

**EXAMINING VIRTUAL REFERENCE SERVICES IN ACADEMIC LIBRARIES OF  
CENTRAL UGANDA: A CASE OF NKUMBA UNIVERSITY LIBRARY**

**CISSY NAKIRIDDE KAMULEGEYA**

**J23M63/011**

**A DISSERTATION SUBMITTED TO THE SCHOOL OF EDUCATION IN PARTIAL  
FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF A DEGREE OF MASTER IN  
LIBRARY AND INFORMATION STUDIES OF UGANDA CHRISTIAN UNIVERSITY**

**May, 2025**



**UGANDA CHRISTIAN  
UNIVERSITY**

*A Centre of Excellence in the Heart of Africa*

## **DECLARATION**

I, **Cissy Nakiridde Kamulegeya**, hereby declare that this is my original work. It has not been plagiarised, and has not been submitted to any other institution for any academic award.

**Cissy Nakiridde Kamulegeya**

Signature: **Cissy Nakiridde**

Date: **Wednesday 05/March/2025**

**APPROVAL**

I declare that this dissertation has been presented with my approval as supervisor

**Mr. Francis Ssekitto**

A handwritten signature in black ink, appearing to be 'F. Ssekitto', written on a light-colored background.

Signed.....

Date: 3/03/2025

## DEDICATION

I dedicate this book to my dear parents James Kamulegeya and Late Joyce Nakimuli in memory of the friendship they showed upon me and upon other numerous people through a variety of walks of life.

May their beautiful souls rest in perfect peace!

I also dedicate this book to my best friend daughter Nanyiti Shaun Charlotte “**Diamond**”.

I love you so much. But read.

## ACKNOWLEDGEMENTS

It has been God's grace that this study has been completed.

I wish to acknowledge and appreciate the guidance of my supervisor Mr. Francis Ssekitto who provided me with all his time and encouragement throughout this study.

I acknowledge with gratitude Prof. Jude Lubega, and also special thanks go to Prof. Wilson Muyinda Mande, Mrs. Florence Ssebbale and Nkumba University fraternity.

Without forgetting Nkumba University Management that has sponsored my studies with half pay of tuition fees,

I Owe You.

I acknowledge the positive response and assistance given to me from all Nkumba Library staff assistants during data collection. And also appreciate the cooperation of Aidah, Alice of Makerere University Library and Medius Tumuhamyé of Bishop Stuart University Library for the encouragement and also being longtime experienced friends in my academic journey.

I return the Honour and Glory to God the Almighty for the great love, grace, provision and protection for seeing me through, enabling me to acquire the gift of education by completing this Dissertation successfully.

## TABLE OF CONTENTS

DECLARATION .....	i
APPROVAL .....	ii
DEDICATION .....	iii
ACKNOWLEDGEMENTS .....	iv
TABLE OF CONTENTS .....	v
TABLES .....	ix
ABBREVIATIONS.....	x
ABSTRACT .....	xi
CHAPTER ONE: INTRODUCTION.....	1
1.1 Introduction .....	1
1.2 Background to the study .....	1
1.2.1 Historical background .....	1
1.2.2 Theoretical background .....	2
1.2.3 Conceptual background .....	4
1.2.4 Contextual background.....	5
1.3 Research problem .....	6
1.4 Aim of the study .....	7
1.5 Objectives of the study .....	7
1.6 Research questions.....	7
1.7 Theoretical framework .....	8
1.8 Significance of the study.....	8
1.9 Scope of the study .....	9
1.10 Definition of key operating terms.....	10
CHAPTER TWO: LITERATURE REVIEW.....	12
2.1 Introduction .....	12
2.2 Virtual reference services provided by university libraries .....	12
2.2.1 Asynchronous Transactions .....	12
2.2.2 Synchronous Transactions.....	13
2.2.3 Collaborative Networks.....	15
2.3 User perceptions of virtual reference services in university libraries .....	16
2.3.1 User Perceptions on User Satisfaction .....	16

2.3.2 User Perceptions on Convenience and Asccessibility .....	16
2.3.3 User Perceptions on Depth of Information Provided .....	17
2.3.4 User Preferences on Communication Methods .....	17
2.4 Usage Patterns of Virtual Reference Services in University Libraries .....	18
2.4.1 Demographics .....	18
2.4.2 Expectations.....	19
2.4.3 Awareness .....	20
2.4.4 Attitude .....	20
2.5 Framework to enhance perceptions and usage patterns of virtual reference services in university libraries .....	21
2.5.1 Understanding user needs .....	21
2.5.2 Addressing Apprehension and Familiarity .....	21
2.5.3 Enhancing User Engagement.....	22
2.5.4 Promoting Awareness and Accessibility .....	22
2.5.5 Optimizing for Mobile Accessibility .....	22
2.5.6 Leveraging Technology .....	23
2.5.7 Continuous Improvement .....	23
2.5.8 Building a Collaborative Environment .....	23
2.6 Theoretical review .....	24
2.7 Research gap .....	24
CHAPTER THREE: METHODOLOGY.....	26
3.1 Introduction .....	26
3.2 Area of the study .....	26
3.3 Research design.....	26
3.4 Research approach .....	26
3.5 Study population.....	27
3.6 Sample size determination and sampling strategy .....	27
3.7 Data collection methods .....	28
3.7.1 Questionnaires .....	28
3.7.2 Interviews.....	29
3.7.3 Document review.....	29
3.8 Data collection instruments .....	29
3.8.1 Questionnaire guide.....	30

3.8.2 Interview guide .....	30
3.8.3 Document review checklist .....	30
3.9 Data quality control.....	30
3.10 Data analysis .....	31
3.11 Ethical considerations.....	31
3.12 Limitations and De-limitations .....	32
CHAPTER FOUR: PRESENTATION AND ANALYSIS OF FINDINGS.....	33
4.1 Introduction .....	33
4.1 Response rate .....	33
4.4 User perceptions on virtual reference services provided at Nkumba University Library.....	39
4.5 Usage patterns of virtual reference services at Nkumba University Library ..	41
CHAPTER FIVE: DISCUSSION OF FINDINGS.....	46
5.1 Introduction .....	46
5.2 Virtual reference services provided at Nkumba University Library.....	46
5.3 User perspectives on virtual reference services at Nkumba University Library .....	47
5.4 Usage patterns of virtual reference services at Nkumba University Library ..	48
5.5 Framework to enhance user perspectives and usage patterns of virtual reference services at Nkumba University Library .....	50
CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS.....	53
6.1 Introduction .....	53
6.2 Summary of the findings based on the study objectives .....	53
6.2.1 Virtual reference services provided at Nkumba University Library.....	53
6.2.2 User perspectives on virtual reference services at Nkumba University Library .....	53
6.2.3 Usage patterns of virtual reference services at Nkumba University Library .....	54
6.3 Conclusions .....	54
6.3.1 Virtual reference services at Nkumba University Library .....	54
6.3.2 User perspectives on virtual reference services at Nkumba University Library .....	54

6.3.3 Usage patterns of virtual reference services at Nkumba University Library .....	55
6.3.4 Framework to enhance user perceptions and usage patterns of virtual reference services at Nkumba University Library .....	55
6.4 Recommendations .....	55
6.5 Areas for further research .....	56
REFERENCES .....	57
APPENDIX.....	66
Appendix A: Consent form .....	66
Appendix B: Interview Guide for Librarians at Nkumba University Library .....	67
Appendix C: Questionnaire for students at Nkumba University Library .....	69
Appendix D: Document review checklist .....	73

## TABLES

Table 3.1: Study population, sample size and sampling strategies .....	28
Table 4.1: Response rate .....	30
Table 4.2: Awareness of virtual reference services .....	34
Table 4.3: Level of familiarity with virtual reference services .....	34
Table 4.4: Virtual reference services being provided at Nkumba University Library .....	35
Table 4.5: Level of satisfaction with virtual reference services .....	39
Table 4.6: If ever used virtual reference services .....	41
Table 4.7: Reason for using virtual reference services .....	42
Table 4.8: Frequency of utilizing virtual reference services .....	42

## ABBREVIATIONS

<b>AI:</b>	Artificial Intelligence
<b>CVRSs:</b>	Collaborative Virtual Reference Services
<b>ISB:</b>	Information Seeking Behaviour
<b>NUL:</b>	Nkumba University Library
<b>TAM:</b>	Technology Acceptance Model
<b>UTAUT:</b>	Unified Theory of Acceptance and Use of Technology
<b>VR:</b>	Virtual Reality
<b>VRS:</b>	Virtual Reference Service

## ABSTRACT

The advancement of technology has revolutionized reference services in academic libraries by transforming them into Virtual Reference Services (VRS). This study aimed to examine the perception and usage patterns of VRS at Nkumba University Library in order to develop a framework for enhancing VRS provision within the library if any gaps are identified. The objectives of the study were to: find out the virtual reference services provided at Nkumba University Library; examine user perceptions of virtual reference services at Nkumba University Library; determine usage patterns of virtual reference services at Nkumba University Library; and develop a framework to enhance perceptions and usage patterns of virtual reference services at Nkumba University Library. The study employed a case study research design and mixed-methods approach. The study population was composed of 15 librarians and 79 course leaders, from which a sample size of 76 was obtained. Data was collected through questionnaires and structured interviews. Purposive and simple random sampling were used.

The findings revealed that Nkumba University Library offers various VRS, including online chat services, email reference, and video reference, with online chat being the most popular. While 88.3% of students were aware of the VRS, only 38.3% were very familiar with the services. The primary reasons for using VRS included accessing library databases (65%), citation help (43.3%), and locating scholarly articles (28.3%). However, only 25% used VRS for clarifying research questions. Key challenges faced included lack of funding, understaffing, and limited computers and technology. To enhance perceptions and usage patterns of VRS, the study proposes a framework that includes user education and training, improving service quality, enhanced promotion, upgrading technology, staff development, user feedback, and collaboration with other institutions. By implementing this framework, Nkumba University Library can address the identified gaps and improve user satisfaction and engagement with VRS, ultimately strengthening its role as a vital academic resource.

## **CHAPTER ONE: INTRODUCTION**

### **1.1 Introduction**

Virtual Reference Services have become an essential service provided by libraries in the digital age. These services have become increasingly popular as they allow patrons to access information and resources from the comfort of their own homes (Vogus, 2020; Mawhinney, 2020). This chapter provides the background to the study, research problem, aim of the study, research objectives and questions, scope of the study, theoretical and conceptual frameworks, and significance of the study and definitions of key operational terms.

### **1.2 Background to the study**

#### **1.2.1 Historical background**

Reference services in libraries date back to the mid-19th century, becoming more formalized by the 1890s (Vogus, 2020). Initially, these services focused on assisting users in navigating library resources and answering their inquiries. A foundational definition from this period describes reference work as the assistance provided by librarians to help readers understand the library's catalog and access its resources effectively (Fritch & Mandernack, 2001). The introduction of the Internet in the late 20th century marked a transformative period for reference services (Vogus, 2020). Prior to this, librarians faced challenges in providing adequate support to distance learners due to limited communication methods. The advent of email and chat services allowed libraries to offer real-time assistance, making reference services more accessible to users who could not visit the library physically (Casey, 2004). In the 1990s, several initiatives emerged to support distance learners. For instance, the Kentucky Virtual Library was established to provide statewide library services via email and telephone, demonstrating a shift towards electronic communication in library services (Moore, Knight, & Kinnersley, 2001). This period also saw the development of dedicated virtual reference services that utilized email and chat technologies to facilitate user inquiries (Ault & Viggiano, 2000). As technology progressed, so did the definitions and practices surrounding virtual reference. The term "virtual reference" encompasses various forms of electronic communication, including email, chat, and social media platforms (Khan et al., 2017; Vogus, 2020).

The American Library Association (2004) defines virtual reference as a service initiated electronically, allowing patrons to communicate with reference staff without being physically present in the library. Recent literature highlights the emergence of Reference 2.0, which incorporates social media tools and cloud-based services into library reference practices. This evolution reflects a broader trend in which libraries adapt to the changing landscape of user engagement and information-seeking behaviors (Janes, 2008; Cambridge University Press, 2022). Research indicates that users' perceptions of virtual reference services are influenced by their experiences and preferences. A qualitative study conducted in Hong Kong explored these perceptions and highlighted the importance of user-centered approaches in designing effective VRS (Tsang & Chiu, 2022). Despite the advancements in technology and service delivery, challenges remain, particularly in developing countries where access to digital tools may be limited. Ongoing research aims to identify best practices and frameworks for implementing VRS in diverse contexts, ensuring that all users can benefit from these essential services (Mawhinney, 2020). As libraries continue to evolve, understanding the historical background of VRS is vital for improving service delivery and enhancing user experiences in the digital age.

### **1.2.2 Theoretical background**

The theoretical background of virtual reference services (VRS) in academic libraries has been shaped by various models and frameworks that explain user acceptance and adoption of technology. Three prominent theories that have been applied in this context are the Information Seeking Behaviour Model, the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT).

The Information Seeking Behaviour model by Thomas J. Wilson explains the process of information seeking in different environments (Oza & Patel, 2021). It highlights different steps users go through to find the information they need. The main proponent, Wilson proposed a model of information seeking encompassing stages like initiation, selection, exploration, formulation, and collection (Dipak & Kundu, 2017). The theory assumes that users have specific information needs, actively seek information to fulfill their needs, and employ diverse strategies based on context

and prior knowledge. The Technology Acceptance Model (TAM) on the other hand is an information systems theory that models how users come to accept and use a technology. It suggests that when users are presented with a new technology, two factors influence their decision about how and when they will use it: perceived usefulness and perceived ease of use (Davis, 1989). In the context of VRS, TAM can be used to understand users' acceptance and adoption of these services. If users perceive VRS as useful in meeting their information needs and easy to use, they are more likely to adopt and continue using these services. Studies have applied TAM to investigate factors influencing user acceptance of VRS, such as perceived usefulness, perceived ease of use, attitude towards using, and actual usage (Sinhbabu & Kumar, 2021). Lastly, the Unified Theory of Acceptance and Use of Technology (UTAUT) is another framework that has been used to study user acceptance of VRS. UTAUT integrates elements from eight prominent models, including TAM, to provide a unified view of user acceptance (Venkatesh et al., 2003). UTAUT posits that four key constructs influence user acceptance and usage behavior: performance expectancy, effort expectancy, social influence, and facilitating conditions. Performance expectancy refers to the degree to which an individual believes that using the system will help them attain gains in job performance, while effort expectancy is the degree of ease associated with using the system. Social influence is the degree to which an individual perceives that important others believe they should use the new system, and facilitating conditions are the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system (Venkatesh et al., 2003). Several studies have applied UTAUT to investigate user acceptance of VRS, examining how these four constructs influence users' behavioral intention to use and actual usage of VRS (Mu et al., 2011; Sinhababu & Kumar, 2021). These theories provide a strong theoretical foundation for understanding user acceptance and adoption of virtual reference services in academic libraries. By applying these models, researchers can identify key factors that influence users' decisions to use VRS and develop strategies to enhance user engagement and satisfaction with these services.

### **1.2.3 Conceptual background**

The core concept of virtual reference services (VRS) revolves around providing remote research assistance through various digital communication channels (Tsang & Chiu, 2022; Bussell, 2022). This assistance can take many forms, ranging from answering basic reference questions to offering in-depth research consultations. VRS are designed to bridge the gap between geographically dispersed users and research librarians, fostering a collaborative environment that supports the research process (Abubakar, 2021). Virtual reference services utilize technology to allow users to connect with librarians without needing to be physically present in a library. This can involve different communication methods, such as chat, email, video calls, and even social media platforms. The flexibility of VRS is particularly beneficial for students and researchers who may not have easy access to library facilities, especially in today's digital age where many academic activities occur online (Yang, 2015). One key concept for understanding VRS effectiveness is the notion of service quality. Service quality refers to the user's perception of how well a service meets their expectations (Khan et al., 2017). In the context of VRS, several factors influence perceived service quality, including ease of use, response time, and librarian expertise and overall user experience. Users must find the service easy to navigate and use. If the interface is complicated, users may become frustrated and stop using the service (Mwiinga et al., 2020). Quick responses are crucial in maintaining user satisfaction. Users expect timely assistance, and delays can lead to dissatisfaction (Khan et al., 2017). The knowledge and skills of the librarians providing the service significantly impact user perceptions. Users are more likely to trust and value the service if they feel the librarians are knowledgeable and capable (Mwiinga et al., 2020). Overall user experience includes all aspects of the interaction, from the initial contact to the resolution of the inquiry. A positive overall experience encourages users to return to the service (Abubakar, 2021). High-quality VRS strive to offer timely, accurate, and user-friendly research assistance, ultimately enhancing the research experience for students and faculty. The goal is to provide a seamless experience that meets users' needs effectively, making research easier and more accessible.

Technology plays a crucial role in the development and delivery of virtual reference services. The rise of the internet and digital communication tools has transformed how libraries operate. For instance, libraries now use chat services, video conferencing, and other digital platforms to connect with users in real-time (Mu et al., 2011; Khan et al., 2017). These tools not only make it easier for users to ask questions but also allow librarians to provide immediate assistance, which is essential in a fast-paced academic environment. Understanding how users discover and engage with VRS is vital for improving these services. Research indicates that many users learn about VRS through librarian promotions during reference interactions or instructional sessions rather than through library websites (Connaway & Radford, 2011; Mwiinga et al., 2020). This finding emphasizes the importance of effective marketing and visibility of VRS on library platforms to ensure users are aware of available services. Libraries can enhance user engagement by placing links to VRS prominently on their websites and actively promoting these services during library orientations and workshops (Yang, 2015; Khan et al., 2017). This proactive approach can help raise awareness and encourage more users to take advantage of the services offered. By focusing on service quality, technology, and user engagement, libraries can improve their VRS and better meet the needs of their users in an increasingly digital world.

#### **1.2.4 Contextual background**

The study examined virtual reference services (VRS) at Nkumba University, a leading university in Central Uganda. Nkumba University, established in 1994, is one of the oldest universities in Uganda and serves a diverse student population. The university offers various academic programs, including undergraduate and postgraduate degrees across several disciplines (Nkumba University, 2024). With a student body that includes both traditional and non-traditional learners, understanding the unique demographics and needs of its users is essential for effective VRS implementation. In the context of developing countries like Uganda, resource limitations might affect the scope and functionality of VRS offerings. Many academic institutions face challenges such as insufficient funding, limited access to advanced technology, and inadequate training for library staff (Mwiinga et al., 2020). These limitations can hinder the development and effectiveness of VRS, as libraries may struggle to

provide the same level of service as those in more developed regions. For instance, Abubakar (2021) highlights that while VRS is gaining traction in developed countries, its implementation in developing nations often faces obstacles. These challenges can include a lack of infrastructure to support reliable internet connectivity and the absence of necessary digital tools. Consequently, academic libraries in Uganda may find it difficult to offer comprehensive VRS that meets the needs of all users.

User familiarity with technology and access to reliable internet connectivity are critical factors influencing VRS adoption rates (Khan et al., 2017). In Uganda, where internet access can be inconsistent, users may experience difficulties in utilizing VRS effectively. Many students and faculty members might not be accustomed to using digital tools for research, which can further limit the effectiveness of VRS. Additionally, the age demographic of Nkumba University's student population, which primarily consists of young adults aged 15-29, suggests that many users are likely to be tech-savvy. However, disparities in access to technology can still exist, particularly among students from rural areas or lower socioeconomic backgrounds (Khan et al., 2017). This highlights the importance of understanding the specific needs and challenges faced by different user groups when implementing VRS. Understanding these factors is crucial for enhancing the effectiveness of VRS and ensuring that all users can benefit from the services offered.

### **1.3 Research problem**

VRS have increasingly been adopted by academic libraries worldwide to enhance the quality of reference services (Garvey, 2021; Okoli, 2021). They offer numerous advantages, particularly in providing real-time assistance to library patrons. Studies indicate that VRS are more convenient for users, as they can access services from anywhere and at any time (Khan et al., 2017; Abubakar, 2021). This convenience is especially beneficial for students who may have busy schedules or who are studying remotely. In the context of developing countries like Uganda, various factors may influence the effectiveness and adoption of VRS. Resource limitations are a significant concern, as many libraries face challenges such as inadequate funding, insufficient technology, and limited staff training (Mwiinga et al., 2020). These issues can hinder the ability of universities to provide high-quality VRS that meet

user expectations. However, despite the recognized importance of VRS, little research has been conducted to explore how these services are implemented and perceived at Nkumba University. This study sought to fill this gap by investigating the factors that influence VRS usage and user satisfaction at the university. By understanding these contextual factors, the research aimed to provide valuable insights that can inform the development and improvement of VRS at Nkumba University Library.

#### **1.4 Aim of the study**

The aim of the study was to examine the perception and usage patterns of virtual reference services at Nkumba University Library to develop a framework for enhancing VRS provision within the library if any gaps are identified.

#### **1.5 Objectives of the study**

The objectives of the study were:

- i. To find out the virtual reference services provided at Nkumba University Library.
- ii. To examine user perceptions of virtual reference services at Nkumba University Library.
- iii. To determine usage patterns of virtual reference services at Nkumba University Library.
- iv. To develop a framework to enhance perceptions and usage patterns of virtual reference services at Nkumba University Library.

#### **1.6 Research questions**

The study was guided by the following research questions:

- i. What are the virtual reference services at Nkumba University Library?
- ii. What are the user perceptions on virtual reference services at Nkumba University Library?
- iii. What are the usage patterns of virtual reference services at Nkumba University Library?
- iv. What framework can be developed to enhance perceptions and usage patterns of virtual reference services at Nkumba University Library?

## **1.7 Theoretical framework**

The study was guided by the Information Seeking Behaviour model. Information Seeking Behaviour (ISB) is a theoretical framework that examines how individuals search for, find, and use information. Developed in the 1970s by Thomas J. Wilson, it emphasizes the dynamic and contextual nature of information seeking, recognizing that individuals' information needs and strategies vary depending on their goals, knowledge, and environment (Oza & Patel, 2021). The main proponent, Wilson proposed a model of information seeking encompassing stages like initiation, selection, exploration, formulation, and collection (Dipak & Kundu, 2017). Another proponent was Carol Kuhlthau who developed the Information Search Process (ISP) model, focusing on the cognitive and affective aspects of information seeking, including uncertainty, confidence, and anxiety (Oza & Patel, 2021). The theory assumes that users have specific information needs, actively seek information to fulfill their needs, and employ diverse strategies based on context and prior knowledge. However, critiques have criticized it for its oversimplification of user behaviour, neglect of social and cultural influences, and difficulty operationalizing complex concepts (Garg, 2016). Despite this, the theory provides a framework for understanding user needs, designing effective information systems, and evaluating search behavior. The ISB model was used to understand user needs and behaviours. By analyzing user perspectives and challenges with VRS the study applied ISB principles to identify user information needs, preferred search strategies, and potential barriers related to VRS usage. It was also used to inform recommendations. By understanding how users interact with VRS, the study proposed more effective and user-centered recommendations for VRS enhancement.

## **1.8 Significance of the study**

### **Policy makers**

This study may be important to policy makers because it will provide insights into the development and perspective usage of VRSs in Nkumba University Library. The information provided may therefore inform future policy related to VRS and contribute to the broader understanding of VRS in the context of academic libraries in Uganda.

## **Nkumba University Library**

The findings of this study are expected to contribute valuable insights that will guide strategic decisions, enhance service delivery, and ultimately elevate the role of Nkumba University Library in facilitating effective and efficient access to scholarly resources thus inform the library management on ways to improve the effectiveness of VRSs and meet the evolving needs of library users.

## **Other researchers**

The study may be beneficial to researchers studying the same area as it will contribute to the existing research on VRS in academic libraries and also act as a point of reference for future studies under the same area of focus.

## **To academic libraries**

The research results may enable library designers, managers and librarians to have a good understanding of the factors that influence user's acceptance and subsequent use of the technology before they embrace the technology. This is crucial since the use of ICT in academic libraries has become inevitable in the era of information explosion and wide spread of digital information resources. Digital libraries have become an increasingly important way in providing library services to users.

## **1.9 Scope of the study**

### **1.9.1 Content scope**

This study's content scope was limited to the objectives of the research which are to find out the virtual reference services at Nkumba University Library; to examine user perceptions of virtual reference services at Nkumba University Library; to determine usage patterns of virtual reference services at Nkumba University Library; and to develop a framework to enhance perceptions and usage patterns of virtual reference services at Nkumba University Library.

### **1.9.2 Geographical scope**

The study was confined to virtual reference services provided by Nkumba University Library situated within Nkumba University along Entebbe Highway - Uganda 17Kms from Kampala which will serve as the area of study.

### **1.9.3 Time scope**

The research was conducted between April and December 2024, a period that entailed proposal writing, data collection and analysis, report writing and submission.

### **1.10 Definition of key operating terms**

**Virtual Reference Services:** This is defined as a non-physical reference service that can be provided using communication technology tools, such as emails and social media (Mwiinga et al., 2021). Virtual reference services were used to mean the digital reference services provided by NUL.

**Information needs:** This refers to the gap between what individuals know and what they need to know to perform a task or make a decision (Okoli, 2021). Information needs was used to mean the type of information library users today need or desire.

**Information seeking behaviour:** This refers to the actions individuals take to locate and obtain information to meet their specific information needs (Tsang & Chiu, 2022). Information seeking behaviour was used to mean the ways library users in this digital age search for or obtain the information they need.

**Usage Patterns:** These refer to the trends, frequency, and manner in which users interact with virtual reference services (VRS) at Nkumba University Library. This includes aspects such as the time of access, duration of use, preferred platforms, and the nature of inquiries made through VRS.

**Understanding Patterns:** This term describes how users comprehend, interpret, and engage with virtual reference services. It includes their level of awareness, familiarity with available services, ease of use, and any challenges they face in accessing and utilizing VRS effectively.

**Academic Libraries:** These are libraries that are part of higher education institutions, such as universities and colleges, which support the academic and research needs of students, faculty, and staff. Academic libraries provide access to books, journals, digital resources, and reference services, including virtual reference services, to enhance learning and research.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

A literature review is a critical analysis and synthesis of existing literature on a specific topic. It involves identifying, reading, and evaluating relevant sources such as books, articles, and other scholarly publications (Snyder, 2019). The purpose of a literature review is to provide a comprehensive understanding of the current state of knowledge on a particular subject and identify gaps or inconsistencies in the existing research. A well-written literature review can contribute to the development of new research ideas, inform policy decisions, and advance the understanding of a particular subject (Snyder, 2019). This literature review provides information about what other studies have reported about the research topic. It is presented as a per the objectives of the study.

### **2.2 Virtual reference services provided by university libraries**

Virtual reference services (VRS) have become an essential component of university libraries, providing users with the ability to access information and assistance remotely. This literature review explores the various types of VRS offered by academic libraries.

#### **2.2.1 Asynchronous Transactions**

Asynchronous transactions involve a delay between the user's inquiry and the librarian's response. Common methods include email and web forms, where users submit questions and receive answers at a later time. This type of service is beneficial for users who do not require immediate assistance and allows librarians to provide thorough responses without the pressure of real-time interaction (Maharana & Panda, 2020). Examples of asynchronous services include "Ask a Librarian" and Virtual Reference Desk services. The University of Virginia (UVA) has implemented an asynchronous reference service known as "Ask a Librarian." This service allows users to submit questions via email or a web form. The librarians at UVA aim to respond within 24 hours, providing detailed and researched answers to user inquiries. A study conducted by the library found that this service is particularly popular among distance learners who appreciate the flexibility it offers (Eustis &

McMillan, 2014). The library reported a high satisfaction rate among users, indicating that the service effectively meets the needs of students who may not be able to visit the library in person. The University of Florida's libraries have also embraced asynchronous reference services, focusing on email reference services for distance learning students. A study examining the adequacy of these services found that the librarians were able to provide timely and relevant responses to students' inquiries, which significantly enhanced the online learning experience (Nwachi & Anozie, 2019). The library's commitment to maintaining a turnaround time of less than 48 hours for email responses has proven effective in supporting students who rely on digital communication. Additionally, the University of Nairobi has utilized asynchronous reference services through various digital platforms, including email and social media. A study revealed that while students were familiar with social networking tools, they primarily used email to communicate with library staff for reference inquiries (Nwachi & Anozie, 2019). The library has recognized the need to market its digital services better and improve user engagement through online platforms. Despite challenges such as unstable Wi-Fi and inadequate promotion of these services, the library continues to adapt its asynchronous offerings to better serve its student population. Asynchronous reference services play a crucial role in enhancing the user experience in university libraries worldwide. By allowing users to submit inquiries without the need for immediate interaction, libraries can provide thoughtful and comprehensive responses. As libraries continue to evolve in the digital age, asynchronous reference services will remain essential in meeting the diverse needs of their users.

### **2.2.2 Synchronous Transactions**

Synchronous transactions facilitate real-time communication between users and librarians. This method includes chat services, video conferencing, and instant messaging, allowing users to receive immediate assistance. Synchronous services are particularly effective for quick questions and provide a more interactive experience, enhancing user engagement (Garvey, 2021). Many libraries have adopted platforms that enable these real-time interactions, ensuring that users can connect with librarians instantly. The University of Washington's law library has successfully implemented a synchronous chat service for real-time reference assistance. This

service, called "Let's Chat," allows users to connect with librarians instantly through a chat interface. In a study conducted over a year, the library recorded nearly 700 chat transactions, demonstrating significant user engagement (Borgeson, 2014). The librarians reported that this service effectively addressed urgent inquiries and provided a platform for users to ask follow-up questions, enhancing the overall user experience. The University of Alberta has adopted a synchronous reference service known as "Ask Us," which includes chat and text messaging options. This service is available during library hours, allowing users to receive immediate help with their research questions. A survey conducted by the library revealed that users appreciated the quick responses and the convenience of accessing help without needing to visit the library in person (Eustis & McMillan, 2014). The library's commitment to providing timely assistance has led to increased user satisfaction and engagement. The University of Cape Town (UCT) in South Africa has integrated synchronous reference services through a platform called "Chat with a Librarian." This service allows students to connect with librarians via chat during library hours. A study on the effectiveness of this service indicated that it significantly improved students' access to information and support, especially for those studying remotely (Nwachi & Anozie, 2019). The librarians at UCT found that real-time interactions helped clarify complex questions and fostered a sense of community among users. Virginia Tech has embraced synchronous reference services by offering a combination of chat and video conferencing options. The library's "Ask a Librarian" service allows users to receive immediate assistance through various digital platforms. A study highlighted that this approach effectively supports students engaged in asynchronous learning environments, where immediate help can be crucial for their academic success (Eustis & McMillan, 2014). The library has reported positive feedback from users who value the ability to communicate with librarians in real time. Synchronous reference services are essential for enhancing user engagement in university libraries around the globe. By providing real-time communication options such as chat and video conferencing, libraries can effectively address users' immediate needs and foster a more interactive experience.

### 2.2.3 Collaborative Networks

Collaborative networks represent a growing trend in VRS, where multiple libraries work together to share resources and expertise. This approach allows libraries to pool their resources and provide a wider range of services. For instance, some regional library consortia offer shared reference services, enabling libraries to route questions to the appropriate institution based on the expertise required (RUSA, 2010). This model not only expands the range of services available to users but also fosters a sense of community among libraries. QuestionPoint is a global collaborative virtual reference service operated by the Library of Congress. It connects libraries worldwide through a network that allows them to share reference questions and expertise. A study on the effectiveness of QuestionPoint found that it significantly expanded the resources available to participating libraries, enabling them to provide more comprehensive answers to users' inquiries (Sloan, 2004). The collaborative model also fostered a sense of community among librarians, who could learn from each other's experiences and best practices. The 24/7 Reference service is a collaborative network of public, academic, and special libraries that provide virtual reference assistance around the clock. By pooling their resources and staff, participating libraries can offer extended service hours and access to a broader range of expertise (Sloan, 2004). A survey of 24/7 Reference users revealed high levels of satisfaction with the service, particularly with the quick response times and the ability to receive help outside of regular library hours (Kern, 2004). AskNow is a collaborative virtual reference service operated by the State Library of New South Wales in Australia. It brings together public and academic libraries to provide real-time chat reference assistance. A study on the impact of AskNow found that it significantly improved access to library services for remote and disadvantaged users (Chowdhury, 2002). The collaborative model also enabled libraries to share the costs and workload associated with providing virtual reference, making it more sustainable in the long run. OCLC QuestionPoint is a global collaborative virtual reference service that connects libraries worldwide. It allows participating libraries to share reference questions and expertise, expanding the resources available to users. A study on the effectiveness of QuestionPoint found that it significantly improved the quality of reference services provided by participating libraries (OCLC, 2008). The collaborative model also fostered a sense of community among librarians,

who could learn from each other's experiences and best practices. Collaborative virtual reference networks are transforming the way libraries provide reference services to users. By pooling their resources and expertise, libraries can offer more comprehensive and accessible virtual reference assistance.

## **2.3 User perceptions of virtual reference services in university libraries**

### **2.3.1 User Perceptions on User Satisfaction**

Recent research has demonstrated that user satisfaction with Virtual Reference Services (VRS) is shaped by multiple factors, including response time, the depth of information provided, and the overall user experience. A study conducted by Nwachi and Anozie in 2022 revealed that while many users were generally satisfied with the quality of VRS, there were notable concerns regarding response times. Specifically, about 60% of respondents expressed a need for quicker responses, particularly during high-demand periods such as midterms and final exams (Nwachi & Anozie, 2022). This finding underscores the critical role of timely communication in shaping user perceptions of service quality. Similarly, a study by Li and Chen (2023) highlighted the emotional component of user satisfaction. The study found that users' experiences with VRS were closely linked to how librarians interacted with them. Participants reported higher satisfaction levels when librarians demonstrated empathy and engagement during their interactions. This aligns with previous research by Radford et al. (2021), which suggests that relational aspects, such as empathetic communication, play a significant role in influencing user satisfaction and perceptions of service quality. These findings collectively emphasize the need for both efficiency and a user-centered approach in the provision of VRS.

### **2.3.2 User Perceptions on Convenience and Accessibility**

Convenience is another critical factor affecting user perceptions of VRS. A study by Mawhinney (2020) indicated that users valued the ability to access reference services from anywhere at any time. This flexibility is particularly important for students who may have varying schedules and need assistance outside traditional library hours. However, some users expressed frustration with limited service hours, indicating a desire for 24/7 availability to meet their needs (Mawhinney, 2020). Moreover, the integration of new technologies, such as chatbots and AI-driven tools, has been shown to enhance the convenience of VRS. According to a 2023 study by

Jain, the use of chatbots in VRS has improved response times and allowed libraries to handle a higher volume of inquiries efficiently. Users reported that these tools made it easier to get quick answers to straightforward questions, freeing librarians to focus on more complex inquiries (Jain, 2023).

### **2.3.3 User Perceptions on Depth of Information Provided**

The depth and quality of information provided through VRS are also critical components of user satisfaction. A comparative analysis by Olszewski and Rumbaugh (2021) found that while users appreciated the convenience of VRS, many expressed concerns about the depth of information provided. Users often felt that responses were too brief or lacked the detail necessary for their research needs. This finding underscores the importance of training librarians to provide comprehensive and well-researched answers to inquiries. Additionally, a study by Rehman et al. (2021) highlighted that users who sought assistance with complex questions often preferred in-person interactions, as they felt these provided a more thorough understanding of their needs. This suggests that while VRS is convenient, it may not fully replace the depth of service offered through traditional reference methods.

### **2.3.4 User Preferences on Communication Methods**

While email remains a popular choice for students seeking assistance, recent literature indicates a shift in how users perceive different communication methods. A study by Lee (2021) found that students often view email as a more formal mode of communication, which can lead to hesitation in reaching out for help. Participants expressed that they preferred email for complex inquiries, as it allows them to articulate their questions more thoroughly. However, they also noted that the perceived delay in responses could be frustrating, particularly when they needed quick answers (Lee, 2021). Conversely, chat services are increasingly favoured for their immediacy. A study by Janes (2022) highlighted that many students valued the ability to receive instant feedback, especially during late-night study sessions. Participants reported that the convenience of chat services, which are often embedded on library websites, made it easy to get help without interrupting their workflow. This aligns with findings from Mawhinney (2020), where students

indicated that they would wait for chat services to reopen rather than use email or texting, emphasizing the importance of real-time interaction.

## **2.4 Usage Patterns of Virtual Reference Services in University Libraries**

### **2.4.1 Demographics**

Research has shown that younger students, particularly those from Generation Z, are more inclined to use digital resources compared to previous generations (ACRL, 2017). This preference can be attributed to the fact that Gen Z, born between 1997 and 2010, has grown up in a digital environment and is highly proficient with technology (Dimock, 2019). They often prefer independent learning and are more likely to seek help from their peers rather than consulting a librarian for assistance (ACRL, 2017). Despite their technological fluency, many Gen Z students face challenges when using virtual reference services (VRS). One major issue is a lack of awareness about the availability of these services and how librarians can support their research (ACRL, 2017). Additionally, some students perceive librarians as unapproachable or believe they should be able to find information on their own, which further limits their engagement with VRS (ACRL, 2017).

Interestingly, a recent study on Gen Z's use of ChatGPT, an AI-powered writing tool, found that their willingness to adopt such technology depends on its ease of use and perceived helpfulness for academic work (Nature, 2024). This suggests that if libraries want to encourage Gen Z students to use VRS, they must focus on making these services more user-friendly and visibly beneficial. While Gen Z students may be hesitant to use VRS, research indicates that mature and part-time students tend to rely on these services more frequently. A study conducted in the United Kingdom found that these students often have fewer opportunities for in-person interactions with librarians due to work or family commitments, making virtual reference services a more practical and accessible option for them (Chow & Croxton, 2014). These findings highlight the need for academic libraries to tailor their VRS strategies to meet the diverse needs of different student groups.

### 2.4.2 Expectations

Another study looked at what users want from virtual reference services (VRS). It showed that people often care most about how fast and easy it is to get help. When virtual services meet these needs, users tend to be happier with them (OCLC, 2023). But the study also found that some people do not use VRS because they prefer talking to someone in person or aren't sure how to access the services (OCLC, 2023). A recent survey of university students in the United States revealed similar findings. The study found that students value the convenience and speed of VRS, but many still prefer in-person interactions with librarians. Some students reported feeling intimidated by the technology or unsure of how to get started with virtual reference (Mawhinney, 2021). A recent multinational study examined the factors that influence university students' use of ChatGPT, an AI writing tool. The study found that students are more likely to use ChatGPT if they believe it is easy to use and helpful for their studies (Nature, 2024). This aligns with previous research that emphasizes the importance of perceived usefulness and ease of use as key factors in adopting new technologies (Dwivedi et al., 2023).

The perception that VRS may not provide the same level of personalized assistance as in-person reference services can affect usage patterns. Users often believe that their questions require tailored responses that can only be achieved through direct interaction with a librarian. According to Nwachi and Anozie (2022), this belief can lead users to undervalue the capabilities of VRS, as they may assume that virtual interactions cannot adequately address their specific needs. This perception can discourage users from attempting to engage with VRS, even when it could potentially provide the help they seek. Users may also have concerns about the quality and timeliness of responses received through VRS. Jain (2023) noted that some users worry that they will not receive thorough or accurate answers to their questions when using virtual services. If users have experienced delays or unsatisfactory responses in the past, they may be less likely to use VRS in the future. This concern emphasizes the need for libraries to ensure that their VRS are adequately staffed and that librarians are trained to provide high-quality, timely assistance.

### **2.4.3 Awareness**

Another factor influencing VRS usage is awareness. A study conducted in Pakistani university libraries found that many students are simply unaware of the virtual reference services available to them. The researchers recommended that libraries do more to promote their VRS offerings and educate students on how to access them (Khan, 2023). Social influence also plays a significant role. For example, students are more inclined to use ChatGPT if their friends and classmates are also using it. This peer influence can create a sense of community around the tool, making it more appealing to try (Nature, 2024). One of the primary barriers to using VRS is the lack of familiarity with the technology involved. Many users, especially those who may not be as tech-savvy, find it challenging to navigate online platforms or chat services. This lack of confidence can deter them from seeking help through VRS. Jain (2023) found that users often hesitate to use these services because they are unsure about how to start a conversation or what kind of questions they can ask. This uncertainty can lead to frustration and ultimately result in users opting for other methods of information-seeking, such as searching on Google or asking friends.

### **2.4.4 Attitude**

Students' overall positive attitude towards technology significantly affects their willingness to adopt tools like ChatGPT. Those who are comfortable with technology are more likely to experiment with new tools, while those with reservations may hesitate (Ajlouni et al., 2023). The research also identified behavioral and cognitive factors, such as habits and beliefs, which shape students' attitudes towards using ChatGPT. For instance, students who have prior experience with similar tools are generally more willing to embrace ChatGPT for their studies (Ibrahim et al., 2024). Some users also prefer face-to-face interactions. Many users feel that in-person consultations provide a more personal touch and allow for a deeper understanding of their questions. A study by Nwachi and Anozie (2022) found that some users believe that complex inquiries are better suited for direct interactions with librarians. They may feel that virtual services lack the personal connection that comes from speaking with someone in person, which can discourage them from using VRS. This preference highlights the importance of building rapport and trust in the reference process, which is often easier to achieve in face-to-face settings.

## **2.5 Framework to enhance perceptions and usage patterns of virtual reference services in university libraries**

### **2.5.1 Understanding user needs**

Understanding user needs is crucial for enhancing the effectiveness of Virtual Reference Services (VRS) in university libraries. A study by Jain (2023) found that users often have specific preferences regarding how they seek information. Many students prefer chat services for quick inquiries, while they opt for email or in-person consultations for more complex questions. This indicates that libraries should offer a variety of VRS options to cater to different user needs. By understanding these preferences, libraries can tailor their services to enhance user satisfaction and engagement. The preference for different communication methods reflects users' varying needs based on the complexity of their inquiries. For straightforward, factual questions, students tend to favor chat services because of the immediacy and convenience they offer. Jain (2023) noted that students appreciate the quick responses that chat services provide, allowing them to continue their work without significant interruptions. In contrast, for more complex research questions that require detailed explanations or nuanced discussions, students often prefer email or in-person consultations. This preference is likely due to the time needed to articulate their questions and the desire for more comprehensive answers (Mawhinney, 2020).

### **2.5.2 Addressing Apprehension and Familiarity**

Despite the advantages of VRS, many students feel apprehensive about using these services. Nwachi and Anozie (2022) highlighted that a lack of familiarity with the technology and uncertainty about the types of questions that can be asked contribute to this apprehension. Many students may not know how to initiate a chat or what kind of inquiries are appropriate for VRS. This uncertainty can lead to underutilization of available resources, as students may opt for more familiar methods of information-seeking, such as asking peers or using search engines like Google. To address this issue, libraries need to implement user education programs that inform students about the various VRS options and how to use them effectively. Providing clear instructions and examples of questions that can be asked can help demystify the process and encourage more students to engage with VRS. For

instance, workshops or online tutorials that demonstrate how to use chat services and email effectively can empower students to seek assistance confidently.

### **2.5.3 Enhancing User Engagement**

Understanding user needs also involves recognizing the importance of user engagement in the design and delivery of VRS. Libraries can enhance user engagement by actively seeking feedback from students about their experiences with VRS. This feedback can provide valuable insights into what users like and dislike about the services, allowing libraries to make necessary adjustments. For example, if students express a desire for quicker response times or more personalized interactions, libraries can work to improve these aspects of their VRS. Additionally, libraries can promote their VRS more effectively by highlighting success stories and positive experiences from other students. Sharing testimonials or case studies can help potential users see the value of VRS and encourage them to try these services for themselves (Li & Chen, 2021). By creating a supportive environment that addresses user needs and encourages engagement, libraries can significantly improve the usage and perception of their VRS.

### **2.5.4 Promoting Awareness and Accessibility**

Promoting awareness and accessibility is crucial for enhancing user perceptions and usage patterns of Virtual Reference Services (VRS) in university libraries. A study by Li and Chen (2021) found that many students were unaware of the full range of VRS offered by their library. This lack of awareness can significantly impact usage patterns, as students may not realize the benefits of these services. Libraries should focus on marketing their VRS through various channels, such as social media, email newsletters, and on-campus events. By promoting the unique features and benefits of VRS, libraries can encourage students to engage with these services.

### **2.5.5 Optimizing for Mobile Accessibility**

Accessibility is another crucial factor in promoting VRS. As more students rely on smartphones for their academic needs, libraries must ensure that their VRS are optimized for mobile devices. A study by Nwachi and Anozie (2022) emphasized the importance of having a user-friendly interface and providing quick response times.

Libraries can optimize their VRS for mobile devices by creating mobile-friendly websites and apps. These platforms should have a clean and intuitive design that makes it easy for students to find and use VRS. Libraries can also provide quick response times by ensuring that they have enough staff available to handle inquiries or by using chatbots to handle simple questions. By making VRS more accessible on mobile devices, libraries can encourage more students to use these services. Students who are able to easily access VRS from their smartphones are more likely to use them when they need assistance, regardless of their location or the time of day.

#### **2.5.6 Leveraging Technology**

The integration of technology into Virtual Reference Services (VRS) can also enhance user perceptions and engagement. For example, the use of chatbots and artificial intelligence can streamline the process of answering common inquiries, allowing librarians to focus on more complex questions (Li & Chen, 2021). These technologies can be used to handle simple, frequently asked questions, allowing librarians to devote more time to complex inquiries that require human expertise (Li & Chen, 2021).

#### **2.5.7 Continuous Improvement**

To ensure that their VRS remain effective and engaging, libraries should continuously evaluate and improve their services based on user feedback. This can involve regularly surveying users about their experiences with VRS, analyzing usage data, and conducting usability testing (Li & Chen, 2021). By using this data to identify areas for improvement, libraries can make targeted changes to their VRS that enhance user satisfaction and engagement.

#### **2.5.8 Building a Collaborative Environment**

Creating a collaborative environment among libraries can significantly enhance the effectiveness of Virtual Reference Services (VRS). Collaborative Virtual Reference Services (CVRS) allow multiple libraries to share resources and expertise, providing users with access to a broader range of information and support. This model not only improves service quality but also fosters a sense of community among libraries

(University of Nebraska, 2023). By participating in collaborative networks, libraries can enhance their VRS offerings and better serve their users.

## **2.6 Theoretical review**

The study was guided by the Information Seeking Behaviour model. Information Seeking Behaviour (ISB) is a theoretical framework that examines how individuals search for, find, and use information. Developed in the 1970s by Thomas J. Wilson, it emphasizes the dynamic and contextual nature of information seeking, recognizing that individuals' information needs and strategies vary depending on their goals, knowledge, and environment (Oza & Patel, 2021). The main proponent, Wilson proposed a model of information seeking encompassing stages like initiation, selection, exploration, formulation, and collection (Dipak & Kundu, 2017). Another proponent was Carol Kuhlthau who developed the Information Search Process (ISP) model, focusing on the cognitive and affective aspects of information seeking, including uncertainty, confidence, and anxiety (Oza & Patel, 2021). The theory assumes that users have specific information needs, actively seek information to fulfill their needs, and employ diverse strategies based on context and prior knowledge. However, critiques have criticized it for its oversimplification of user behavior, neglect of social and cultural influences, and difficulty operationalizing complex concepts (Garg, 2016). Despite this, the theory provides a framework for understanding user needs, designing effective information systems, and evaluating search behavior. The ISB model was used to understand user needs and behaviours. By analyzing user perspectives and challenges with VRS the study can apply ISB principles to identify user information needs, preferred search strategies, and potential barriers related to VRS usage. It was also used to inform recommendations. By understanding how users interact with VRS, the study will propose more effective and user-centered recommendations for VRS enhancement.

## **2.7 Research gap**

Current research on VRS primarily focuses on developed nations. Little is known about VRS adoption and usage in developing countries like Uganda, where resource limitations might influence service availability and user access. This study can bridge this knowledge gap by exploring the specific VRS landscape at Nkumba University.

By examining the services offered, user perceptions, and usage patterns, the study can provide valuable insights into the effectiveness of VRS in this specific context. Understanding user perceptions is crucial for optimizing VRS. If Nkumba University students and faculty are unaware of available VRS options, or if they hold negative perceptions about their effectiveness, usage will remain low. This study can reveal these perceptions, allowing the library to develop targeted strategies to address user concerns and improve user experience.

Examining usage patterns will shed light on how Nkumba University students and faculty currently interact with VRS. This data can inform the development of a framework specifically tailored to enhance VRS usage at the university. The framework might encompass marketing strategies to raise awareness, user education initiatives to improve VRS literacy, or potential adaptations to the service platform itself to better suit user needs. Additionally, the study's potential use of a mixed-method approach, combining quantitative data with qualitative interviews, can provide a richer picture of the VRS experience at Nkumba University. Understanding not just how often VRS is used, but also the user experience and underlying motivations for usage or non-usage, can contribute significantly to closing the methodological gap in VRS research. In conclusion, this study on VRS at Nkumba University holds significant value. By addressing knowledge gaps, understanding user perceptions, and optimizing usage patterns, the research can contribute to the overall success of VRS at Nkumba University, ultimately empowering students and faculty to achieve their research goals. This localized study can also offer valuable insights that might be applicable to other universities in developing countries facing similar challenges and opportunities with VRS implementation.

## CHAPTER THREE: METHODOLOGY

### 3.1 Introduction

Methodology in research refers to the systematic and theoretical analysis of research methods and techniques used in a particular field of study (Patel & Patel, 2019). It involves the collection, analysis, and interpretation of data to answer research questions or test hypotheses. This chapter provides the steps taken in conducting the study.

### 3.2 Area of the study

The study was conducted at Nkumba University Library which is along Kampala-Entebbe Highway, specifically 17km from Kampala (Nkumba University, 2023). This area was selected because it was ideal for conducting the study since VRSs are provided. It was also accessible and convenient.

### 3.3 Research design

Research design refers to the plan and structure that guides the collection and analysis of data in a research study (Creswell & Creswell, 2018). It outlines the overall strategy for conducting research, including the type of data to be collected, the methods for collecting and analyzing the data, and the timeline for completion (Creswell & Creswell, 2017). A case study research design was used. This is because a case study research design critically looks at the case under study providing in-depth insight about the associated research problem (Creswell & Creswell, 2017). Using this research design, data on a specific variable or set of variables was collected from a sample of individuals. The sample was representative of a larger population, and the data collected was used to make inferences about that population.

### 3.4 Research approach

The research approach is the overall plan or strategy that a researcher uses to conduct their study (Patel & Patel, 2019). A mixed methods approach was used for the study. Mixed methods research approach is a type of research design that combines both qualitative and quantitative data collection and analysis methods

(Dawadi et al., 2021). Using this research approach, data was collected from multiple sources, providing a more comprehensive understanding of the topic being studied. A mixed methods research approach was selected because it is more powerful than a single study, and therefore, by collecting both qualitative and quantitative data, richer results would be obtained.

### 3.5 Study population

The study population is the group of individuals or objects that the researcher is interested in studying (Creswell & Creswell, 2018). The study population that the study targeted were librarians and course leaders at Nkumba University. The librarians were selected because they were directly involved in the provision of virtual reference services at NUL while course leaders were selected to speak on behalf of their colleagues. In total, the study population was composed of 15 librarians and 79 course leaders. The breakdown of the study population is illustrated in table 3.1.

### 3.6 Sample size determination and sampling strategy

A sample is a subset of the study population that is selected for the study (Patel & Patel, 2019). The sample should be representative of the study population to ensure that the results of the study can be generalized to the larger population (Majid, 2018). The sample size should also be large enough to ensure that the results are statistically significant. The sample size was computed using Yamane's formula of 1967 which states:

$$n = \frac{N}{1 + N(e)^2}$$

Whereby n is the sample size

N is the target population = 94

e is the margin of error

$$n = \frac{94}{1 + 94(0.05)^2} = 76.11$$

A sample size of 76 was therefore adopted for the study.

Table 3.1 below shows the breakdown of the study population, sample size and sampling strategies

**Table 3.1: Study population, sample size and sampling strategies**

Composition	Study population	Sample size	Sampling strategy
Librarians	15	15	Purposive sampling
Course leaders (Diploma)	18	15	Simple random sampling
Course leaders (Bachelors)	29	23	Simple random sampling
Course leaders (Postgraduate)	32	23	Simple random sampling
<b>Total</b>	<b>94</b>	<b>76</b>	

Source: Nkumba University (2023)

As seen in table 3.1 above, the sample size was obtained through purposive sampling and simple random sampling. Purposive sampling involved choosing librarians who were considered very knowledgeable about VRS as the sample size while simple random sampling involved selecting the course leaders to participate in the study at random.

### 3.7 Data collection methods

Data collection methods are the techniques that a researcher uses to collect data from the study population or sample (Patel & Patel, 2019). It is important for the researcher to select a data collection method that is appropriate for their research question and that will yield reliable and valid data.

#### 3.7.1 Questionnaires

A questionnaire is a set of questions that are used to collect data from a large number of people (Patel & Patel, 2019). Questionnaires can be administered in paper form, online, or over the phone. They can be designed to collect both open-ended and closed-ended responses (Creswell & Creswell, 2018). A closed-ended

questionnaire was designed to obtain responses from the study participants about the research topic. It was structured in sections with one section meant to solicit information about selected demographic information while the other about questions concerning the research topic. 61 questionnaires were issued out to the study participants (course leaders). Before issuing them out, the study participants were briefed and requested to fill in a consent form to show consent to participate. They were given a week to answer the questions after which their questionnaires were collected.

### **3.7.2 Interviews**

Interviews are a form of qualitative research that involve asking participants open-ended questions to explore their experiences, opinions, and perspectives (Patel & Patel, 2019). Interviews can be conducted in person, over the phone, or through video conferencing (Creswell & Creswell, 2018). The librarians were briefed about the research and asked to participate in the study. They were also given consent forms to sign as a way of showing that they were briefed about the study and were participating at will. Appointments were set with those who agreed and interviews scheduled and held then. The interviews lasted for an average time of 25 minutes over a one-week period. They were recorded and also notes were jotted down. The interviews were structured implying that the same information was asked to all the study participants.

### **3.7.3 Document review**

A document review involves reviewing important documents involving a topic under study (Sileyew, 2019). These can be internal or external documents. Internal documents of Nkumba University Library which included its annual reports and other published documents that contained information considered fit to address the study were reviewed. These provided qualitative secondary data for the study.

## **3.8 Data collection instruments**

To ensure that questionnaires and interviews are conducted in a systematic and consistent manner, researchers often use a guide (Patel & Patel, 2019). For this study, a questionnaire guide and interview guide were used.

### **3.8.1 Questionnaire guide**

A questionnaire guide outlines the questions that will be asked on the questionnaire, the order in which they will be asked, and any instructions or prompts that will be given to participants (Sileyew, 2019). A questionnaire guide was prepared with questions for the course leaders. In some instances, they were asked to tick what was most appropriate or circle. The questionnaire guide is attached in the appendix A.

### **3.8.2 Interview guide**

An interview guide serves a similar purpose, providing a framework for the interviewer to follow during the interview process (Sileyew, 2019). An interview guide was prepared with questions for the librarians. The researcher followed the interview guide during the interview process. The interview guide is attached in appendix B.

### **3.8.3 Document review checklist**

A document review checklist guides the process of reviewing documents. It was prepared to guide the process of reviewing relevant documents for this study. The document review checklist is attached in appendix C.

## **3.9 Data quality control**

Data quality control plays an essential role in ensuring that the data used for various purposes is of high quality. It involves assessing and monitoring data to ensure that it meets the required standards (Patel & Patel, 2019). One of the key aspects of data quality control is validity, which refers to the accuracy and relevance of the data (Creswell & Creswell, 2018). Valid data is free from errors and represents the intended meaning. Another important aspect of data quality control is reliability, which refers to the consistency and stability of the data over time (Creswell & Creswell, 2018). Reliable data is consistent and can be used repeatedly to produce the same results.

To ensure the validity of the data, the data collection instruments were shared with the research supervisor to review and advise whether they would generate the needed information and also if they met the required standards. The data collection instruments were improved gradually with the feedback received. To ensure the reliability of the data, the researcher made sure that the research was reproducible by sharing all the steps followed in conducting the study.

### **3.10 Data analysis**

Data analysis is a crucial aspect of any research study as it enables researchers to draw meaningful conclusions from the data collected (Patel & Patel, 2019). The qualitative data was analyzed in line with Ritchie and Spencer's five steps of framework analysis which include familiarizing to understand the raw data, identifying a thematic framework, indexing where themes apply, mapping the data to pull similar characteristics together and defining concepts. This data was presented in words and verbatim to corroborate the findings from the quantitative data. The quantitative data was sorted and organized by question. This data was then analysed by the help of Microsoft Excel where frequency tables will be created and the number of responses converted to percentages. The data was presented in words, tables, figures and percentages. This method was selected because it is systematic and can ensure that data is analysed in an effective way.

### **3.11 Ethical considerations**

It is essential to consider ethical considerations when conducting data analysis (Fleming & Zegwaard, 2018). One of the ethical considerations followed was protecting the privacy and confidentiality of the study participants. The data collected was also kept confidential and only used for the intended purpose. Additionally, the informed consent was obtained from the participants before collecting any data. The research was only conducted upon receiving approval from the Research Department at Uganda Christian University and from Nkumba University to conduct this research within their premises. Lastly, any work of other authors used during the preparation of this research was acknowledged by following the APA citation and reference rules.

### **3.12 Limitations and De-limitations**

The major limitations to the study included delays in responding to the questionnaire, and finding time to collect and analyse the data that was obtained from the study participants given their number. However, the researcher sent constant reminders to the respondents and took leave to focus on data collection and analysis so that all collected data was utilised in the study. Another limitation faced was the high costs for printing and photocopying. More resources had to be mobilized externally to facilitate these activities. I was also a staff member and therefore, some participants may not have been comfortable enough to share with me their views. However, I tried to create an enabling environment and encouraged them to speak up as their identities would be concealed.

## CHAPTER FOUR: PRESENTATION AND ANALYSIS OF FINDINGS

### 4.1 Introduction

This section presents the study findings in two parts. The first part has a description of the response rate. The second part has the presentation of the study findings based on the objectives of the study.

### 4.1 Response rate

The response rate shows the percentage of individuals that participated in the questionnaire and interviews (Creswell & Creswell, 2018). Table 4.1 below shows the response rate for the study.

**Table 4.1: Response rate**

Data collection method	Expected	Actual	Percentage
Questionnaires	61	60	98.4%
Interviews	15	12	80%
<b>Total</b>	<b>76</b>	<b>72</b>	<b>94.7%</b>

**Source:** Primary data (2024)

Overall, out of the total 76 expected participants (61 questionnaires + 15 interviews), 72 participated in the study, resulting in an overall response rate of 94.7%. A high response rate is desirable in research studies as it reduces the risk of non-response bias and ensures that the data collected is representative of the target population. The response rates for both the questionnaires (98.4%) and interviews (80%) in this study are considered good, indicating that the researchers were able to engage a significant portion of the expected participants. The high questionnaire response rate suggests that the researcher was able to effectively distribute the questionnaires and encourage participants to complete them. The lower interview response rate was due to scheduling conflicts or participants' unwillingness to commit time for the interview.

## Presentation of the study findings as per the study objectives

### 4.3 Virtual reference services at Nkumba University Library

The first objective of the research was to find out the VRSs at Nkumba University Library. Students were asked if they were aware that Nkumba University Library offered virtual reference services. Table 4.2 below summarizes their responses.

**Table 4.2: Awareness of virtual reference services**

Awareness	Frequency	Percentage
Yes	53	88.3%
No	7	11.7%
<b>Total</b>	<b>60</b>	<b>100%</b>

Source: Primary data (2024)

Out of 60 students surveyed, 53 (88.3%) said they were aware of these services, while 7 (11.7%) were not. The high percentage of awareness indicates that most students know about the virtual reference services available to them.

Students were also asked if they were familiar with the VRS offered by the university library. Below is a summary of their responses.

**Table 4.3: Level of familiarity with virtual reference services**

Familiarity	Frequency	Percentage
Very familiar	23	38.3%
Somewhat familiar	29	48.3%
Not familiar at all	8	13.3%
<b>Total</b>	<b>60</b>	<b>100%</b>

Source: Primary data (2024)

Out of 60 students, 23 (38.3%) reported being "very familiar," 29 (48.3%) said they were "somewhat familiar," and 8 (13.3%) were "not familiar at all." The results show that while a majority of students are aware of the services, familiarity varies. Most students (86.6%) have at least some level of familiarity, but there is still a notable portion (13.3%) who are not familiar at all. This indicates that while awareness is high, deeper engagement and understanding of the services could be improved.

Students were further asked to tick all the VRS they were aware of at Nkumba University Library. Their responses are summarized in the table below:

**Table 4.4: Virtual reference services being provided at Nkumba University Library**

Virtual reference services	Frequency	Percentage
Email reference	29	48.3%
Chat reference	5	8.3%
Instant messaging	0	0%
Virtual reference desk through the library website	43	71.7%
Social media	0	0%

Source: Primary data (2024)

The results show that 43 students (71.7%) are aware of the virtual reference desk on the library website, 29 (48.3%) know about email reference, and 5 (8.3%) are aware of chat reference. No students reported awareness of instant messaging or social media as virtual reference services. The virtual reference desk is the most recognized service, indicating it is likely well-promoted or easily accessible. However, the low awareness of chat reference and the absence of awareness for

instant messaging and social media services suggest that these options are not effectively communicated or utilized by students.

Overall, the findings indicate that Nkumba University Library has successfully raised awareness of its virtual reference services among students, with a significant majority recognizing their existence. However, while awareness is high, the level of familiarity varies, suggesting that the library should enhance efforts to educate users about the specific services available. The virtual reference desk is the most well-known service, but other options like chat reference and instant messaging are not as recognized. This indicates a potential area for improvement in promoting these services to ensure that all available resources are utilized effectively. By addressing these gaps in familiarity and awareness, the library can better support students' academic needs and enhance their overall experience with virtual reference services.

In the interviews, several themes were identified concerning the current implementation of VRS at NUL. These are discussed further below:

### **Accessibility and Convenience**

It was discovered that NUL aimed to provide library services that were accessible and convenient for students and faculty. Virtual options catered to users who could not physically visit the library due to time constraints, location, or preference for online communication. This was evident in the various modes of VRS offered, as stated:

*"Users can send their inquiries via email, and librarians respond with relevant information. Live chat services also allow users to interact with librarians in real-time... This mode offers quick responses and can be convenient for users seeking immediate assistance."* -I3

These options eliminated physical barriers and catered to diverse user preferences, directly addressing accessibility and convenience as objectives.

### **User-Centered Approach**

The workflow emphasized understanding user inquiries fully before crafting tailored responses. This ensured the information provided directly addresses the user's specific needs. An interviewee shared that the workflow description states:

*"Understanding the Inquiry: The librarian reads through the inquiry carefully to understand the user's question or problem fully. They might need to analyze the language used and any context provided to ensure they comprehend the user's needs accurately." -17*

This focus on understanding the user's intent aligned with the goal of providing user-centered information support.

### **Information Quality and Credibility**

Librarians prioritized providing accurate and reliable information. This was achieved by using reputable sources, evaluating source credibility, and proper citation practices. It was shared that:

*"Librarians evaluate the credibility, accuracy, and relevance of the sources they find. They prioritize reputable sources such as peer-reviewed articles, official websites, and scholarly publications to ensure the information provided to the user is reliable."-15*

By ensuring information quality, the VRS directly fulfilled the objective of providing users with trustworthy resources.

### **Effective Communication**

Clear, concise, and professional communication is emphasized throughout the interaction. Librarians strive to explain complex concepts in understandable language and avoid technical jargon. A participant disclosed that:

*"Librarians maintain professional communication etiquette throughout the interaction, using clear and concise language. They avoid jargon or technical terms that may be unfamiliar to patrons and strive to communicate complex concepts in an understandable manner." -19*

This focus on clear communication ensured users could effectively comprehend the information provided, aligning with the objective of successful knowledge transfer.

### **Comprehensive Support**

The service went beyond simply answering questions. Librarians offered additional resources, follow-up assistance, and encouraged users to reach out for further help. This was exemplified by an interviewee:

*"Once the response is finalized, the librarian sends it to the user through the same virtual platform where the inquiry was received. They may also include additional resources or suggestions for further reading if relevant." -I1*

This comprehensive support ensured users had access to all the resources they might need to address their information needs fully.

The interviews also generated information concerning the different stages of providing VRS. Librarians actively received inquiries through various channels and analyzed them to grasp the user's needs. An interviewee shared that:

*"Inquiries can come through various virtual channels such as email, chat, social media, or online forms. The librarian receives the inquiry through the designated platform. The librarian reads through the inquiry carefully to understand the user's question or problem fully." -I10*

Librarians also leveraged digital resources to find relevant and credible information. According to a participant:

*"Once the inquiry is understood, the librarian begins the research process. They search through digital resources such as databases, online catalogs, academic journals, eBooks, or reputable websites to find relevant information that addresses the user's query." -I2*

They tailor responses to address the user's specific question and ensure clarity, accuracy, and proper grammar. Responses are delivered through the original platform with potential for additional resources and follow-up support.

Different documents were also reviewed and analysed. The document review revealed that NUL had well-established VRS. NUL has a dedicated webpage for VRS. Information on available VRS modes (email, chat, etc.) and clear instructions on how to access and use VRS was provided. VRS operating hours are explicitly stated. The library also had written policies or guidelines for librarians offering VRS exist.

#### 4.4 User perceptions on virtual reference services provided at Nkumba University Library

The second objective aimed at finding out user perceptions on VRS provided at NUL. Students were asked to rate their level of satisfaction with different aspects of virtual reference services. Their responses are summarized below.

**Table 4.5: Level of satisfaction with virtual reference services**

Aspect	Satisfied	Percentage	Neutral	Percentage	Not Satisfied	Percentage
Timeliness of response	10	16.7%	23	38.3%	27	45%
Quality of information provided	26	43.3%	29	48.3%	5	8.3%
Helpfulness of librarians	48	80%	10	16.7%	2	3.3%
Ease of use of the virtual reference service platform	7	11.7%	36	60%	17	28.3%

Source: Primary data (2024)

This table summarizes how satisfied students are with different aspects of VRDS at Nkumba University Library. Only 16.7% of students were satisfied with how quickly they received responses. Most students (45%) were not satisfied, and 38.3% felt neutral about this aspect. This implies that many students are unhappy with how

fast they get answers, indicating a need for improvement in response times. 43.3% of students were satisfied with the quality of information they received, while 48.3% were neutral, and only 8.3% were not satisfied. This means that most students think the information quality is good, but a significant number are unsure, suggesting that the library should clarify or enhance the information provided. A strong 80% of students were satisfied with how helpful the librarians were, while only 3.3% were not satisfied. This shows that students really appreciate the support from librarians, which is a positive aspect of the virtual reference services. Only 11.7% of students were satisfied with how easy it is to use the platform. A majority (60%) felt neutral, and 28.3% were not satisfied. This means that many students find the platform difficult to use, which suggests that improvements are needed to make it more user-friendly.

Overall, the findings reveal mixed perceptions about the virtual reference services at Nkumba University Library. While students are generally aware of the services and appreciate the helpfulness of the librarians, there are significant concerns regarding the timeliness of responses and the ease of using the platform. The librarians are viewed positively, with high satisfaction regarding their helpfulness. This indicates that the library staff is doing a good job in assisting students. The low satisfaction rates for the timeliness of responses and ease of use highlight areas that need attention. Many students feel that responses take too long and that the platform is not user-friendly.

In the interviews, the participants shared that VRSs offered a variety of benefits to users. An interviewee shared that:

*"Virtual reference services make it easier for library patrons to access the information they need and manage their library accounts more effectively" -*

*IL3*

The above quote highlighted the usefulness of VRSs in NUL. By making information access easier, VRSs acted as very convenient forms for information access and retrieval. This was supported by another interviewee who was quoted to having said that:

*"People can get the help they need without having to physically visit a library, which can be time-consuming and inconvenient" - IL7*

VRSs could therefore be accessed from anywhere signifying how important they were for information access and retrieval.

The document review also offered insights into user perspectives on NUL's VRS. The library has conducted surveys among students or faculty regarding VRS usage and satisfaction. The findings highlighted the potential for user feedback in such platforms. It was shared that this could result in obtaining suggestions for improvement and enhancing service delivery generally.

#### **4.5 Usage patterns of virtual reference services at Nkumba University Library**

The third objective was to explore the usage patterns of VRSs at NUL. The students were asked if they had ever used VRS at Nkumba University Library. Their responses are summarized in the table below.

**Table 4.6: If ever used virtual reference services**

<b>Usage Patterns</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	37	61.7%
No	23	38.3%
Total	60	100%

Source: Primary data (2024)

Out of 60 students surveyed, 37 (61.7%) said "Yes," they have used the services, while 23 (38.3%) said "No," they have not. The majority of students (61.7%) have used the virtual reference services at the library, indicating that these services are somewhat popular among the students. However, a significant number (38.3%) have not used them, which suggests that there may be barriers preventing some students from trying out these services.

Participants were further asked why they used VRS. Their responses are summarized in the table below.

**Table 4.7: Reason for using virtual reference services**

Uses	Frequency	Percentage
Clarifying a research question	15	25%
Locating scholarly articles or resources	17	28.3%
Citation help	26	43.3%
Using library databases	39	65%

Source: Primary data (2024)

The most common reasons were: using library databases (65%), citation help (43.3%), locating scholarly articles or resources (28.3%) and clarifying a research question (25%). The most popular reason for using VRS is to access library databases, showing that students rely on these services for research. Citation help is also a significant reason, indicating that students need assistance with referencing. The lower percentages for clarifying research questions and locating articles suggest that while students use VRS for specific tasks, they may not be as aware of its potential for broader research support.

Additionally, the participants were asked how often they used VRS. Their responses are summarized in the table below.

**Table 4.8: Frequency of utilizing virtual reference services**

Frequency of usage	Frequency	Percentage
Frequently	22	36.7%
Occasionally	10	16.7%

Rarely	18	30%
Never used	10	16.7%
Total	60	100%

Source: Primary data (2024)

About 36.7% of students use the services frequently, which is a positive sign of engagement. However, a combined total of 46.7% either use the services rarely or have never used them, indicating that there is still room for improvement in promoting regular use of VRS among students.

In the interviews, the participants also shared their opinions on usage patterns of VRS at NUL. These are discussed below in themes.

### Frequency of Use

Variability in VRS usage was acknowledged. It was learnt that factors like institution size, service promotion, and user preferences all influence usage rates. However, peak usage occurred during exams, research projects, or in face of limited physical library access. This was shared by one of the interviewees:

*"I've observed that virtual reference services are frequently utilized by students and faculty, particularly during peak times, such as exam time, research time and when the library cannot be physically accessed". -I2*

This suggests that VRS serves a critical role when traditional library access is limited.

### Perceived Benefits and Drawbacks

Some of the benefits included remote access to research assistance and resources, often 24/7. It was shared that:

*"Users appreciate the convenience of being able to access research assistance and information resources remotely. VRS can also save users time by providing quick access to relevant information". -I8*

VRS also provided access to a wider range of digital resources, potentially unavailable physically. This is coupled with expert assistance where users can receive assistance from trained professionals. VRS platforms are also flexible. According to a participant:

*"VRS platforms can accommodate different learning styles". -I4*

However, some users may miss personal interaction. There could also be difficulties in accessing or using VRS platforms due to connectivity and other technical issues. Despite this, there is increased acceptance and adoption of VRS as users become more familiar with VRS platforms.

However, participants also shared that there were some issues with the delivery of VRS services. These are discussed further below:

### **Limited library staff**

One of the most common complaints was the lack of library staff compared to the large student population. This resulted in delays in providing timely and helpful assistance to students in need. According to one of the interviewees:

*"We are few library staff compared to the student population which sometimes results in delays in providing timely and helpful assistance" -IL10*

### **Inadequate resources**

Another major issue was the limited resources allocated to the library. Participants reported facing challenges with limited computers and unstable internet, which they were unable to solve due to the lack of resources. It was shared that:

*"The resources allocated to the library are limited. We face challenges with limited computers and unstable internet which we cannot solve at the moment due to the limited resources" -IL2*

### **Outdated software**

Lastly, participants mentioned that some of the software used by the library was outdated and did not support the features that students required. This caused inconvenience to both the students and the library staff. An interviewee reported that:

*"Some of the software we use is outdated and does not support some features which the students require" -IL4*

Based on these findings, the factors that hindered the provision of VRSs at NUL included inadequate space for VRS training, limited VRS materials, unstable internet

access, limited computers, unreliable feedback from VRSs, dysfunctional computers, absence of training on how to use VRSs, difficulty in finding information, inadequate library staff, limited resources and outdated software.

The document review highlighted challenges NUL was facing in providing VRS. These included insufficient staff to handle inquiry volume or a need for specialized VRS training; and system outages, software glitches, and compatibility issues which disrupted service.

## CHAPTER FIVE: DISCUSSION OF FINDINGS

### 5.1 Introduction

This chapter includes the discussion of the findings for each objective.

### 5.2 Virtual reference services provided at Nkumba University Library

The findings from Objective 1 align closely with existing literature on the types of virtual reference services (VRS) commonly provided by academic libraries. Both the study and previous research emphasize the significance of chat and email reference services, reinforcing the idea that these tools are central to effective virtual engagement (Vogus, 2020). This suggests that Nkumba University Library is in step with best practices in VRS provision, leveraging digital communication to facilitate information access for students and faculty. The widespread use of online chat services among students further demonstrates the library's success in offering real-time interactions, which have become increasingly essential in a digitally driven academic environment.

However, an important divergence emerges when considering the awareness and utilization of instant messaging and social media as VRS tools. While the literature strongly advocates for these platforms as vital components of modern library services (Janes, 2008), the study indicates that many users at Nkumba University Library are either unaware of these options or do not actively engage with them. This presents a critical gap between best practices and actual user engagement, suggesting that the library may need to refine its outreach and promotional strategies. The underutilization of instant messaging and social media as reference tools could stem from inadequate marketing efforts or a general lack of digital literacy among users regarding the full range of VRS options.

Furthermore, while the study acknowledges the challenges faced by libraries in developing countries, it does not explore in depth how these barriers specifically affect Nkumba University Library's VRS implementation. Prior research has highlighted common obstacles such as limited technological infrastructure, inadequate funding, and a shortage of skilled personnel to manage digital services (Mwiinga et al., 2020). Understanding these localized constraints is essential for

devising practical solutions that address not only the adoption of VRS but also their sustained effectiveness and accessibility. Without addressing these contextual factors, efforts to enhance VRS provision may be limited in their impact.

This analysis underscores the need for Nkumba University Library to adopt a more comprehensive approach to VRS implementation. Beyond simply offering chat and email services, the library must actively promote awareness of all available VRS tools, ensuring that students and faculty fully understand and utilize them. Additionally, further research into the unique challenges faced by the library within its specific institutional and technological context would provide valuable insights for enhancing service delivery and user satisfaction. By bridging these gaps, Nkumba University Library can optimize its VRS strategy and better serve the evolving needs of its academic community.

### **5.3 User perspectives on virtual reference services at Nkumba University Library**

The findings from objective 2 provide valuable insights into user perceptions of virtual reference services at Nkumba University Library. The high awareness levels (88.3%) suggest that the library has effectively communicated the availability of these services to its users. However, the lower familiarity rates, particularly for chat reference and other less prominent VRS, indicate that more can be done to educate users about the full range of services offered. The literature review emphasizes the importance of user perceptions in shaping the success of VRS implementation. Factors such as ease of use, librarian expertise, and overall user experience are crucial in determining whether users will continue to utilize these services (Abubakar, 2021; Mwiinga et al., 2020). The study's findings align with these factors, highlighting the need for Nkumba University Library to focus on improving the user-friendliness of its VRS platforms and ensuring that librarians are well-trained to provide high-quality assistance. One notable contradiction between the study and literature is the lack of direct assessment of user perceptions regarding response time and overall user experience at Nkumba University Library. The literature review suggests that these factors significantly impact user satisfaction and continued usage of VRS (Khan et al., 2017). Future research at the university should consider incorporating these elements to gain a more comprehensive understanding of user perceptions. Additionally, while the literature review provides a broader perspective

on user perceptions across academic libraries, the study's focus on a single institution may limit the generalizability of its findings. Comparative studies examining user perceptions in different contexts could help validate the results and identify best practices for enhancing VRS in developing countries like Uganda.

#### **5.4 Usage patterns of virtual reference services at Nkumba University Library**

The findings from objective 3 provide critical insights into the usage patterns of virtual reference services at Nkumba University Library. The moderate level of engagement, with 61.7% of students having used VRS, suggests that while these services are recognized, there is still room for improvement in promoting their use. This aligns with the literature, which emphasizes the importance of user engagement and the role of effective promotion in enhancing VRS usage (Khan et al., 2017). The primary reasons for using VRS, such as accessing library databases and citation help, highlight the essential role these services play in supporting academic research. However, the low percentage of students using VRS for clarifying research questions (25%) indicates a potential gap in user awareness regarding the comprehensive support that VRS can offer. This finding suggests that Nkumba University Library could benefit from targeted outreach and education efforts to inform students about all available services, particularly those that assist with research clarification. Additionally, the study's findings regarding the frequency of usage reveal that nearly half of the respondents either use VRS rarely or have never used them. This aligns with the literature's assertion that access to technology and reliable internet is crucial for effective usage (Mwiinga et al., 2020). Therefore, addressing infrastructure issues, such as improving internet connectivity and providing adequate access to computers, is essential for enhancing VRS usage. The identification of lack of funds, understaffing, and limited technology also reflects a broader trend observed in the literature, which highlights similar issues faced by many academic libraries, especially in developing countries (Mwiinga et al., 2020; Abubakar, 2021).

The ISB model proposes that individuals go through various stages when seeking information to fulfill their needs. These stages include initiation, selection, exploration, formulation, and collection (Wilson, 2000). The findings of this study

provide insights into how users engage with virtual reference services (VRS) at different stages of their information seeking process. For instance, the study found that students primarily used VRS for accessing library databases (65%) and locating scholarly articles (28.3%). This suggests that users utilize VRS during the selection and collection stages of the ISB model, where they actively search for and gather relevant information resources to fulfill their research needs. However, the low percentage of students using VRS for clarifying research questions (25%) indicates that users may not be fully utilizing these services during the initiation and formulation stages of the ISB model. This implies that there is an opportunity to promote VRS as a tool for refining research questions and exploring topics in-depth. This study contributes to the existing body of knowledge by providing empirical evidence on how users engage with VRS within the context of the ISB model. The findings highlight the need to consider the different stages of information seeking when designing and promoting VRS. Moreover, the study suggests that the ISB model can be used as a framework for evaluating the effectiveness of VRS in supporting users throughout their research process. By assessing the usage patterns and perceptions of VRS at each stage of the ISB cycle, libraries can identify areas for improvement and develop targeted strategies to enhance user engagement and satisfaction. In conclusion, the findings of this study demonstrate the relevance of the ISB model in understanding user interactions with virtual reference services. By aligning VRS with the different stages of information seeking, libraries can create a more comprehensive and user-centered approach to information support, ultimately enhancing the research experience for students and faculty.

## **5.5 Framework to enhance user perspectives and usage patterns of virtual reference services at Nkumba University Library**

To enhance user perspectives and usage patterns of virtual reference services (VRS) at Nkumba University Library, the framework below is proposed based on the findings of the study and existing literature. This framework will address the identified challenges and leverage opportunities for improvement.

### *User Education and Training*

Conduct regular workshops for students and faculty on how to effectively use VRS. This includes training on navigating the library's website, using chat services, and accessing databases. Develop video tutorials and guides that can be accessed anytime to help users familiarize themselves with the VRS offerings.

### *Improving Service Quality*

Establish clear response time guidelines for VRS inquiries to ensure users receive timely assistance. This could involve setting up a system to prioritize urgent queries. Regularly evaluate the quality of information provided by librarians through feedback forms and user satisfaction surveys.

### *Enhanced Promotion and Marketing*

Increase the visibility of VRS on the library's website and social media platforms. Use eye-catching banners and announcements to draw attention to these services. Encourage librarians to promote VRS during classes, orientations, and library tours to raise awareness among new students.

### *Technology and Infrastructure Development*

Invest in more computers and ensure that the VRS platform is user-friendly and accessible. This includes optimizing the website for mobile use, as many students may access services via smartphones. Work with the university administration to enhance internet access and reliability within the library to support seamless VRS usage.

### *Staff Training and Development*

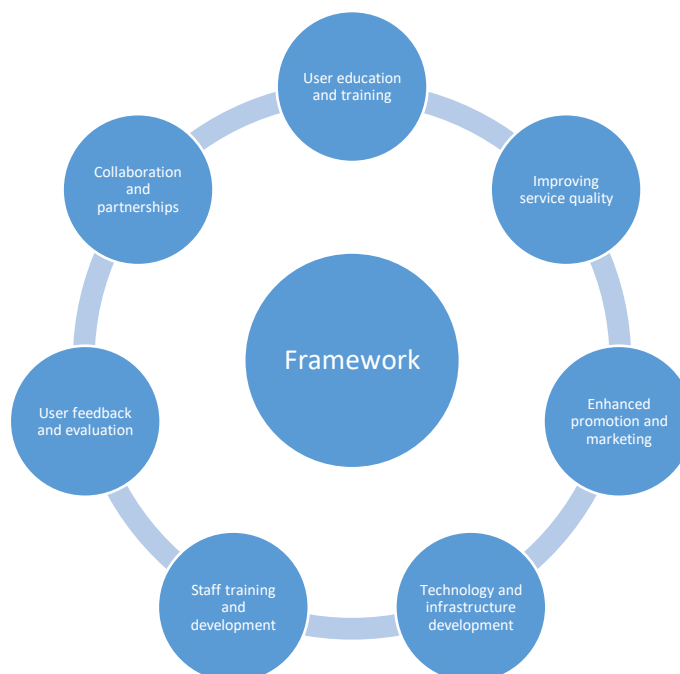
Provide ongoing training for library staff to ensure they are equipped with the necessary skills and knowledge to assist users effectively. This includes training on new technologies and user engagement strategies. Implement a feedback system for librarians to share experiences and challenges in providing VRS, fostering a culture of continuous improvement.

### *User Feedback and Evaluation*

Conduct regular surveys to gather user feedback on their experiences with VRS. This will help identify areas for improvement and adapt services to better meet user needs. Organize focus group discussions with students and faculty to gain deeper insights into their perceptions and suggestions for VRS.

### *Collaboration and Partnerships*

Establish partnerships with other academic libraries to share best practices and resources for VRS. This can include joint training sessions or shared access to databases. Work closely with faculty members to integrate VRS into the curriculum, encouraging students to utilize these services for research and assignments.



By implementing this framework, Nkumba University Library can enhance user perspectives and increase the usage patterns of its virtual reference services. The focus on user education, service quality, technology improvement, staff

development, and user feedback will create a more engaging and effective VRS environment. This holistic approach not only addresses the current challenges but also positions the library to meet the evolving needs of its users in a digital age.

## **CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS**

### **6.1 Introduction**

This study aimed at examining the perception and usage patterns of virtual reference services at Nkumba University Library to develop a framework for enhancing VRS provision within the library if any gaps are identified. The study objectives were to: find out the virtual reference services provided at Nkumba University Library; examine user perceptions of virtual reference services at Nkumba University Library; determine usage patterns of virtual reference services at Nkumba University Library; and develop a framework to enhance perceptions and usage patterns of virtual reference services at Nkumba University Library.

### **6.2 Summary of the findings based on the study objectives**

#### **6.2.1 Virtual reference services provided at Nkumba University Library**

The study found that while there is a variety of VRS available, the online chat service stands out as the most utilized option. This suggests that users at Nkumba University Library favour immediate assistance over other forms of communication. The findings indicate that Nkumba University Library has made significant strides in implementing virtual reference services, with a focus on accessibility and user engagement through chat services. However, the effectiveness of these services may be impacted by challenges such as limited funding, staffing issues, and technological constraints, which were explored in subsequent objectives of the study.

#### **6.2.2 User perspectives on virtual reference services at Nkumba University Library**

The findings indicate that while there is a high level of awareness of virtual reference services at Nkumba University Library, familiarity and consistent usage remain challenges. The satisfaction levels vary significantly across different aspects of the services, particularly regarding response times and ease of use, which are critical for enhancing user experience and engagement. Addressing these issues could lead to improved perceptions and increased utilization of VRS among students.

### **6.2.3 Usage patterns of virtual reference services at Nkumba University Library**

The findings suggest that while a majority of students have engaged with VRS to some degree, the frequency and reasons for usage vary. The most common uses are for accessing databases and citation help, rather than for broader research support like clarifying questions. Approximately one-third of students use VRS frequently, but nearly half either rarely use them or have never used them before. This highlights a gap in consistent usage and engagement with VRS at Nkumba University Library that could be addressed through targeted promotion and education efforts. The findings also suggest that Nkumba University Library faces systemic issues that hinder its ability to provide comprehensive and effective VRS to its users.

## **6.3 Conclusions**

### **6.3.1 Virtual reference services at Nkumba University Library**

The findings revealed that Nkumba University Library offers a range of virtual reference services, including online chat services, email reference, and video reference. Among these, online chat services were the most popular, indicating a strong preference for real-time interaction among users. This aligns with the growing trend in academic libraries to provide accessible and immediate support to patrons. However, while the library has made significant strides in implementing these services, the effectiveness of VRS may be hindered by challenges such as limited funding and technological resources. Addressing these challenges is crucial for enhancing the provision of virtual reference services and ensuring they meet the needs of all users.

### **6.3.2 User perspectives on virtual reference services at Nkumba University Library**

The study found that user perceptions of virtual reference services at Nkumba University Library were mixed. While a high percentage of students (88.3%) were aware of the services, familiarity and satisfaction levels varied significantly. Users expressed high satisfaction with the helpfulness of librarians but were less satisfied with the timeliness of responses and the ease of using the VRS platform. This indicates that while the library has successfully raised awareness of its services, there is a need for improvement in user experience and service quality. Enhancing

user perceptions will require targeted efforts to address the identified gaps, particularly in response times and usability.

### **6.3.3 Usage patterns of virtual reference services at Nkumba University Library**

The findings indicated that a moderate percentage of students (61.7%) have utilized virtual reference services, primarily for accessing library databases and citation help. However, the frequency of usage varied, with 36.7% of students using VRS frequently, while nearly half either used them rarely or had never used them. This suggests that while there is awareness and some engagement with VRS, consistent usage remains a challenge. The low percentage of students using VRS for clarifying research questions indicates a potential gap in understanding the full range of services available. To enhance usage patterns, the library should focus on increasing awareness and promoting the benefits of VRS to encourage more frequent engagement.

### **6.3.4 Framework to enhance user perceptions and usage patterns of virtual reference services at Nkumba University Library**

In response to the findings, a comprehensive framework was proposed to enhance user perspectives and usage patterns of virtual reference services at Nkumba University Library. This framework includes strategies for user education and training, improving service quality, enhancing promotion and marketing efforts, upgrading technology and infrastructure, and providing ongoing staff training. By implementing this framework, the library can address the identified challenges and improve user satisfaction and engagement with VRS. Ultimately, enhancing the effectiveness of virtual reference services will contribute to better support for students and faculty in fulfilling their information needs, thereby strengthening the role of Nkumba University Library as a vital academic resource.

## **6.4 Recommendations**

Based on the findings and conclusions of the study, the following recommendations are proposed to enhance the perceptions and usage patterns of virtual reference services (VRS) at Nkumba University Library:

- i. The management at Nkumba University should conduct regular workshops and training sessions for students and faculty on how to effectively use VRS. This includes training on navigating the library's website, using chat services, and accessing databases.
- ii. The management at Nkumba University Library should regularly evaluate the quality of information provided by librarians through feedback forms and user satisfaction surveys. They should also encourage faculty to promote VRS during classes and orientations to raise awareness among students.
- iii. The management at Nkumba University should invest in more computers and ensure that the VRS platform is user-friendly and accessible. This includes optimizing the website for mobile use, as many students may access services via smartphones
- iv. The management at Nkumba University Library should work with the university administration to enhance internet access and reliability within the library to support seamless VRS usage
- v. Nkumba University management should provide ongoing training for library staff to ensure they are equipped with the necessary skills and knowledge to assist users User Feedback and Evaluation.
- vi. Nkumba University management should collaborate with the Consortium of Ugandan University Libraries (CUUL) to implement the framework, and also with Schools of Library and Information Science to include Virtual Reference Services in the curriculum.

## **6.5 Areas for further research**

The following areas are proposed for further research:

- i. The role of technology in enhancing or hindering the effectiveness library service provision
- ii. The influence of demographic factors (such as age, gender, academic discipline, and socioeconomic background) on information seeking patterns
- iii. Specific barriers that effective library service provision in developing countries

## REFERENCES

- Aba, J., Idoko, N., & Usman Akor, P. (2017). Application of computer technologies to reference services in university and research institute libraries in North Central Nigeria. *Journal of Balkan Libraries Union*. Retrieved February 24, 2024, from <http://balkanlibraries.org/frontend/Journal/pdf/Makale%201.pdf>
- Abubakar, M. K. (2021). *Implementation and Use of Virtual Reference Services in Academic Libraries during and post COVID-19 Pandemic: A Necessity for Developing Countries*. Retrieved February 24, 2024, from <https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=9209&context=libphilprac>.
- ACRL. (2017). Evolving and enduring patterns surrounding student usage and perceptions of academic library reference services. *College & Research Libraries*.
- Ajlouni, M., Al-Shalabi, M., & Alhassan, I. (2023). The impact of technology acceptance on the use of ChatGPT among university students: A study in Jordan. *International Journal of Educational Technology in Higher Education*, 20(1), 1-15. <https://doi.org/10.1186/s41239-023-00424-7>
- Alenzuela, R. (2018). *Synchronous and Asynchronous Engagement in Virtual Library Services as Learning Support Systems from the Perspectives of Post-Graduate Students: A Case Study*. Retrieved February 24, 2024, from <https://doi.org/10.1633/JISTaP.2018.6.1.4>
- Ashok, M. (2020). Recent trends in reference services. *Int. Res. Journal of Science & Engineering*, 7, 718-721. <https://oaji.net/articles/2020/731-1582472604.pdf>
- Ault, R., & Viggiano, T. (2000). Email reference: A case study of a statewide virtual reference service. *Library & Information Science Research*, 22(3), 273-290.

- Avila, S., Norris, S., Murphey, R., Tong, M., Harrison, R., & Richard, H. (2022). *The Tele-Reference Model: Adopting Virtual Tools to Enhance The Tele-Reference Model: Adopting Virtual Tools to Enhance Reference Services During COVID-19 and Beyond Reference Services During COVID-19 and Beyond STARS Citation STARS Citation*. <https://doi.org/10.4018/978-1-7998-8942-7.ch001>
- Borgeson, H. (2014). Let's Chat: Academic Law Libraries Providing Real-Time Reference Using Synchronous Chat Services. *University of Washington School of Law*. Retrieved February 24, 2024, from [https://digitalcommons.law.uw.edu/law-lib\\_borgeson/1029](https://digitalcommons.law.uw.edu/law-lib_borgeson/1029)
- Bussell, H. (2022). Though Virtual Reference Services Have Increased, They Face Challenges and Opportunities in the Wake of COVID-19. *Evidence Based Library and Information Practice*, 17(1), 134-136. <https://doi.org/10.18438/eblip30082>
- Cambridge University Press. (2022). Reference 2.0: Evolution of virtual reference services and social media. In *Mastering Digital Librarianship* (pp. 23-40).
- Casey, A. M. (2004). A historical overview of internet reference services for distance learners. *Internet Reference Services Quarterly*, 9(3/4), 1-16.
- Charbonneau, D. H., & Vardell, E. (2022). The impact of COVID-19 on reference services: a national survey of academic health sciences librarians. *Journal of the Medical Library Association*, 110(1). <https://doi.org/10.5195/jmla.2022.1322>
- Chow, A. S., & Croxton, R. A. (2014). A usability evaluation of academic virtual reference services. *College & Research Libraries*, 75(3), 309-361. <https://doi.org/10.5860/crl.75.3.309>
- Chowdhury, G. G. (2002). Digital libraries and reference services: present and future. *Journal of documentation*, 58(3), 258-283.
- Connaway, L. A., & Radford, M. L. (2011). The interpersonal aspects of virtual reference: A qualitative study. *Library & Information Science Research*, 33(3), 204-213.
- Cox, S. (2021). Is the library open? How the pandemic has changed the provision of virtual reference services. *Reference Services Review*.
- Creswell, J. W., & Creswell, J. D. (2018) *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Sage, Los Angeles.

- Creswell, J. W., & Creswell, J. D. (2017) *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. 4th Edition, Sage, Newbury Park.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340.
- Dawadi, S., Shrestha, S., & Giri, R. A. (2021). Mixed-Methods Research: a Discussion on Its Types, Challenges, and Criticisms. *Journal of Practical Studies in Education*, 2(2), 25-36. Retrieved February 24, 2024, from <https://files.eric.ed.gov/fulltext/ED611786.pdf>
- Dimock, M. (2019). Defining generations: Where Millennials end and Generation Z begins. *Pew Research Center*.
- Dipak, K., & Kundu. (2017). Models of Information Seeking Behaviour: A Comparative Study. *International Journal of Library and Information Studies*, 7(4). Retrieved February 24, 2024, from <https://www.ijlis.org/articles/models-of-information-seeking-behaviour-a-comparative-study.pdf>
- Duan, X. (2019). Know Your International User behind the Screen: A Conversation among Chinese Students and Librarians Regarding Virtual Reference Services (VRS). *International Journal of Librarianship*, 4(2), 34. <https://doi.org/10.23974/ijol.2019.vol4.2.134>
- Dwivedi, Y. K., Ismagilova, E., Hughes, L., & O'Reilly, P. (2023). Artificial intelligence in education: A systematic review and future research agenda. *Computers & Education*, 205, 104-123. <https://doi.org/10.1016/j.compedu.2023.104123>
- Enweani, U. V. V. (2018). Challenges of Managing University Libraries in Contemporary Digital Environment. *Library Philosophy and Practice*. Retrieved February 24, 2024, from <https://link.gale.com/apps/doc/A580773865/AONE?u=anon-bba4cb41&sid=googleScholar&xid=43cad4c5>
- Eustis, J., & McMillan, G. (2014). Libraries address the challenges of asynchronous learning. *Virginia Polytechnic Institute and State University*. Retrieved February 24, 2024, from <https://citeseerx.ist.psu.edu/document?doi=7ec14949d5934a21e87763af676efa5717a155b7&repid=rep1&type=pdf>

- Fleming, J., & Zegwaard, K. E. (2018). Methodologies, Methods and Ethical Considerations for Conducting Research in Work-Integrated Learning. *International Journal of Work-Integrated Learning*, Special Issue, 19, 205-213.
- Fritch, J. W., & Mandernack, L. (2001). The development of reference services: A historical overview. *Reference Librarian*, 35(73), 287-296.
- Garvey, M. (2021). Use of Virtual Reference Services in the Top Five University Libraries. *Library Philosophy and Practice*. Retrieved from <https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=12628&context=libphilprac>
- Garvey, M. (2021). Virtual reference amid COVID-19 campus closure: a case study and assessment. *Reference Services Review*, 49(2), 132-150. <https://doi.org/10.1108/rsr-01-2021-0005>
- Gerbig, M., Holmes, K., Lu, M., & Tang, H. (2021). From Bricks and Mortar to Bits and Bytes: Examining the Changing State of Reference Services at the University of Toronto Libraries During COVID-19. *Partnership: The Canadian Journal of Library and Information Practice and Research*, 16(1), 1-10. <https://doi.org/10.21083/partnership.v16i1.6450>
- Grams, K. (2023). Differences Between the Perception and Use of Virtual Reference Services for Complex Questions. *Evidence Based Library and Information Practice*, 18(4), 108-111. <https://doi.org/10.18438/ebliip30426>
- Hamidreza, S. (2023). Using ChatGPT as Digital/ Smart Reference Robot: How may ChatGPT Impact Digital Reference Services? *Social Science Research Network*. <https://doi.org/10.2139/ssrn.4441874>
- Ibrahim, M., Alshahrani, A., & Alharthi, A. (2024). Exploring factors influencing the acceptance of ChatGPT in higher education: A smart education perspective. *Scientific Reports*, 14(1), 1-10. <https://doi.org/10.1038/s41598-024-52549-8>
- Jain, P. (2023). User perceptions of virtual reference services in academic libraries: A study of barriers and facilitators. *Library Philosophy and Practice*. Retrieved from <https://digitalcommons.unl.edu/libphilprac/9209>
- Janes, J. (2008). The future of reference: A review of current trends and issues. *Library Journal*, 133(2), 8-10.

- Kern, M. K. (2004). Virtual reference best practices: tailoring services to your library. *Information Technology and Libraries*, 23(1), 16-20.
- Khan, A. (2023). Librarians' perceptions toward virtual reference services in Pakistani university libraries. *Internet Reference Services Quarterly*, 28(1), 1-16. <https://doi.org/10.1080/10875301.2023.2173120>
- Khan, R., Khan, A., Malik, S., & Idrees, H. (2017). Virtual Reference Services through Web Search Engines: Study of Academic Libraries in Pakistan. *Publications*, 5(2), 6. <https://doi.org/10.3390/publications5020006>
- Li, R., & Chen, Y. (2021). Awareness and usage of virtual reference services in university libraries: A study of student perceptions. *Journal of Academic Librarianship*, 47(2), 102-110. doi:10.1016/j.acalib.2021.102110
- Li, R., & Chen, Y. (2023). Awareness and usage of virtual reference services in university libraries: A study of student perceptions. *Journal of Academic Librarianship*, 49(2), 101-110.
- Madu, A., Usman, H., & Abba, F. (2018). Challenges Of Virtual Reference Services Implementation By Nigerian Academic Libraries In The 21 St Century In Nigeria. *Journal of Resources and Economic Development*. 1 (2). Retrieved November 12, 2023, from <http://eprints.federalpolyilaro.edu.ng/2215/1/VirtualReferenceService%20%281%29.pdf>
- Maharana, B., & Panda, K. C. (2020). Virtual Reference Service in Academic Libraries: A Case Study of the Libraries of IIMs and IITs in India. *CORE*. Retrieved February 24, 2024, from <https://core.ac.uk/download/pdf/290476006.pdf>
- Majid, U. (2018). Research Fundamentals: Study Design, Population, and Sample Size. *Undergraduate Research in Natural and Clinical Science and Technology (URNCSST) Journal*, 2(1), 1-7. <https://doi.org/10.26685/urncst.16>
- Mawhinney, T. (2020). User preferences related to virtual reference services in an academic library. *The Journal of Academic Librarianship*, 46(1), 102094. <https://doi.org/10.1016/j.acalib.2019.102094>
- Mawhinney, T. (2021). User preferences related to virtual reference services in an academic library. *Journal of Academic Librarianship*, 47(1), 102272. <https://doi.org/10.1016/j.acalib.2020.102272>

- Moore, K., Knight, S., & Kinnersley, P. (2001). The Kentucky Virtual Library: A model for statewide virtual reference services. *Library Trends*, 49(2), 190-204.
- Mu, X., Dimitroff, A., Jordan, J., & Burclaff, N. (2011). A survey and empirical study of virtual reference services in academic libraries. *The Journal of Academic Librarianship*, 37(2), 120-129.
- Mwiinga, T., M'kulama, A., Chisunka-Mwila, C., & Daka, K. (2020). Use of Digital Reference Services in Selected Academic Libraries in Zambia. *Zambia Journal of Library & Information Science*, 4(1). Retrieved February 24, 2024, from <http://dspace.unza.zm/bitstream/handle/123456789/6404/Use%20of%20Digital%20Reference%20Services%20in%20Selected%20Academic.pdf?sequence=1&isAllowed=y>
- Nakaziba, S., & Ngulube, P. (2024). Harnessing digital power for relevance: status of digital transformation in selected university libraries in Uganda. *Collection and Curation*. <https://doi.org/10.1108/cc-11-2023-0034>
- Nature. (2024). A multinational study on the factors influencing university students' attitudes and usage of ChatGPT. *Scientific Reports*. <https://doi.org/10.1038/s41598-024-52549-8>
- Nkumba University. (2024). Brief history of Nkumba University. Retrieved February 24, 2024, from <https://nkumbauniversity.ac.ug/about-us/brief-history-of-nu/>
- Nwachi, C., & Anozie, C. (2022). Appraisal of the Synchronous and Asynchronous Techniques of Marketing Library Services in University Libraries. *Library Philosophy and Practice*. Retrieved February 24, 2024, from <https://digitalcommons.unl.edu/libphilprac/2970>
- OCLC. (2008). *From awareness to funding: A study of library support in America*. Dublin, OH: OCLC.
- OCLC. (2023). Seeking synchronicity: Evaluating virtual reference services. *OCLC Research*.
- Oh, C. S., Bailenson, J. N., & Welch, G. F. (2018). A systematic review of social presence: Definition, antecedents, and implications. *Frontiers in Robotics and AI*, 5(114). <https://doi.org/10.3389/frobt.2018.00114>
- Okoli, U., Christiana, U., Ojonugwa, D., & Idah, J. (2021). Digital reference services in academic libraries in nigeria: effectiveness and roles in the new normal.

- Information Science and Technology*, 14(1), 2021. Retrieved November 12, 2023, from <https://jaistonline.org/14vol1/23.pdf>
- Olszewski, L., & Rumbaugh, D. (2021). An international comparison of virtual reference services. *Library Philosophy and Practice*. Retrieved February 24, 2024, from <https://digitalcommons.unl.edu/libphilprac/9857>
- Onyeisi, O. F., Ajisafe, S. U., & Toyese, O. T. (2019). Evaluation of User's Satisfaction with Reference Services in Selected Federal University Libraries in Southeastern Nigeria. *Insaniyat: Journal of Islam and Humanities*, 3(2), 85-98. <https://doi.org/10.15408/insaniyat.v3i2.10326>
- Oza, D., & Patel, P. J. (2021). *An Analytical study of Information seeking behaviour models*. Retrieved February 24, 2024, from <https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=11831&context=libphilprac>
- Patel, M., & Patel, N. (2019). Exploring Research Methodology: Review Article. *International Journal of Research & Review*, 6(3), 48-55. Retrieved February 24, 2024, from [https://www.ijrrjournal.com/IJRR\\_Vol.6\\_Issue.3\\_March2019/IJRR0011.pdf](https://www.ijrrjournal.com/IJRR_Vol.6_Issue.3_March2019/IJRR0011.pdf)
- Peters, T. (2010). Rethinking library reference services: Meeting the needs of mobile users. *Library Management*, 31(2), 93-100. doi:10.1108/01435121011021850
- Radford, M. L., et al. (2021). The role of relational features in virtual reference services. *The Journal of Academic Librarianship*, 47(5), 102-110.
- Rehman, S. U., Shafique, F., & Mahmood, K. (2021). A survey of user perception and satisfaction with reference services in university libraries of Punjab. *Library Philosophy and Practice*. Retrieved February 24, 2024, from <https://digitalcommons.unl.edu/libphilprac/10242>
- RUSA. (2010). Guidelines for implementing and maintaining virtual reference services. *Reference and User Services Association*.
- Sileyew, J. K. (2020). Research Design and Methodology. Semantic Scholar, *Cyberspace*. <https://doi.org/10.5772/intechopen.85731>

- Sinhababu, A., & Kumar, S. (2021). Constructing theoretical framework for virtual reference service: a technology acceptance approach. *Library Philosophy and Practice*, 1-15.
- Sinhababu, M., & Kumar, S. (2019). *Virtual reference service tools and apps: features of LIBANSWERS and TAWK.TO*. Retrieved November 12, 2023, from <https://www.tojned.net/journals/tojdel/articles/v07i04/v07i04-07.pdf>
- Sloan, B. (2004). *Digital reference services bibliography*. Retrieved February 24, 2024, from <http://people.lis.illinois.edu/~b-sloan/digiref.html>
- Snyder, H. (2019). Literature Review as a Research methodology: an Overview and Guidelines. *Journal of Business Research*, 104(1), 333-339. <https://doi.org/10.1016/j.jbusres.2019.07.039>
- Triberti, S., Brivio, E., & Galimberti, C. (2018). *On Social Presence: Theories, Methodologies, and Guidelines for the Innovative Contexts of Computer-Mediated Learning*. Retrieved February 24, 2024, from <https://www.igi-global.com/chapter/on-social-presence/200145>
- Tsang, A. L. Y., & Chiu, D. K. W. (2022). Effectiveness of Virtual Reference Services in Academic Libraries: A Qualitative Study Based on the 5E Learning Model. *The Journal of Academic Librarianship*, 48(4), 102533. <https://doi.org/10.1016/j.acalib.2022.102533>
- Tsang, A. L. Y., & Chiu, D. K. W. (2022). Effectiveness of virtual reference services in academic libraries: A qualitative study based on the 5E learning model. *Journal of Academic Librarianship*, 48(1), 1-10.
- University of Nebraska. (2023). Enhancing virtual reference services: A collaborative approach. *Library Philosophy and Practice*. Retrieved February 24, 2024, from <https://digitalcommons.unl.edu/libphilprac/9857>
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425-478
- Vogus, B. (2020). Examining virtual reference services in academic libraries. *Public Services Quarterly*, 16(4), 249-253. <https://doi.org/10.1080/15228959.2020.1818664>
- Wasik, B. (2003). Digital reference services: A definition and overview. *Library & Information Science Research*, 25(1), 1-16.

- Yang, S. Q. (2015). Delivering virtual reference services on the web: An investigation into current practices by academic libraries. *The Journal of Academic Librarianship*, 41(6), 1-10.
- Yang, S. Q., & Dalal, H. A. (2014). Delivering virtual reference services on the web: An investigation into the current practice by academic libraries. *The Journal of Academic Librarianship*, 40(4), 1-10.

## APPENDIX

### Appendix A: Consent form

#### Introduction

You are invited to participate in a research study conducted by Cissy Nakiridde. This study aims to understand student and faculty perceptions and usage patterns of virtual reference services offered by Nkumba University Library. The information gathered will be used to develop a framework for enhancing these services.

#### Participation

Your participation in this study is entirely voluntary. You are free to withdraw from the study at any point without any consequences.

#### Procedures

There are two options for participation in this study:

- **Questionnaire:** You may choose to complete a short online questionnaire that will take approximately 10-15 minutes.
- **Interview:** You may choose to participate in a semi-structured interview that will take approximately 30-45 minutes and will be audio recorded.

#### Confidentiality

All information collected through this study will be kept confidential. Your name and any other identifying information will not be linked to your responses. The audio recordings from interviews will be anonymized and securely stored.

#### Risks and Benefits

There are no foreseeable risks associated with participating in this study. The potential benefits include contributing to the improvement of virtual reference services at Nkumba University Library.

#### Questions

If you have any questions or concerns about this study, please feel free to contact the researcher at 0789550223.

## Your Consent

By signing below, you indicate that you have read and understood this informed consent form and agree to participate in this study.

### Participant:

- Name (printed): \_\_\_\_\_
- Signature: \_\_\_\_\_
- Date: \_\_\_\_\_

### Researcher:

- Cissy Nakiridde
- Signature: **Cissy Nakiridde**
- Date: **Wednesday 5/03/2025**

## Appendix B: Interview Guide for Librarians at Nkumba University Library

### Introduction

Thank you for agreeing to participate in this interview. This study aims to understand student and faculty perceptions and usage patterns of virtual reference services offered by Nkumba University Library. Your honest feedback will be crucial in developing a framework to improve these services.

**Please note:** All responses will be kept confidential.

### Background Information

1. Can you tell me a little bit about your academic role at Nkumba University (e.g., year of study, department)?

### Awareness and Usage of Virtual Reference Services

2. Are you aware that Nkumba University Library offers virtual reference services?
  - If yes, how did you learn about them?
  - If no, why do you think you weren't aware?
3. Have you ever used the virtual reference services at Nkumba University Library?
  - If yes, can you describe a situation where you used them?

- If no, why haven't you used them?

### **Perceptions of Virtual Reference Services**

4. If you have used virtual reference services, what were your overall impressions of the experience?
  - Probe for specific aspects like: timeliness of response, quality of information, helpfulness of librarians, ease of use of the platform.
5. What are the biggest advantages and disadvantages of using virtual reference services compared to in-person library assistance?

### **Suggestions for Improvement**

6. How can the library improve its virtual reference services to better meet the needs of students and faculty?
  - Are there any additional virtual reference services you would find helpful?
  - How can the library make students and faculty more aware of the virtual reference services available?

### **Closing**

7. Do you have any other comments or suggestions for improving virtual reference services at Nkumba University Library?

**Thank you for your time!**

## Appendix C: Questionnaire for students at Nkumba University Library

### 1. Awareness

1.1. Are you aware that Nkumba University Library offers virtual reference services?

( ) Yes ( ) No

Awareness		Percentage
Yes		
No		
Total		

1.2. If yes, how familiar are you with the virtual reference services offered by the library? ( ) Very familiar ( ) somewhat familiar ( ) Not familiar at all

Familiarity		Percentage
Very familiar		
Somewhat familiar		
Not familiar at all		
Total		

### 2. Services Offered (if aware)

2.1. Please indicate which of the following virtual reference services you are aware of being offered by the library (tick all that apply): ( ) Email reference ( ) Chat reference ( ) Instant messaging (e.g., Whatsapp) ( ) Virtual reference desk through the library website ( ) Social media (e.g., Facebook, Twitter) ( ) Other (Please specify): \_\_\_\_\_

Virtual reference services	Frequency	Percentage
Email reference		
Chat reference		

Instant messaging		
Virtual reference desk through the library website		
Social media		

Other

### 3. Usage Patterns

3.1. Have you ever used the virtual reference services at Nkumba University Library?

( ) Yes ( ) No

Usage Patterns		Percentage
Yes		
No		
Total		

3.2. If yes, for what type of research or information needs have you used the virtual reference services? (tick all that apply) ( ) Clarifying a research question ( ) Locating scholarly articles or resources ( ) Citation help ( ) Using library databases ( ) Other (Please specify): \_\_\_\_\_

Uses	Frequency	Percentage
Clarifying a research question		
Locating scholarly articles or resources		
Citation help		
Using library databases		

3.3. How often do you typically use the virtual reference services? ( ) Frequently (more than once a month) ( ) occasionally (once a month) ( ) Rarely (less than once a month) ( ) Never used

Frequency of usage		Percentage
Frequently		
Occasionally		
Rarely		
Never used		
Total		

#### 4. User Perceptions

4.1. Please rate your level of satisfaction with the following aspects of the virtual reference services (1 = Strongly Dissatisfied, 5 = Strongly Satisfied):

Aspect	Strongly Dissatisfied (1)	Somewhat Dissatisfied (2)	Neutral (3)	Somewhat Satisfied (4)	Strongly Satisfied (5)
Timeliness of response					
Quality of information provided					
Helpfulness of librarians					
Ease of use of the virtual reference					

service platform					
---------------------	--	--	--	--	--

## **Appendix D: Document review checklist**

**Purpose:** This checklist is designed to assess documents relevant to the research study on virtual reference services at Nkumba University Library.

### **Documents to Review:**

- **Library Website:**
  - Check the library website for information on virtual reference services offered (e.g., email reference, chat reference, social media presence).
  - Look for descriptions of the services, including contact information and hours of operation.
  - Assess the clarity and ease of finding information about virtual reference services.
- **Library Policies and Procedures:**
  - Review library policies or user guides to identify any policies or procedures related to virtual reference services (e.g., response time expectations, limitations on service type).
- **Marketing Materials:**
  - Collect any marketing materials promoting virtual reference services (e.g., brochures, posters, online content).
  - Evaluate the effectiveness of the materials in raising awareness about the services.
- **Previous Studies (if applicable):**
  - If there have been any previous studies on library services at Nkumba University, review them to identify existing information on virtual reference services or user perceptions.