication/333015026_Chapter_3_Research_Methodology_and_Research_Method) Accessed 19 June 2024.
- Gow, A. H. 2021. An investigation of service quality in the healthcare sector: a study of an independent private physiotherapy practice. Edinburgh Napier University. Doctoral dissertation. <http://researchrepository.napier.ac.uk/id/eprint/6910> Accessed 28 March 2024.
- Gyau, F., Liu, J., and Kwakye, O. 2021. Evaluation of User Satisfaction with Academic Libraries Services Based on Students Perspectives. *Open Access Library Journal*, 8: 1-17. 10.4236/oalib.1107783.
- Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. 2013. Multivariate data analysis: Pearson new international edition PDF eBook: Pearson Higher Ed.
- Harris, S. Y. 2021. COVID-19 impact on the Caribbean academic library: Jamaica's preliminary response to people, place, product and services. *Library Management*, 42 (6-7): 340–361.
- Hashim, S., Mohamad, S. F., Lim, S. and Ahmat, N. 2022. Pretesting Survey Questionnaire: A Guide on Dissemination. *International Journal of Academic Research in Economics and Management Sciences*. 11.  
[https://www.researchgate.net/publication/365167792\\_Pretesting\\_Survey\\_Questionnaire\\_A\\_Guide\\_on\\_Dissemination](https://www.researchgate.net/publication/365167792_Pretesting_Survey_Questionnaire_A_Guide_on_Dissemination) Accessed 2 June 2024.
- Hernon, P., and Matthews, J. R. 2010. Assessing service quality: Satisfying the expectations of library customers. Libraries Unlimited.  
<https://www.emerald.com/insight/content/doi/10.1108/LM-10-2020-0149/full/html> Accessed 3 April 2024
- Huda, S. S., Akhtar, A., and Ahmed, J. U. 2010. The State of Private Universities in Bangladesh: An Evaluation of Students Perception. *Information Management and Business Review*, 1 (1): 16–27. <https://doi.org/10.22610/imbr.v1i1.868> Accessed 9 March 2024.

Hulland, J., and Houston, M. B. 2020. Why systematic review papers and meta-analyses matter: An introduction to the special issue on generalisations in marketing. *Journal of the Academy of Marketing Science*, 48: 351-359.

Indeed. 2023. Service Quality: Definition, Importance, and Implementation. <https://ca.indeed.com/career-advice/career-development/service-quality> Accessed 9 March 2024.

Ishar, N and Masodi, S . 2012. Students' perception towards quality library service using Rasch Measurement Model. *International Conference on Innovation Management and Technology Research*: 668-672. doi: 10.1109/ICIMTR.2012.6236479 Accessed 18 April 2024.

Islam S, Mostafa ,S. M. 2013. A review of digital resources among different types of libraries in Bangladesh. *International Journal of Humanities and Social Sciences* 2 (1): 109-120.

Isoraite, M. 2008. The balanced scorecard method: From theory to practice. *Intelektine ekonomika*, (1). <https://www3.mruni.eu/~int.economics/3nr/Isoraite.pdf> Accessed 20 April 2024.

Jackson, B. 2015. University Rankings: How well do they measure library service quality? *Libraries and the Academy*, 15 (2): 315-330. [https://www.researchgate.net/deref/https%3A%2F%2Fwww.libqual.org%2Fdocuments%2FlibQual%2Fpublications%2F2011\\_ALA\\_SanDiego\\_SurveyIntro.pdf? tp=eyJjb250ZXh0Ijpw7ImZpcnN0UGFnZSI6InB1YmxpY2F0aW9uIiwicGFnZSI6InB1YmxpY2F0aW9uIn19](https://www.researchgate.net/deref/https%3A%2F%2Fwww.libqual.org%2Fdocuments%2FlibQual%2Fpublications%2F2011_ALA_SanDiego_SurveyIntro.pdf? tp=eyJjb250ZXh0Ijpw7ImZpcnN0UGFnZSI6InB1YmxpY2F0aW9uIiwicGFnZSI6InB1YmxpY2F0aW9uIn19) Accessed 4 June 2024.

Jain, P., and Gupta, A. 2015. Library Service Quality and User Satisfaction: A Study of University Libraries in India. *International Journal of Library and Information Science*, 7 (3): 27-36.

Jeyalakshmi, S. S., and Meenakumari, S. 2016. Service quality management: a literature review. *Shanlax International Journal of Management*, 3 (4): 22-45.

Jha, S., and Jha, A. 2021. User Expectations and Library Services: A Study of Academic Libraries. *International Journal of Library and Information Science*, 13 (2): 45-59. <https://doi.org/10.5897/IJLIS2020.0794> Accessed 4 June 2024.

Kaapu, N.H. 2021. Using libQual to evaluate user satisfaction with library services at the Aloe park South African police service (SAPS), National Library, Pretoria, South Africa. (Masters dissertation).

Kaplan, R. S., and Norton, D. P. 1992. The Balanced Scorecard—Measures That Drive Performance. *Harvard Business Review*, January: 71–79.

Kekana, M. D. 2016. Postgraduate students perceive the library as an environment for reading, studying, and researching at the University of KwaZulu-Natal Pietermaritzburg campus .Masters dissertation. <https://researchspace.ukzn.ac.za/handle/10413/14377> Accessed 12 July 23.

Kekana, M. D., and Kheswa, S. E. 2020. The gap between user perceptions and expectations of students at the main library of the University of KwaZulu-Natal: Pietermaritzburg Campus. *South African Journal of Information Management*, 22 (1): 1-9.

Khaola, P., and Mabilikoane, M. 2015. Perception of library service quality, satisfaction and frequency of use of library resources. *Inkanyiso: Journal of Humanities and Social Sciences*, 7 (1): 44-52. <https://www.ajol.info/index.php/ijhss/article/view/118783> Accessed 18 April 2024.

Kim, J. 2016. *The Journal of Academic Librarianship*. Volume 42, Issue 5, September 2016, Pages 509-514 <https://doi.org/10.1016/j.acalib.2016.06.013> Accessed 18 October 2024.

Kirshenblatt, B. 2006. What Is Research Design? The Context of Design. New York University, <https://library.sacredheart.edu/c.php?g=29803> and p=1859 02 Accessed 2 June 2024.

Kobero, W., and Swallehe, O. 2022. The effects of service quality on customer satisfaction in higher learning institutions in Tanzania. *Open Journal of Business and Management*, 10 (3): 1373-1391.

Koenig, M. E. D. 2022. The Role of Discovery Tools in Improving Library User Experience. *Library Technology Reports*, 58 (3): 25-30. <https://doi.org/10.5860/ltr.58.3.25> Accessed 4 June 2024.

Kumar, A., and Mahajan, P. 2019. Library performance assessment of service quality through LibQUAL: The case of Maharshi Dayanand University (MDU), Rohtak (India). *Library Philosophy and Practice*, 1-17.

Kumar, S., and Kumar, V. 2020. Diversity of Information Sources in Academic Libraries: User Perceptions and Satisfaction. *Journal of Library and Information Science*, 45 (2): 123-136. <https://doi.org/10.1016/j.lisr.2020.01.002> Accessed 4 June 2024.

Kumari, N. 2011. Balanced scorecard for superior organisational performance. *European Journal of Business and Management*, 3 (5): 73-86.

Kuphanga, D. 2024. Questionnaires in Research: Their Role, Advantages, and Main Aspects. 10.13140/RG.2.2.15334.64325. Accessed 4 June 2024.

Kyrillidou, M. 2011. LibQUAL survey introduction. [https://www.libqual.org/documents/LibQual/publications/2011\\_ALA\\_SanDiego\\_SurveyIntro.pdf](https://www.libqual.org/documents/LibQual/publications/2011_ALA_SanDiego_SurveyIntro.pdf). Accessed 4 June 2024.

Ladhari, R. 2009. A review of twenty years of SERVQUAL research. *International Journal of Quality and Service Sciences*, 1 (2): 172-198.

Lakhe, R. R., and Mohanty, R. P. 1994. Total Quality Management: Concepts, Evolution and Acceptability in Developing Economies. *International journal of quality and reliability management*, 11 (9): 9-33. <https://www.emerald.com/insight/content/doi/10.1108/02656719410074279/full/html> Accessed 4 June 2024.

Lalwani, A. K., Wang, J. J., and Silvera, D. H. 2020. How does cultural self-construal influence regulatory mode. *Journal of Business Research*, 117: 368-377. <https://doi.org/10.1016/j.jbusres.2020.06.019> Accessed 5 June 2024.

Lane, F.C., Anderson, B., Ponce, H. F, and Natesan, P.2012. Factorial invariance of LibQUAL+® as a measure of library service quality over time. *Library Information Science Research*, 4 (1): 22-30.

Lau, S. 2024. SURVEY DESIGN. <https://thedecisionlab.com/reference-guide/psychology/survey-design> Accessed 2 August 2024.

Law insiders. 2024. Library service definition. <https://www.lawinsider.com/dictionary/library-service>. Accessed 12 March 2024.

Mahmood, K., Rehman, S. and Ashiq, M. 2020. Measuring Library Service Quality of the College Libraries in Pakistan: An Analysis of the LibQUAL Comments. *Library Philosophy and Practice (e-journal)*. <https://digitalcommons.unl.edu/libphilprac/4338> Accessed 4 June 2024.

Malatji, K. J. 2017. Students' Perceptions of the Role of the Library in Their Studies at Tshwane University of Technology, Polokwane Campus , University of South Africa. Doctoral dissertation. <https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=15296&context=libphilprac> Accessed 3 April 2024.

Mallya, J. and Payini, V. 2019. Evaluation of Students' perceptions of library service quality using LibQUAL model: The case study in Hospitality Institute in India. *Library Philosophy and Practice (e-journal)*. 2920. <https://digitalcommons.unl.edu/libphilprac/2920> Accessed 4 June 2024.

Marowa, Y. N. 2015. Library service quality: A case study of industrial engineering technology students (Order No. 28281824). ProQuest Dissertations and Theses Global. (2525694079). <https://ukzn.idm.oclc.org/login?url=https://www.proquest.com/dissertations-theses/library-service-quality-case-study-industrial/docview/2525694079/se-2> Accessed 4 May 2024.

Matiwane, N. 2017. User perceptions of education students with special reference to the quality of service at Walter Sisulu University Library, Butterworth, South Africa. Masters dissertation. <https://researchspace.ukzn.ac.za/handle/10413/17044?show=full> . Accessed 12 July 23.

McCombes, S. 2019. Research Design: Types, Methods, and Examples.

McMenemy, D., Robinson, E., and Ruthven, I. 2023. The impact of COVID-19 lockdowns on public libraries in the UK: Findings from a national study. *Public Library Quarterly*, 42 (1): 92-110. <https://doi.org/10.1080/01616846.2022.2058860> Accessed 3 April 2024.

McNeil, B. 2009. Library Service Quality: A Review of the Literature. *Library and Information Science Research*, 31 (2): 95-102.

- Mehta, D., and Wang, X. 2020. COVID-19 and digital library services—a case study of a university library. *Digital library perspectives*, 36(4):351-363. <https://doi.org/10.1108/DLP-05-2020-0030> Accessed 14 April 2024.
- Mendoza, T.E. 2020. Students' Satisfaction with Library's Service Quality and Services in a Flexible Learning Environment. *International Journal for Multidisciplinary Research (IJFMR)*, 6 (1). [www.ijfmr.com](http://www.ijfmr.com) <https://www.ijfmr.com/papers/2024/1/12161.pdf> Accessed 4 June 2024.
- Mgqalelo, N., 2005. Third-year students' perceptions of the library services at the Butterworth campus of the Eastern Cape technikon, South Africa. Masters dissertation. <https://researchspace.ukzn.ac.za/handle/10413/18395> Accessed 21 March 2023.
- Mierzecka, A., Kisilowska, M., and Suminas, A. 2017. Researchers' expectations regarding the online presence of academic libraries. *College and Research Libraries*, 78 (7). <https://crl.acrl.org/index.php/crl/article/view/16789/18348> Accessed 18 October 2024.
- Miller, K. F. 2008. Service quality in academic libraries: An analysis of LibQUAL+™ scores and institutional characteristics. University of Central Florida. <https://www.proquest.com/openview/43aac46d7ac02c577c538b303c61fdaf/1?pq-origsite=gscholarandcbl=18750> Accessed 12 July 23.
- Mills, J.G. 2024. Survey Research Design, A Simple Introduction Learn how to conduct research using online surveys <https://www.supersurvey.com/Research> Accessed 12 June 2024.
- Mohaiminul. I. 2020. Data Analysis: Types, Process, Methods, Techniques and Tools. *International Journal on Data Science and Technology*, 6 (1): 10–15. doi: 10.11648/j.ijdst.20200601.12
- Morales , M., Ladhari, R., Reynoso, J., Toro, R., and Sepulveda C. 2011. Factor structure and psychometric properties of a Spanish version of LibQUAL+™. *Performance Measurement and Metrics*, 12 (1): 23-37.
- Motiang, I. P., M. Wallis, and A. M. Karodia. 2014. An Evaluation of User Satisfaction with Library Services at the University of Limpopo, Medunsa Campus (Medical University of South Africa). *Arabian Journal of Business and Management Review*, 3 (11): 41–58. <https://doi.org/10.12816/0016519>. Accessed 30 October 2024.
- Muhammad, K.S. 2016. Methods of data collection. <https://www.researchgate.net/publication/325846997> Accessed 21 June 2024.
- Munohsamy, T. 2016. Students' Perception of Library Services in Academia: A Case Study of Universiti Teknologi Brunei. *T. Munohsamy/Advances in Science, Technology and Engineering Systems Journal*, 1(6): 14.
- Musabila, A. K., and Daniel, D. 2018. Library Services at the Sokoine National Agricultural Library (SNAL) in Morogoro Region. March 2020.

Musabila, A. K., Bea, G., and Deogratus, D. 2018. Analysis of customer satisfaction with library services at the Sokoine National Agricultural Library (SNAL) in Morogoro region in Tanzania. *Library Philosophy and Practice*, 1: 1899.

Muyembe Asenahabi, B., and Anselemo Ikoha, P. 2023. Scientific research sample size determination. <http://erepository.au.ac.ke/bitstream/handle/123456789/1960/ST2307-008.pdf?sequence=1&isAllowed=y>

Mweshi, G. and Sakyi, K. 2020. Application of Sampling Methods For The Research Design. *Archives of Business Research*, 8. 10.14738/abr.811.9042.

Nanjundeswaraswamy, T. S., and Divakar, S. 2021. Determination of sample size and sampling methods in applied research. *Proceedings on engineering sciences*, 3(1), 25-32.

Ncwane, S. E. 2016. User perceptions of service quality and user satisfaction at the Mangosuthu University Technology's Natural Sciences Library, Umlazi, Durban. Masters dissertation. <https://core.ac.uk/download/pdf/196550675.pdf> Accessed 18 April 2024.

Neshat, N. and Dehghani, M. 2013. Review of the current gap between clients' expectations and perceptions of received service in the national library by using gap analysis model. *Performance Measurement and Metrics*, 14 (1): 45–60. <https://doi.org/10.1108/14678041311316130> Accessed 4 June 2024.

Neuert, C., Meitinger, K., Behr, D., and Schonlau, M. 2021. The Use of Open-ended Questions in Surveys. *Methods, data, and analyses: A journal for quantitative methods and survey methodology*, 15 (1): 3-6. <https://nbnresolving.org/urn:nbn:de:0168-ssoar-73172-3> Accessed 2 June 2024.

Ngcobo, N. P. 2019. Assessment of 24-hour service quality in the University of KwaZulu-Natal Library. Master's degree. <https://researchspace.ukzn.ac.za/handle/10413/21384> Accessed 4 June 2024.

Nzivo, C.N. and Chuanfu, C. 2013. International students' perception of library services and information resources in Chinese academic libraries. *The Journal of Academic Librarianship*, 39 (2): 129-137. <https://doi.org/10.1016/j.acalib.2012.11.004> Accessed 01 April 2023.

Nzomo, P. 2023. The Impact of COVID-19 on the Use of Library Resources and Services by International Students: A Case Study. *Journal of Library Administration*, 63 (5): 722–740. <https://doi.org/10.1080/01930826.2023.2219602> Accessed 18 April 2024.

Obiano, R.C. 2021. The Impact of the COVID-19 Pandemic on Library Users. *Research Journal of Library and Information Science*, 5 (1): 08-12. DOI: <https://doi.org/10.22259/2637-5915.0501002> Accessed 22 March 2024.

Odu, J.O., and Omini, E.U. 2018. Mobile phone applications and the utilisation of library services in the University of Calabar Library Nigeria. *Global Journal of Educational Research*, 16: 111-119.

Okonoko, V, Abba, M.A and Arinola, A. E. 2020. Users' Expectation of Library Services and Resources in the COVID-19 Pandemic Era: A Comparative Study of Two Academic Libraries in Nigeria. *Library Progress (International)*.  
[https://unidel.edu.ng/cms/uploads/publications/unidel\\_pub\\_1697209873.pdf](https://unidel.edu.ng/cms/uploads/publications/unidel_pub_1697209873.pdf) Accessed 10 November 2024.

Panahi, S., Bazrafshani, A., and Mirzaie, A. 2023. Development and validation of a modified LibQUAL scale in health sciences libraries: Application of Structural Equation Modeling. *Journal of the Medical Library Association*, 111 (4): 792-801.  
<https://doi.org/10.5195/jmla.2023.1348> Accessed 2 June 2024.

Pandey, P., and Pandey, M. M. 2021. Research methodology tools and techniques.  
<https://www.euacademic.org/BookUpload/9.pdf> Accessed 2 June 2024.

Parasuraman, A., Zeithaml, V. A., and Berry, L. L. 1985. A conceptual model of service quality and its implications for future research. *Journal of Marketing*, 49: 41–50.

Parasuraman, A., Zeithaml, V. A., and Berry, L. L. 1988. SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64 (1): 2–40.

Parbie, S., Phuti, R., and Barfi, K. A. 2021. Users' perception of library facilities: Evidence from the University of Cape Coast.  
[https://www.researchgate.net/publication/349139587\\_Users'\\_Perception\\_of\\_Library\\_Facilities\\_Evidence\\_from\\_the\\_University\\_of\\_Cape\\_Coast](https://www.researchgate.net/publication/349139587_Users'_Perception_of_Library_Facilities_Evidence_from_the_University_of_Cape_Coast) Accessed 4 June 2024.

Partap, B. 2017. Evaluating Library Service Quality Using LibQUAL+TM Tool: A Case Study of Punjab Agricultural University. *Ludhiana*, 2: 12-19.

Partap, B. and Rao, S.S. 2020. Measuring user's perception about library service quality in select university libraries of Haryana and Punjab of States, India: A LibQUAL+TM study. *Management Journal of Siva Sivani Institute of Management*, 10 (2): 55-70.

Paul, J., and Criado, A. R. 2020. The art of writing a literature review: What do we know and need to know. *International Business Review*, 29 (4): 101717.

Pawar, N. 2020. Type of Research and Type of Research Design.  
[https://www.researchgate.net/publication/352055750\\_6\\_Type\\_of\\_Research\\_and\\_Type\\_Research\\_Design](https://www.researchgate.net/publication/352055750_6_Type_of_Research_and_Type_Research_Design) Accessed 2 June 2024.

Ponto, J. 2015. Understanding and Evaluating Survey Research. *Journal of the Advanced Practitioner in Oncology*, 6 (2).

Posey, J. A. 2009. Student perceptions and expectations of library services quality and user satisfaction at Walters State Community College (Doctoral dissertation, East Tennessee State University).  
<https://dc.etsu.edu/cgi/viewcontent.cgi?referer=andhttpsredir=1andarticle=3188andcontext=etd> Accessed 18 April 2024.

Post ,C., Sarala , R., Gatrell , C., Prescott, J. E .2020. Advancing theory with review articles. *Journal Management Studies*, 57 (2): 351-376.

Price, R. C., and Gaskill, G. P. 1990. Total Quality Management in Research-Philosophy and Practice. *Total Quality Management*, 3, 77-87. Accessed 18 April 2024.

Rafiq S., Ashiq M., Ur Rehman S, and Yousaf, F.2021. A content analysis of the websites of the World's top 50 universities in medicine. *Science and Technology Libraries*, 40 (3): 260-281.

Rafiq, M., Batool, S.H., Ali, A.F. and Ullah, M. 2021. University libraries response to COVID-19 pandemic: A developing country perspective. *The Journal of Academic Librarianship*, 47 (1):102280.

Rafiq, M., Batool, S.H., Ali, A.F., Ullah, M. 2021 University libraries response to COVID-19 pandemic: A developing country perspective. *The Journal of Academic Librarianship*, 47 (1).

Ramya, N., Kowsalya, A. and Dharanipriya, K. 2019. Service quality and its dimensions. <https://www.researchgate.net/publication/333058377>. Accessed 03 April 24.

Rashid, H. 2022. Main aspects of questionnaire. *Library and Information Management*. <https://limbd.org/questionnaire-main-aspects-merits-demerits-of-questionnaire/> Accessed 2 June 2024.

Rehman, S. U., Kyriallidou, M., and Hameed, I. 2017. Reliability and validity of a modified LibQUAL+® survey in Pakistan: An Urdu language experience. *Malaysian Journal of Library and Information Science*, 19 (2). <http://www.ijeionline.com/> Accessed 2 June 2024.

Rilwanu, A. and Maidabino, A. 2020. Postgraduate Students' Expectations and Perceptions on Quality of Service Provision by University Libraries in Nigerian Universities: Evidence-Based Investigation. *International Journal of Library and Information Studies*, 10 (3): 2231-4911. [https://www.researchgate.net/profile/RilwanuAdamu/publication/354687137\\_Postgraduate\\_Students'\\_Expectations\\_and\\_Perceptions\\_on\\_Quality\\_of\\_Service\\_Provision\\_by\\_University\\_Libraries\\_in\\_Nigerian\\_Universities\\_Evidence\\_Based\\_Investigation/links/6146cb72519a1a381f6c1e8a/Postgraduate-Students-Expectations-and-Perceptions-on-Quality-of-Service-Provision-by-University-Libraries-in-Nigerian-Universities-Evidence-Based-Investigation.pdf](https://www.researchgate.net/profile/RilwanuAdamu/publication/354687137_Postgraduate_Students'_Expectations_and_Perceptions_on_Quality_of_Service_Provision_by_University_Libraries_in_Nigerian_Universities_Evidence_Based_Investigation/links/6146cb72519a1a381f6c1e8a/Postgraduate-Students-Expectations-and-Perceptions-on-Quality-of-Service-Provision-by-University-Libraries-in-Nigerian-Universities-Evidence-Based-Investigation.pdf) Accessed 4 June 2024.

Rizky, T. D. ., Huda, N., Muslikh, M., and Rini, N. 2020. Analysis (LibQual) on Loyalty and Library Satisfaction; A Case Study in YARSI University Library Service Center. *Journal Organisation Dan Management*, 16 (2): 182-195. <https://doi.org/10.33830/jom.v16i2.963.2020> Accessed 4 June 2024.

Ryan, G. 2018. Introduction to positivism, Interpretivism, and critical theory. *Nurse Researcher*, 25 (4): 14–20.

Sadaf, F. and Rahela, F. 2019. Service quality to e-service quality: a paradigm shift. *Proceedings of the International Conference on Industrial Engineering and Operations Management, Bangkok*, 5 (7): 1656–1666.

- Salas-Pilco, S. Z., Yang, Y., and Zhang, Z. 2022. Student engagement in online learning in Latin American higher education during the COVID-19 pandemic: A systematic review. *British Journal of Educational Technology*, 53 (3): 593–619. <https://bera-journals.onlinelibrary.wiley.com/doi/full/10.1111/bjet.13190> Accessed 18 April 2024.
- Saleh, A.G. 2014. Meeting the information needs of remote library users: The case of the University of Maiduguri distance learning programme. *Information Impact: Journal of Information and Knowledge Management*, 5 (2): 1-16.
- Sayekti, R., Aditya, M., Simahate, T., and Devianty, R. 2022. An assessment of information control: Understanding library service quality from users' perspectives. *Evidence-Based Library and Information Practice*, 17 (2): 88-108. <http://creativecommons.org/licenses/by-nc-sa/4.0/> Accessed 4 June 2024.
- Schmidt, J. 2006. From library to cybrary: Changing library design and service delivery focus. *Libraries: changing information space and practice*: 57-72.
- Scoulas, J. M. 2021. College students' perceptions of belonging and inclusion at the academic library during COVID-19. *The Journal of Academic Librarianship*, 47 (6): 102460. <https://doi.org/10.1016/j.acalib.2021.102460> Accessed 14 April 2024.
- Sekaran, U., and Bougie, R. 2016. Research methods for business: A skill-building approach. John Wiley and Sons Ltd. [www.wileypluslearningspace.com](http://www.wileypluslearningspace.com) Accessed 11 June 2024.
- Seth, N., Deshmukh, S . G and Vrat, P. 2005. Service Quality Models: A review. *International Journal of Quality and Reliability Management*, 22 (9): 913-949.
- Setia, M.S. 2016. Methodology series module 3: Cross-sectional studies. *Indian J Dermatol*: 61:261-4.
- Sheeja, N.K. 2010. Undergraduate students' perceptions of digital library: A case study. *The International Information and Library Review*, 42 (3): 149–153. <https://www-tandfonline.com.ukzn.idm.oclc.org/doi/full/10.1080/10572317.2010.10762859> Accessed 05 April 2023.
- Shidu, G. K. 2003. Literature in the Language Classroom: Seeing through the Eyes of Learners. In: Ganakumaran and Edwin Malaci (Eds). *Teaching of Literature in ESL/EFL context*: 88–110.
- Shokouhi. F. 2008. Investigating quality dimensions using SERV-QUAL model based on customers' expectations and providing improvement strategies in E-Commerce Persian Co. Masters Thesis.
- Shukla, S. 2020. Concept of population and sample. [https://www.researchgate.net/publication/346426707\\_CONCEPT\\_OF\\_POPULATION\\_AND\\_SAMPLE](https://www.researchgate.net/publication/346426707_CONCEPT_OF_POPULATION_AND_SAMPLE) Accessed 11 June 2024.
- Simba, C. A. 2006. User perceptions of the quality of service at Iringa University College Library, Tumaini University, Tanzania. <https://core.ac.uk/download/196547011.pdf> Accessed 23 October 2024.

Singh, A., and Masuku, M. 2016. Sampling Techniques and Determination of Sample Size in Applied Statistics Research: An Overview. *International Journal of Commerce and Management*, 2: 1-22.

Sirisilla, S. 2023. Bridging the Gap: Overcome these 7 flaws in descriptive research design. [https://www.enago.com/academy/descriptive-research-design/#Advantages\\_of\\_Descriptive\\_Research\\_Design](https://www.enago.com/academy/descriptive-research-design/#Advantages_of_Descriptive_Research_Design) Accessed 1 September 2024.

Snyder, H. 2019. Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104: 333–339.

Sohal, A. S., Tay, G. S., and Wirth, A. 1989. Total quality control in an Asian division of a multinational corporation—*International Journal of Quality and Reliability Management*, 6 (6).

Soltanpanah, K. 2010. Comparison of consumer perceptions and expectations of the performance of Kurdistan TCI using SERVQUAL model. *Management Beyond Journal*, 14: 49-72.

Soraya, S, Batool, S., Zaheer, M., and Khalid, A. 2020. Exploring Users' Perceptions and Expectations about Library Service Quality a Case of Mirpur University of Science and Technology (MUST).

Sridhar, M. S. 2010. Introduction to Research Methodology: Problem Selection, Formulation and Research Design. United States.

Swapna, S.C., Jagdish, S.J., and Manjula, P. 2017. Library user's perceptions and expectations towards Mysore University Library: A case study. *International Journal of Library and Information Studies*, 7 (4): 351-357.

Tabassum, M., Roknuzzaman, M., Islam M.M. 2015. Usage of a digital library system at a private university library in Bangladesh. *Annals of Library and Information Studies*, 62 (2): 94-103.

Teijlingen, E., and Hundley, V. 2002. The importance of pilot studies. *Nursing Standard (through 2013)*, 16 (40): 33.

Tella, A. 2020. Handbook of research on digital devices for inclusivity and engagement in libraries.

Tenopir, C., King, D. W., and Bush, A. 2003. Perceptions of Library Quality: A Survey of University Students. *Library and Information Science Research*, 25 (1): 1-31.

Thompson, B., Cook, C. and Kyrillidou, M. 2006. Library service quality benchmarking norms are stable across time and cohorts: a LibQUAL<sup>TM</sup> study.

Thompson, B., Cook, C. and Thompson, R.L. 2002. Reliability and structure of LibQUAL scores: measuring perceived library service quality. *Portal: Libraries and the Academy*, 2(1): 3-12.

Thompson, B., Kyrillidou, M. and Cook, C. 2007. Library users' service expectations: a LibQUAL(R) study of what users will tolerate. 7th Northumbria International Conference on Performance Measurement in Libraries and Information Services, Stellenbosch. [www.coe.tamu.edu/\\_bthompson/zones.pdf](http://www.coe.tamu.edu/_bthompson/zones.pdf) Accessed 18 April 2024.

Tosaka, Y., and Weng, C. 2022. When disruption is the new normal: The impacts of the COVID-19 pandemic on technical services in US academic libraries. *Library Resources and Technical Services*, 66 (2) 77-77. <https://doi.org/10.5860/lrts.66n2.77> Accessed 14 April 2024.

Udem, O. K., Ikenwe, J. I., and Ugwuamoke, E. C. 2020. Undergraduates' perception of library service quality and value in the 21st-Century in Southeast Nigeria: A case study. *Library Philosophy and Practice (e-journal)*. <https://ssrn.com/abstract=3731835> Accessed 18 April 2024.

Udem, O.K., Ikenwe, J.I. and Ugwuamoke, E.C.2020. Undergraduates' perception of library service quality and value in the 21st-Century in Southeast Nigeria: a case study. *Library Philosophy and Practice (e-journal)*, 4501. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3731835](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3731835) Accessed 01 April 2023.

University of Nottingham 2021. Understanding Pragmatic Research <https://www.nottingham.ac.uk/helmopen/rlos/research-evidence-based-practice/designing-research/types-of-study/understanding-pragmatic-research/section05.html> Accessed 11 June 2024.

Van den Heuvel, H.; Broekman, L. 1998. Wolf in sheep clothing – Scorecard further balanced. *Personeelbeleid*, 34: 23–26.

Vu, T. 2021. Service quality and its impact on customer satisfaction. [https://www.researchgate.net/publication/356592279\\_Service\\_Quality\\_And\\_Its\\_Impact\\_On\\_Customer\\_Satisfaction/citation/download](https://www.researchgate.net/publication/356592279_Service_Quality_And_Its_Impact_On_Customer_Satisfaction/citation/download) Accessed 14 May 2024.

Wang, X., and Cheng, Z. 2020. Cross-sectional studies: strengths, weaknesses, and recommendations. *Chest*, 158 (1): 65-S71.

Wiele van der, A., Dale, B. D. and Williams, A. R. T. 1997. ISO 9000 Series Registration to Total Quality Management: The Transformation Journey. *International Journal of Quality Science*, 2 (4): 236-252.

Wojcik. M. 2024. History of LibQUAL. [http://www.libqual.org/abot/about\\_lq/history\\_lq](http://www.libqual.org/abot/about_lq/history_lq) Accessed 10 November 2024.

Wong, S.H.R. and Webb, T.D. 2011. Uncovering meaningful correlation between student academic performance and library material usage. *College and Research Libraries*, 72 (4): 361-370.

Zareef, M., and Ahmad, P. 2021. The impact of COVID-19 on university library services: A systematic literature review. *Library Philosophy and Practice*, 1–13.

<https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=11308&context=libphilprac>  
Accessed 14 April 2024.

Zlatka, S., Maja, M and Mirko, M. 2009. The advantage of the EFQM excellence model in business management and leadership. *International Journal of Entrepreneurship and Small Business*, 8: 399-410.

Zulu, S. R. 2022. Students' expectations and perceptions of the services provided by the Law Library, Pietermaritzburg Campus, University of KwaZulu-Natal, South Africa. Masters dissertation.

# Appendices

## Appendix 1: Questionnaire

This questionnaire is about Library and Information Science Students' Perceptions and Use of Library Services Post Covid-19 at the National University Of Science And Technology, Zimbabwe." The study aims to investigate how the pandemic has affected the provision of library services at NUST Library and how students perceive these changes.

### Instructions:

please use the spaces provided.

### SECTION A: DEMOGRAPHIC INFORMATION

#### 1.1 Gender

Male  Female

#### 1.2 Age Group

Under 20  21- 30  31- 40  41- 50  Over 50

#### 1.3 Level of Study

Undergraduate student  Postgraduate student

### SECTION B: NUST LIBRARY USAGE

#### 2.1 How often do you use the resources in the library post-COVID-19?

Daily  Weekly  Monthly  Quarterly  Never

2.2 Please tick in the table below the number that best describes what you use the library most for post-COVID-19 (1 = Strongly Agree; 2 = Agree; 3 = Neutral; 4 =Disagree; 5= Strongly disagree)

	<b>I USE THE LIBRARY FOR :</b>	1	2	3	4	5
2.2.1	Research and study					
2.2.2	Access to books and resources					
2.2.3	Online databases and digital resources					
2.2.4	Computer and Internet access					
2.2.5	Group study and collaboration					
2.2.6	Reference services					
2.2.7	Study Spaces					
2.2.8	LIS practical's					
2.2.9	Digital literacy support					
2.2.10	Library staff expertise and assistance					
2.2.11	Quiet spaces					
2.2.12	Special collection services					
2.2.13	Interlibrary loans					

2.3 How would you rate the overall usability and functionality of NUST library Services post-COVID-19?

EXCELLENT      VERY GOOD      GOOD      FAIR      POOR

2.4 Did you encounter difficulties or frustrations while using NUST library services post-COVID-19? Were the issues anticipated, or did they catch you off guard?

---



---

---



---

## SECTION C: PERCEPTIONS OF LIBRARY SERVICES

*"Perceptions" refers to your actual experience with the services the library now offers.*

3. Please tick in the table below the number that best describes your perception of library services post Covid -19 (1 = Strongly Agree; 2 = Agree; 3 = Neutral; 4 =Disagree; 5= Strongly disagree)

### 3.1 Effect of Service

3.1.1	<b>The NUST library currently provides staff members who are:</b>	1	2	3	4	5
3.1.2	Responsive (helpful in addressing your inquiries and providing assistance )					
3.1.3	Knowledgeable (they know library resources and services to support users effectively)					
3.1.4	Approachable (staff that you feel comfortable approaching with questions or concerns?)					
3.1.5	Courteous (Staff that is polite, respectful, and customer-focused?)					
3.1.6	Supportive (Staff that support and guide you in navigating the library's services and resources.					

### 3.2 Information Control

(focuses on your ability to find, access, and manage information effectively)

	<b>The library currently provides</b>	1	2	3	4	5

3.2.1	Accessible Information (The library ensures that information resources are easily accessible.)					
3.2.2	Organised information (The library ensures that information sources are well organised and can be located efficiently )					
3.2.3	Search Tools ( The library offers user-friendly search interfaces and retrieval tools that enable users to search for and retrieve information effectively)					
3.2.4	Diverse Information Sources ( The library provides many information sources, including books, journals, databases, and digital resources, to support your diverse information needs)					
3.2.5	Information Literacy Support (The library offers support to help you develop information literacy skills, such as evaluating sources and conducting research effectively.					
3.2.6	User Training (The library provides training sessions or workshops to educate you on how to navigate and utilise information resources effectively)					

### 3.3 Library as Place (focuses on the library as a place)

	<b>The library currently Offers</b>	1	2	3	4	5
3.3.1	Physical Spaces ( The library offers different study spaces, such as quiet study areas and group study rooms)					
3.3.2	Technology Infrastructure (The library provides access to computers and other technology tools to support research and information access.)					
3.3.3	Comfortable Environment (The library creates a comfortable and welcoming atmosphere with seating, lighting, and ambience conducive to study and research.					

3.3.4	Safety and Security (The library ensures users a safe and secure environment by implementing security measures, emergency protocols, and adequate supervision.					
-------	--	--	--	--	--	--

**SECTION D: EXPECTATIONS OF LIBRARY SERVICES**

*"Expectations" refers to what you want or expect regarding services provided by the library.*

4.1 Effect of Service

	<b>I expect the library to.....</b>	1	2	3	4	5
4.1.1	Responsive Assistance: I expect the library staff to be responsive and helpful when I have inquiries or need assistance locating resources.					
4.1.2	Knowledgeable Support: I expect the library staff to sufficiently understand the library’s services and resources to provide accurate and helpful guidance.					
4.1.3	Effective Communication: I expect clear and effective communication from the library staff regarding any changes, updates, or services offered.					
4.1.4	Timely Solutions: I expect the library staff to address any issues or concerns promptly and efficiently to enhance my overall experience.					
4.1.5	Courteous Interactions: I expect the library staff to engage with me politely and respectfully, creating a positive and welcoming environment.					
4.1.6	Personalised Support: I expect the library staff to tailor their assistance to meet my specific needs and preferences to enhance my user experience.					

4.2 Information Control

(focuses on your ability to find, access, and manage information effectively)

	<b>I expect the library to:</b>	1	2	3	4	5
--	---------------------------------	---	---	---	---	---

4.2.1	Accessible Resources: I expect the library to provide easy access to a wide range of information resources, including books, journals, databases, and digital materials.					
4.2.2	User-Friendly Search Tools: I expect the library to offer intuitive search interfaces and tools that efficiently discover relevant information.					
4.2.3	Well-Organised Collection: I expect the library to maintain a well-organised and structured collection of resources to streamline the information retrieval process.					
4.2.4	Updated and Diverse Materials: I expect the library to regularly update its collection with current and diverse materials to meet various academic and research needs.					
4.2.6	Information Retrieval Assistance: I expect the library to provide information retrieval and navigation assistance to help users locate desired materials efficiently.					
4.2.7	User Training Programs: I expect the library to conduct training programs or workshops to educate users on effectively utilising information resources.					

#### 4.3 Library as Place (focuses on the library as a place)

	<b>I expect the library to</b>	1	2	3	4	5
4.3.1	Comfortable Study Spaces: I expect the library to provide comfortable and conducive study areas that cater to various study preferences and needs.					
4.3.2	Collaborative Areas: I expect the library to have designated spaces for group collaboration and discussions to facilitate teamwork and group projects.					

4.3.3	Safe and Secure Environment: I expect the library to prioritise safety and security measures to ensure a secure environment for all users.					
4.3.4	Technology Access: I expect the library to offer access to modern technology tools, such as computers, printers, and scanners, to support research and learning.					

**SECTION E: SATISFACTION WITH LIBRARY SERVICES**

5. 1 Please indicate the degree to which you agree with the following statements: 1= Very satisfied 2=Satisfied 3=Neutral 4=Dissatisfied 5= Very dissatisfied

		1	2	3	4	5
5.1.1	Overall, how satisfied are you with the quality of library service offered at NUST library post-COVID-19?					

If you have any further comments, Please comment on the NUST Library services in the space provided below.

-----  
 -----  
 -----  
 -----

5.2 Are any specific NUST library services areas falling short of your expectations post-COVID-19? What aspects did not meet your initial perception, and how did that impact your overall experience?

-----  
 -----  
 -----  
 -----

**\*THE END, THANK YOU VERY MUCH FOR YOUR PARTICIPATION\***

If you are interested in the study findings, please provide your email. However, if you are uncomfortable with it, the study findings will be made available on the institutional repository Research Space

---

## Appendix 2: Ethical Clearance Approval



22 August 2024

Tariro Mutereko (221055368)  
School of Social Sciences  
Pietermaritzburg Campus

Dear T Mutereko,

Protocol reference number: HSSREC/00007246/2024

Project title: Library and information science students' perceptions and use of library services post coronavirus disease at the National University of Science and Technology, Zimbabwe.

Degree: Masters

### Approval Notification – Expedited Application

This letter serves to notify you that your application received on 25 June 2024 in connection with the above, was reviewed by the Humanities and Social Sciences Research Ethics Committee (HSSREC) and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number.

**PLEASE NOTE:** Research data should be securely stored in the discipline/department for a period of 5 years.

Incidents of adverse events and serious adverse events (AEs and SAEs) should be reported in writing to HSSREC, the study sponsors, and any regulatory authority (where appropriate), within 7 working days of the occurrence for local sites and 14 days for all other South African sites.

This approval is valid until 22 August 2025.

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

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

Yours sincerely,



Professor Dipane Hlalele (Chair)  
/nng

#### Humanities and Social Sciences Research Ethics Committee

Postal Address: Private Bag X51001, Durban, 4000, South Africa

Telephone: +27 (0)31 260 8350/155713587 Email: [hsrec@ukzn.ac.za](mailto:hsrec@ukzn.ac.za) Website: <http://research.ukzn.ac.za/Research-Ethics>

Founding Campuses:  Edgewood  Howick College  Medical School  Pietermaritzburg  Westville

INSPIRING GREATNESS

## Appendix 3: NUST Institutional Review Board Approval



### NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

Cnr Gwanda Road/Cecil Avenue,  
P.O. Box AC 939 Ascot  
Bulawayo, Zimbabwe  
[www.nust.ac.zw](http://www.nust.ac.zw)

Telephone: [REDACTED]  
Fax: +263-292-26603  
Email: [nustirb@ust.ac.zw](mailto:nustirb@ust.ac.zw)  
Facebook: [NUST.ZIM](https://www.facebook.com/NUST.ZIM) Twitter: [@nustzim](https://twitter.com/nustzim)

---

### *NUST Institutional Review Board*

---

DATE: 25/09/2024

Dear Miss Metereko T.

TITLE: Library and Information Science Students' Perceptions and Use of Library Services Post COVID-19 at the National University of Science and Technology, Zimbabwe.

Thank you for submitting your Research Proposal for Annual Review by the NUST IRB. Please be advised that the IRB reviewed your protocol and your application for renewal was approved.

The approval by the NUST IRB was based on the following documents you submitted:

- (i) Research Progress Report, and
- (ii) Proposal Document of the Study,

The approval number for the study is **NUST/IRB/2023/115** and should be used in all correspondence, consent forms and other documents as appropriate.

Approval Date : 26 September 2024

Expiry Date : 27 September 2025

After the expiry date, the project may only continue after renewal. Renewal application process should commence three months before the expiry date.

All problems related to the safety of participants must be reported to the NUST IRB within 3 working days. You should not deviate from the protocol and procedures stated in the proposal. Do not make any adjustments/changes to the protocol and consent forms without prior written approval to the NUST IRB.

Thank you



Dr T. Ncube  
Director, Research Office

---

*NUST Council Members: Prof L. Majele Sibanda (Chair), Prof N. Rudhumbu, Mr C. Chirume, Ms. S. Mguni-Maisiri, Eng I. Kamutero, Dr Eng F. Karonga, Mr I.D. Kunene, Mrs. P.R. Munyeza, Mr C. Mutandwa, Dr E. Sibanda, Prof M.E. Dlodlo (Vice-Chancellor), Mr R. Dube, Prof P. Nyamugure, Dr T. Ncube, Mr M. Lupahla, Mr M. Sigidi-Moyo.*

## Appendix 4: Informed Consent

### Informed Consent Document

Dear Participant,

My name is Tariro Mutereko (221055368). I am a Masters's candidate at the University of KwaZulu-Natal, Pietermaritzburg Campus. The title of my research is: *Library and Information Science Students' Perceptions and Use of Library Services Post Covid-19 at the National University Of Science And Technology, Zimbabwe.*". This research aims to investigate how the pandemic has affected the use of library services and the perceptions of students towards the changes made in response to the pandemic, using the NUST Library in Zimbabwe as a case study. I am interested in interviewing you to share your experiences and observations on the subject matter.

Please note that:

- The information that you provide will be used for scholarly research only.
- Your participation is entirely voluntary. You can choose to participate, not to participate, or stop participating in the research. You will not be penalized for taking such an action.
- Your views in this interview will be presented anonymously. Neither your name nor identity will be disclosed in the study.
- The interview will take about a week
- The record and other items associated with the interview will be held in a password-protected file accessible only to myself and my supervisors. After 5 years, in line with the university's rules, it will be disposed by shredding and burning.
- If you agree to participate, please sign the declaration attached to this statement (a separate sheet will be provided for signatures)

I can be contacted at: School of Social Sciences, University of KwaZulu-Natal, Pietermaritzburg Campus, Scottsville, Pietermaritzburg. Durban.

Email: [221055368@stu.ukzn.ac.za](mailto:221055368@stu.ukzn.ac.za)/ t [REDACTED]

Cell: [REDACTED]

My supervisor is Zawedde Nsibirwa who is located at the School of Social Sciences, Pietermaritzburg Campus Contact details: email [Nsibirwaz@ukzn.ac.za](mailto:Nsibirwaz@ukzn.ac.za) Phone number: Telephone: +27 (0) 33 260 5685 Facsimile: +27 (0) 33 260 5092

The Humanities and Social Sciences Research Ethics Committee contact details are as follows: HSSREC Research Office. Tel: (031) 260 8350 4557, Email [hssrec@ukzn.ac.za](mailto:hssrec@ukzn.ac.za).

Thank you for your contribution to this research.

DECLARATION

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

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

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

SIGNATURE OF PARTICIPANT

DATE

.....

## Appendix 5: Proof of Editing

**Athol Leach (Proofreading and Editing)**



[Redacted]  
[Redacted] 200

Email: [Redacted] Cell: [Redacted]

6 January 2025

To Whom It May Concern

This letter serves to confirm that I have edited the following Master Information Studies (MIS) dissertation by TARIRO MUTEREKO titled:

**“Library and Information Science Students’ Perceptions and Use of Library Services Post-COVID-19 at the National University of Science And Technology, Zimbabwe”**

The dissertation was edited in terms of grammar, spelling, punctuation and overall style. In doing so, use was made of MS Word’s “Track changes” facility thus providing the student with the opportunity to reject or accept the changes made.

Please note that while I have checked the in-text references and those appearing in the list of references for consistency in terms of format (the latter as far as possible), I have not checked the veracity of the sources themselves.

The tracked document is on file.

Sincerely

[Redacted Signature]

Athol Leach  
(MIS, Natal)