

**THE UNIVERSITY OF ZAMBIA
INSTITUTE OF DISTANCE EDUCATION**



**UNDERGRADUATE STUDENTS' AWARENESS, UTILIZATION AND
SATISFACTION WITH THE COPPERBELT UNIVERSITY (CBU) LIBRARY'S
ONLINE PUBLIC ACCESS CATALOGUE (OPAC)**

BY

CHILAMBWE NG'AMBI

SUPERVISORS:

PROFESSOR AKAKANDELWA AND MR M'KULAMA

DECLARATION

I, Chilambwe Ng'ambi, declare that this dissertation:

- (a) represents my work,
- (b) has not previously been submitted for a degree at this or any other university and
- (c) does not incorporate any published work or material from another dissertation.

Signed:.....

Date: 30.06.2024

COPYRIGHT

All rights reserved. No part of this dissertation may be reproduced or stored in any form or by any means without prior written permission from the author or the University of Zambia.

APPROVAL

This dissertation by Chilambwe Ng'ambi has been approved as a partial fulfilment of the requirements of the award of Master of Library and Information Science.

Signed:

Date:

.....

.....

.....

.....

.....

.....

ABSTRACT

The purpose of this study was to investigate the awareness, utilisation, and satisfaction of CBU undergraduate students with the Library's OPAC. The specific objectives of the study were to: determine levels of OPAC awareness among students; determine the extent to which students utilize it; assess their satisfaction and identify factors affecting their use. The study was grounded in the positivist paradigm and employed a quantitative research approach. Using systematic random sampling, 368 respondents were selected as part of the sample from a total population of 10,220 undergraduate students. Structured questionnaires were used for data collection. The findings reveal that while the majority (51.7%) of students are aware of the OPAC, its utilisation remains suboptimal. A considerable proportion of the students (40.5%) never use it and only a small proportion (12%) use it often or very often. Satisfaction levels are moderate, while more than half of the respondents (51.6%) expressed a neutral stance. Correlation analysis showed that facilitating conditions significantly impact both awareness ($r = .619, p < 0.01$) and utilisation ($r = .473, p < 0.01$), while regression analysis identified performance expectancy and facilitating conditions as strong predictors of awareness and satisfaction, and social influence as a significant predictor of utilisation. ANOVA results revealed significant differences in both awareness and utilization across age groups, with awareness ($F(2,365) = 13.072, p < 0.001$) and utilization ($F(2,365) = 14.122, p < 0.001$) showing notable variation, indicating that age influences OPAC engagement. Differences were found across programmes of study for utilization ($F(7,337) = 7.044, p < 0.001$) and satisfaction ($F(7,337) = 5.938, p < 0.001$), highlighting that academic discipline significantly impacts how students interact with the OPAC. Additionally, significant differences in awareness ($F(4,363) = 2.697, p = 0.031$) and utilization ($F(4,363) = 3.103, p = 0.016$) were observed based on the year of study, indicating that students' progression affect their use of the system. No significant differences were found for gender across all three variables, suggesting that gender does not influence these constructs. These findings imply that, despite reasonable awareness, substantial barrier still exist. Consequently, the study recommends that decision-makers implement targeted literacy campaigns, invest in system upgrades, and provide robust training for students. Additionally, continuous monitoring and refining of OPAC implementation based on user feedback is encouraged. Furthermore, future researchers should further investigate demographic influences and conduct comparative studies with other institutions. Such knowledge if generated can inform more targeted interventions.

Keywords: *OPAC, Awareness, Utilisation, Satisfaction, Library and Information Technology, CBU, Unified Theory of Acceptance and Use of Technology (UTAUT)*

DEDICATION

To my loving family, who have supported me every step of the way. Your unwavering encouragement, patience and love have been my driving force throughout the journey. I am forever grateful for your presence in my life.

ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to my supervisors, Professor Akakandelwa Akakandelwa and Mr Abel M'kulama for their invaluable guidance, feedback and support throughout the research. Their extensive knowledge and experience were instrumental in the completion of the thesis.

LIST OF TABLES

Table 4. 1: Gender Distribution	40
Table 4. 2: Age Group Distribution	41
Table 4. 3: Faculty	41
Table 4. 4: Year of Study	42
Table 4. 5: Participants' Awareness of the Existence of the OPAC	42
Table 4. 6: Participants' Knowledge of How to Access the OPAC	43
Table 4. 7: Understanding of OPAC Features and Capabilities	44
Table 4. 8: Participants' Perceived Impact of OPAC on Academic Performance	46
Table 4. 9: Utilization of OPAC for Finding Books and Other Resources	47
Table 4. 10: Utilization of OPAC for Checking the Availability of Books and Resources	48
Table 4. 11: Utilization of OPAC for Renewing or Reserving Items	49
Table 4. 12: Utilization of OPAC for Using Advanced Search Features	51
Table 4. 13: Accessing Citation Information to Create Accurate Bibliographies	52
Table 4. 14: OPAC for Accessing Electronic Resources	54
Table 4. 15: Searching Materials from Other CBU Library Branches	55
Table 4. 16: Exploring Related Readings Based on Search Queries	56
Table 4. 17: User-Friendliness of the OPAC Interface	58
Table 4. 18: Relevance of Search Results	59
Table 4. 19: Speed of Search and Response	60
Table 4. 20: Availability of Online Help and Support	61
Table 4. 21: Overall Satisfaction with the CBU Library OPAC	62
Table 4. 22: Correlation Table- UTAUT Constructs and Awareness	64
Table 4. 23: Correlation Table-UTAUT Constructs and Utilization	65
Table 4. 24: Correlation Table-UTAUT Constructs and Satisfaction	67
Table 4. 25: Regression Model-UTAUT constructs and awareness	69
Table 4. 26: Regression Model-UTAUT constructs and Utilization	71
Table 4. 27: Regression Coefficients	72
Table 4. 28: Regression Model-UTAUT constructs and Satisfaction	74
Table 4. 29: Regression Coefficients- UTAUT constructs and Satisfaction	74

LIST OF FIGURES

Figure 1: Conceptual Framework adapted from UTAUT model (Venkatesh et al., 2003).....	11
Figure 2: Participants' Awareness of the Existence of the OPAC	43
Figure 3: Participants' Knowledge of How to Access the OPAC.....	44
Figure 4: Understanding of OPAC Features and Capabilities.....	45
Figure 5: Participants' Perceived Impact of OPAC on Academic Performance	46
Figure 6: Utilization of OPAC for Finding Books and Other Resources.....	48
Figure 7: Utilization of OPAC for Checking the Availability of Books and Resources	49
Figure 8: Utilization of OPAC for Renewing or Reserving Items	50
Figure 9: Utilization of OPAC for Using Advanced Search Features	52
Figure 10: Accessing Citation Information to Create Accurate Bibliographies.....	53
Figure 11: OPAC for Accessing Electronic Resources.....	55
Figure 12: Searching Materials from Other CBU Library Branches	56
Figure 13: Exploring Related Readings Based on Search Queries.....	57
Figure 14: User-Friendliness of the OPAC Interface.....	58
Figure 15: Relevance of Search Results.....	60
Figure 16: Speed of Search and Response	61
Figure 17: Availability of Online Help and Support.....	62
Figure 18: Overall Satisfaction with the CBU OPAC	63

ACRONYMS AND ABBREVIATIONS

ANOVA –	Analysis of Variance
CBU –	Copperbelt University
DF –	Degrees of Freedom
F –	F-Statistic
ICT –	Information and Communication Technology
N –	Population
n –	Sample Size
OPAC –	Online Public Access Catalogue
R –	Pearson Correlation Coefficient
Sig. –	Significance
SPSS –	Statistical Package for the Social Sciences
TAM –	Technology Acceptance Model
TRA –	Theory of Reasoned Action
UTAUT –	Unified Theory of Acceptance and Use of Technology

TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	vi
LIST OF TABLES	vii
LIST OF FIGURES	viii
ACRONYMS AND ABBREVIATIONS	ix
TABLE OF CONTENTS	x
CHAPTER ONE: INTRODUCTION.....	1
1.1 Overview	1
1.2 Background of the Study.....	1
1.2.1 The Centrality of Access to Information and Knowledge among Students	1
1.2.2 Potential Barriers to Information and Knowledge Access	2
1.2.3 Importance of Catalogues in Modern-day Academic Libraries.....	3
1.2.4 The Copperbelt University.....	3
1.2.5 The CBU Library OPAC	4
1.3 Problem Statement.....	5
1.4 Purpose of the study.....	6
1.5 Objectives of the Study	6
1.5.1 Main Objective of the Study	6
1.5.2 Specific Objectives.....	6
1.6 Research Questions.....	6
1.7 Significance of the study	6
1.8 Study Limitations	7
1.9 Theoretical Framework.....	8
1.9.1 Background, Overview and Constructs of the UTAUT Model	8
1.9.2 Conceptualization of UTAUT Application in this Study	9

1.10 Conceptual Framework	11
1.11 Operational Definitions of Concepts	13
1.12 Summary of Chapter 1	15
CHAPTER 2: LITERATURE REVIEW	16
2.1 Overview	16
2.2 Factors Influencing Undergraduate Students' Awareness and Utilization of OPACs	16
2.2.1 Information Literacy Skills	17
2.2.2 Instruction and Training Programs	18
2.2.3 User Interface Design and Navigation	18
2.2.4 Accessibility and Availability of OPACs	19
2.2.5 External Influences	20
2.2.6 Cultural and Demographic Factors	21
2.3 Undergraduate Students' Perceptions and Evaluations of OPAC Usability and Effectiveness	22
2.3.1 Search Capabilities and Retrieval Performance	22
2.3.2 User Interface Design and Features	23
2.3.3 Information Organization and Display	24
2.3.4 Relevance and Accuracy of Search Results	25
2.3.5 Personalization and Customization Options	26
2.3.6 Comparison with Alternative Information Sources	27
2.4 Impacts of Students' Awareness, Utilization, and Satisfaction with OPACs: Positive Experiences	28
2.4.1 Academic Performance and Learning Outcomes	28
2.4.2 Self-Efficacy and Confidence in Using Library Resources	28
2.4.3 Engagement with other Library Services and Resources	29
2.4.4 User Loyalty and Library Patronage	30

2.4.5 Overall Student Satisfaction with the Library Experience	30
2.5 Impacts of Students' Unawareness, Underutilization, and Dissatisfaction with OPACs: Negative Experiences	31
2.6 Gaps and Limitations in Existing Literature	32
2.7 Summary of Chapter 2	32
CHAPTER 3: METHODOLOGY.....	34
3.1 Overview	34
3.2 Research Philosophy.....	34
3.3 Research Approach.....	34
3.4 Research Design	35
3.5 Population and Sample Size	35
3.6 Data Collection Instrument	36
3.7 Data Collection Procedures.....	36
3.8 Data Analysis	37
3.8 Limitations	38
3.9 Ethical Considerations	38
3.10 Validity and Reliability	39
3.11 Summary of Chapter 3	39
CHAPTER 4: DATA PRESENTATION AND ANALYSIS.....	40
4.1 Introduction	40
4.2 Descriptive Statistics.....	40
4.2.1 Demographic Characteristics	40
4.2.2 Awareness of OPAC	42
4.2.3 Utilization of OPAC	47
4.2.4 Satisfaction with OPAC.....	57

4.3 Inferential Statistics	63
4.3.1 Correlation Analysis.....	64
4.3.2 Regression Analysis	69
4.4 ANOVA Results for Awareness, Utilization, and Satisfaction based on Gender	76
4.4.1 Awareness and Gender	76
4.4.2 Utilization and Gender	76
4.4.3 Satisfaction and Gender	77
4.5 ANOVA Results for Awareness, Utilization, and Satisfaction Across Age Groups	77
4.5.1 Awareness and Age Group	77
4.5.2 Utilization and Age Group.....	78
4.5.3 Satisfaction and Age Group.....	78
4.6 ANOVA Results for Awareness, Utilization, and Satisfaction Across Programmes.....	78
6.1.1 Awareness and Programme of Study	79
Utilization and Programme of Study	79
6.1.2 Satisfaction and Programme of Study	79
4.7 ANOVA Results for Awareness, Utilization, and Satisfaction Across Year of Study.....	80
4.7.1 Awareness and Year of Study	80
4.7.2 Utilization and Year of Study	80
4.7.3 Satisfaction and Year of Study.....	81
4.8 Chapter Summary	81
CHAPTER 5: DISCUSSION OF RESULTS	82
5.1 Overview	82
5.2 Awareness of the OPAC	82
5.3 Utilization of the OPAC.....	83
5.4 Satisfaction with the OPAC	85

5.5 Factors Affecting OPAC Use	86
5.6 Summary of Chapter 5	87
CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS	88
6.1 Overview	88
6.2 Conclusions	88
6.3.1 Level of Awareness	88
6.3.2 Extent of Utilization	88
6.3.3 Extent of Satisfaction	89
6.3.4 Factors Affecting Use	89
6.3 Recommendations.....	89
6.3.1 For Decision-Makers at CBU	89
6.3.2 For Library Staff	89
6.3.3 For Future Researchers:	90
REFERENCES.....	91
APPENDICES	a
Appendix A: Questionnaire	a
Appendix B: Activity Schedule.....	e

CHAPTER ONE: INTRODUCTION

1.1 Overview

This introductory chapter provides the broader context of the study and highlights the importance of investigating undergraduate students' awareness, utilization, and satisfaction with the CBU OPAC. The chapter begins with background information on the challenges of information access and retrieval in the absence of catalogues. It then provides a brief history of the evolution of library catalogues and their importance in modern-day academic libraries. The chapter goes on to introduce the CBU Library OPAC, and then leads to the problem statement. Other parts in this chapter include the objectives and research questions that guided the investigation, the practical and academic value of the research, contemplated challenges in terms of limitations, the definition of the operational terms that stood as fundamental factors of the conceptual framework, as well as the theory that explain the direction that the study took. The chapter ends with a summary outlining the various information discussed in this chapter.

1.2 Background of the Study

Access to and retrieval of information are two interlinked yet distinct aspects of library service provisions. Access refers to the availability of information resources, while retrieval refers to the process of locating and obtaining relevant information. In academic library settings, access and retrieval are critical components of the research process for academic faculty, researchers, and scholars, including undergraduate and postgraduate students.

1.2.1 The Centrality of Access to Information and Knowledge among Students

Access to high-quality information and knowledge resources is essential for students (Auten et al., 2016). These resources play a vital role in enhancing the learning experience of students, allowing them to deepen their understanding of their field of study and develop critical thinking skills (Atuase & Maluleka, 2023). These resources are necessary for conducting comprehensive research, developing valid arguments, and producing high-quality academic work. Moreover, they can also spark innovation and creativity, enabling students to develop new ideas, solve problems, and create new products or services that can benefit society. Beyond that, having access to high-

quality information and knowledge resources is also crucial for career development, allowing students to stay up-to-date with the latest trends and developments in their field, and acquire the skills and knowledge needed to succeed in their chosen careers (Li, 2022). Therefore, it is essential that students have access to high-quality information and knowledge resources to support their academic pursuits, research, innovation, and career development.

1.2.2 Potential Barriers to Information and Knowledge Access

While access to high-quality information resources is crucial for university students, there are several potential barriers that may exist. One of the most significant barriers is the lack of funds (Solanke & Osuchukwu, 2018). Not all students have the financial means to access costly books and research materials. This can hinder their ability to excel academically. This is where the importance of academic libraries comes in. Academic libraries play a crucial role in addressing the financial barrier to information access. They provide a wealth of resources, including books, journals, technical reports, and electronic databases. All these resources are essential for students to excel academically. By providing access to these resources, academic libraries ensure that all students have an equal opportunity to succeed, regardless of their financial circumstances. In addition, many academic libraries also offer interlibrary loan services. This allows students to access resources from other libraries that may not be available in their own institution's collection (Williams & Woolwine, 2011).

Unfortunately, as highlighted by Aguolu and Aguolu (2002), even when resources may be available in the library and identified as relevant to a student's subject of interest, the intended user may not be able to access them. Such failure to access information may be due to several other factors, including bureaucratic processes or limited access to the library resources. Lack of awareness and inadequate skills may pose other significant challenges that can limit students' access to information resources even when they are freely available. Many students lack the necessary research skills to navigate libraries and efficiently retrieve the information resources that will effectively fulfil their information needs (Solanke & Osuchukwu, 2018). This challenge was even more pronounced in the past, before the development of library catalogues, the process of accessing and retrieving information from the library was challenging for untrained users. Users had to manually search through library shelves or rely on librarians to locate materials, which was time-consuming and inefficient. The absence of an organized system made it difficult for users to

find and access resources, leading to frustration and reduced user satisfaction with academic library services.

1.2.3 Importance of Catalogues in Modern-day Academic Libraries

According to Mason (2023), the history of library catalogues dates back to the antiquity times, however, they came to grow exponentially in the 18th century when handwritten indexes were used to organize library collections. With the invention of the printing press, card catalogues became the norm in the 19th century. However, in the 21st century, technological advancements have led to the development of digital catalogues, making access to resources faster and more efficient (Mason, 2023). In modern-day academic libraries, online catalogues have become essential tools for students to access and locate resources for their academic work. Catalogues provide a single platform for searching and retrieving resources, saving time and thus enabling the library to increase user satisfaction. Furthermore, electronic resources such as online databases, e-books, and e-journals have become more accessible, leading to the development of online catalogues like the CBU Library OPAC, a web-based database that provides access to the library collections and enables users to search for and locate materials using various search parameters such as author, title, subject, and keyword.

1.2.4 The Copperbelt University

The CBU is a public university located in Kitwe, Zambia. It was established in 1987 by an Act of Parliament and offers undergraduate and postgraduate degree programmes in various fields including business, engineering, humanities, natural sciences, and social sciences (Hampwaye & Mweemba, 2020). The University's programmes are offered through a variety of modes including full-time, part-time and distance education. The current student population of CBU, as of the 2022/2023 academic year, consists of 10220 undergraduate students, 862 postgraduate students, and 763 distance students (CBU academic office, 2023). The University's library is a critical resource for members of staff, both administrative and faculty. All members of staff add up to 891, of whom 402 are academic faculty (CBU academic office, 2023). The university has a strong focus on research and innovation, with several research centres and institutes dedicated to advancing knowledge in areas such as agriculture, mining, energy, and environmental studies. CBU is known

for its academic rigor, and its graduates are some of the highly sought after by employers in Zambia and beyond.

In order to support the academic and research needs of CBU an academic library was launched alongside the official opening of the university in 1987. Over the years, the library has grown significantly, amassing a diverse collection of resources encompassing a wide range of subjects, including engineering, sciences, humanities, social sciences, and law. Notably, the CBU Library also houses a special collection focused on mining and mineral processing, reflecting the region's economic significance. As of 2023, the library's collection comprised over 65,000 items, with an annual growth rate of approximately 1000 new resources (CBU, 2023). Recognizing the importance of efficient resource management and accessibility, the CBU Library underwent automation in 2006 with the adoption of the Liberty library management system.

1.2.5 The CBU Library OPAC

In 2006, coinciding with the library's automation, the Online Public Access Catalog (OPAC) was introduced, built upon the Liberty 3 system. This marked a significant step towards enhancing access to the library's growing collection. The system was subsequently upgraded to Liberty 5 in 2012, bringing with it enhanced features and functionalities. The Liberty 5 OPAC serves as a critical tool for users to discover and retrieve information held within the CBU Library. It offers various search functionalities, including basic search for quick inquiries and advanced search options that allow users to refine their searches using specific criteria such as author, title, subject, and publication date. Within the physical library near the entrance, the OPAC is readily accessible on 2 dedicated computer terminals which are always set to the OPAC's search page. Recognizing the needs of off-campus and distance learning students, the Liberty 5 OPAC also provides a remote access feature. Users can access the OPAC by navigating to the University website, then to the library section, where a direct link is available. This remote access empowers users to check the availability of resources, reserve materials, and renew loans from any location with internet connectivity. The OPAC is therefore an essential resource that supports the academic success of all CBU students, regardless of their physical location.

This study investigates the undergraduates' awareness, utilisation, and satisfaction with the OPAC in the context of CBU. Given that the Liberty system, including its subsequent upgrade to Liberty

5, has been in continuous use since its adoption in 2006 under a subscription fee, it is crucial to ascertain its effectiveness in meeting the information access and retrieval needs of students. This research is therefore a significant undertaking to determine whether the sustained investment in the OPAC is indeed achieving its intended purpose of making students' academic lives easier. Understanding the awareness, utilisation patterns, and satisfaction levels of undergraduate students with this subscribed system is vital for informed decision-making regarding its continued use and potential improvements.

1.3 Problem Statement

The level of satisfaction with an online catalogue can significantly impact the efficiency and effectiveness of the library system, user engagement with the library, and the academic success of users (Wanyonyi, Odini, & Sikolia, 2018). When users are not satisfied with an online catalogue, they may spend less time using the catalogue, resulting in decreased usage and decreased efficiency of the library system. User dissatisfaction can lead to decreased user engagement with the library as a whole, which can negatively impact the library reputation and patronage (Wanyonyi, Odini, & Sikolia, 2018). Furthermore, difficulties in locating resources can stand as a barrier to academic success, leading to frustration and decreased motivation for users, which can ultimately result in negative impacts on student performance, retention, and graduation rates (Wanyonyi, Odini, & Sikolia, 2018). Therefore, it is crucial to identify and address areas for improvement in the catalogue to enhance user satisfaction and mitigate these challenges.

While the CBU OPAC is a crucial tool for undergraduate students to access academic resources, it is currently unknown the extent to which students are aware of, utilize and are satisfied with the CBU OPAC. Without this knowledge, it is difficult for the CBU Library to provide an effective and efficient online catalogue system that meets the needs of its undergraduate users. As a result, there is a need to conduct an investigation that looks into the students' awareness, utilization and satisfaction with the catalogue, as well as identify possible areas for improvement. Generating this knowledge is also important because OPACs are expensive tools which if underutilised, could lead to substantial amounts of wasted resources and energy.

1.4 Purpose of the study

The purpose of this study is to investigate the levels of awareness, utilization, and satisfaction among undergraduate CBU students with the library's OPAC. By doing this, the study seeks to provide insights that can enhance the user experience of students, thereby improving the overall effectiveness and usability of the OPAC at CBU.

1.5 Objectives of the Study

1.5.1 Main Objective of the Study

The main objective of this study is to investigate undergraduate students' awareness, utilization and satisfaction with the CBU OPAC.

1.5.2 Specific Objectives

The specific objectives of this study are to:

1. Determine CBU undergraduate students' level of awareness of the CBU OPAC.
2. Determine the extent to which CBU undergraduate students utilize the CBU OPAC.
3. Assess the extent to which CBU undergraduate students are satisfied with the CBU OPAC.
4. Identify factors that affect CBU undergraduate students' use of the CBU OPAC.

1.6 Research Questions

This study is guided by the following research questions:

1. What is the level of awareness of the CBU OPAC among undergraduate students at CBU?
2. To what extent do undergraduate students at CBU utilize the CBU OPAC?
3. How satisfied are undergraduate students at CBU with the CBU OPAC?
4. What factors influence the use of the CBU OPAC by undergraduate students at CBU?

1.7 Significance of the study

The significance of this study lies in its potential to improve the effectiveness and efficiency of the CBU OPAC and enhance user satisfaction among undergraduate students. By identifying areas for improvement, the library can optimize the system to meet the needs of its users and provide a better user experience, leading to increased engagement, improved academic performance, and higher retention and graduation rates. This study also benefits policymakers as they may be informed of one of the most important library facilities and how effective it is in spearheading the institutions broader objective of delivering effective education and research. Moreover, this study's findings can also inform other academic libraries by providing insights into how they can improve their online catalogues to better serve their users. The study also has the potential to contribute to the body of knowledge on information access and retrieval in academic library settings and the factors that influence user satisfaction with online catalogues.

1.8 Study Limitations

One of the limitations of this study is the issue of generalizability. The study was focused on the CBU Library, and as such, its findings may not be easily generalizable to other academic libraries. While the study may provide valuable insights into the experiences of undergraduate students at the CBU Library, the results may not be applicable to students at other universities or even to postgraduate students and faculty at the same university. Thus, caution should be taken when applying the findings to other settings, and further research may be necessary to confirm the results in other contexts.

Another limitation of the study is the reliance on self-reported data. While self-reported data can be useful in collecting information on subjective experiences, it may also be subject to bias or inaccuracy. Participants may not always report their experiences accurately, or they may be reluctant to provide honest responses for fear of being judged. To mitigate this limitation, the study used appropriate methods to ensure data quality. One of the approaches used to mitigate the limitations was the use of an established framework to inform the execution of this study. The UTAUT, an established model for investigating technology use and acceptance was employed as the theoretical framework for this study.

1.9 Theoretical Framework

A suitable theoretical framework serves as a fundamental starting point for any research study (Large & Beheshti, 2013). It serves as a conceptual lens through which researchers can understand and analyse the phenomena they are investigating. It provides a foundation for formulating research questions, designing the study, selecting appropriate methodologies, and interpreting the findings. Because they constitute established theories or models that have been developed and tested in previous research, theoretical frameworks offer a systematic approach for understanding and explaining phenomena (Large & Beheshti, 2013). By using a theoretical framework, researchers can draw upon existing knowledge, concepts, and relationships, which enhances the credibility and rigor of the study (Bhattacharjee, 2012). In the context of this study, the Unified Theory of Acceptance and Use of Technology (UTAUT) served as the theoretical framework. Employing this framework in the current study provided a structured approach for investigating the factors that influence students' behaviours and perceptions. This enabled a comprehensive analysis of their use of the OPAC.

1.9.1 Background, Overview and Constructs of the UTAUT Model

The UTAUT is a widely recognized and influential model in the field of information systems research. It was developed by Venkatesh et al. (2003) with the aim of providing a unified view of the factors that influence individuals' acceptance and usage of technology. The UTAUT model integrates and extends several existing theories, such as the Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), and the Theory of Planned Behavior (TPB). The UTAUT model seeks to explain and predict individuals' behavioral intentions to use a particular technology and their subsequent actual usage. It posits that four key constructs directly impact an individual's behavioral intention, which in turn affects their usage behavior. These four constructs are performance expectancy, effort expectancy, social influence and facilitating conditions.

Performance expectancy focuses on the perceived benefits and usefulness of the technology in improving task performance. It explores whether individuals believe that using the technology will enhance their effectiveness and efficiency. Effort expectancy relates to the perceived ease of use associated with the technology. It examines individuals' beliefs about how simple and uncomplicated it is to interact with the technology without requiring excessive effort. Social

influence considers the impact of others' opinions and expectations on an individual's intention to use the technology. It explores how subjective norms, social pressure, and support from important individuals or groups shape an individual's decision to adopt and utilize the technology. Facilitating conditions encompass the perceived resources and support available to facilitate the use of the technology. It includes factors such as technical assistance, training, and access to necessary tools or resources that enable individuals to effectively utilize the technology. By considering these four constructs, researchers can gain insights into individuals' beliefs, attitudes, and the external factors that influence their intention to use a specific technology.

These four constructs collectively contribute to an individual's behavioral intention to use a technology, which subsequently influences their actual usage behavior. By understanding and evaluating these constructs, researchers can gain insights into the factors that influence technology acceptance and usage. In the case of the current study, the UTAUT framework guided this study in several key aspects, including data collection, research methods, and analysis.

1.9.2 Conceptualization of UTAUT Application in this Study

In the conceptualization of this study, the UTAUT framework helped the researcher to identify the key constructs that had to be measured and explored in relation to undergraduate students' awareness, utilization, and satisfaction with the CBU Library OPAC. Each of the four constructs were used to assess whether students perceive the OPAC as beneficial for their academic tasks and their perception of the system's ease of use. The construct of social influence was used to explore the impact of peers and family on students' decision to use the OPAC. On the other hand, facilitating conditions considered the resources and support available for the OPAC's effective utilization. By incorporating these constructs, the UTAUT framework guides the study's conceptualization and provides a structured approach to analyze the factors influencing students' behaviors and perceptions towards the OPAC.

The research questions in this study are designed to explore different aspects of undergraduate students' awareness, usage, and satisfaction with the CBU OPAC. Each research question directly relates to one or more concepts from the UTAUT framework, this helped the researcher to understand the factors that influence students' behaviors and perceptions towards the OPAC. The first question asks how much students know about the OPAC and how their peers and faculty

influence their awareness. The second question investigates how often students actually use the OPAC and what they expect to gain from using it. The third question focuses on students' overall satisfaction with the OPAC and whether it meets their needs. Lastly, the fourth question explores the various factors that affect students' use of the OPAC, such as their expectations, ease of use, social influence, and the resources available to them. By aligning the research questions with the UTAUT framework, the study thoroughly examined the factors that shape undergraduate students' awareness, utilization, and satisfaction with the CBU Library OPAC.

The UTAUT framework provides guidance on the selection of appropriate data collection methods. Surveys or questionnaires are commonly used to gather data on the UTAUT constructs. In this study, a survey was administered to undergraduate students, which includes items or statements designed to measure their perceptions and attitudes related to the OPAC. The survey included questions that assess their perceptions and attitudes towards the CBU OPAC. For performance expectancy, students were asked about their beliefs on how using the OPAC can improve their ability to find relevant academic resources and enhance their academic performance. Effort expectancy questions focused on the ease or difficulty of navigating and searching for materials using the OPAC. Social influence questions explored the recommendations and pressure students receive from friends, classmates, professors, and peers regarding the use of the OPAC. Facilitating conditions assessed students' satisfaction with technical support and their access to necessary resources like computers and internet connections. Responses to these questions provide valuable data for analyzing the relationship between the UTAUT constructs and students' awareness, utilization, and satisfaction with the CBU Library OPAC.

The data collected from the survey was analyzed using statistical techniques to examine the relationships between the UTAUT constructs and undergraduate students' awareness, utilization, and satisfaction. Statistical methods such as regression analysis were applied to determine the strength and significance of the relationships. This analysis provides insights into the extent to which the UTAUT constructs explain variations in students' behaviors and perceptions towards the OPAC.

The findings of the study have been interpreted within the context of the UTAUT framework. The analysis identifies the factors that significantly influence undergraduate students' awareness, utilization, and satisfaction with the OPAC. By linking the findings to the UTAUT constructs, the

study provides a detailed understanding of the factors that contribute to students' acceptance and usage of the OPAC.

The study's implications and recommendations have been based on the insights gained from the UTAUT framework. The findings inform the development of strategies and interventions to enhance students' awareness, utilization, and satisfaction with the OPAC. The study also suggests potential improvements in performance expectancy, effort expectancy, social influence, and facilitating conditions to optimize students' engagement with the OPAC in terms of awareness, utilization and satisfaction

1.10 Conceptual Framework

Based on the foregoing theoretical framework, the UTAUT model was employed in this study to investigate awareness, utilization and satisfaction with the OPAC system in an academic library setting, specifically CBU. The conceptual framework assumes that the four constructs of the UTAUT (performance expectancy, effort expectancy, social influence, and facilitating conditions) have a direct impact on the awareness, utilization, and satisfaction with the OPAC among undergraduate students at CBU. The diagram below depicts the assumed relationships among the variables.

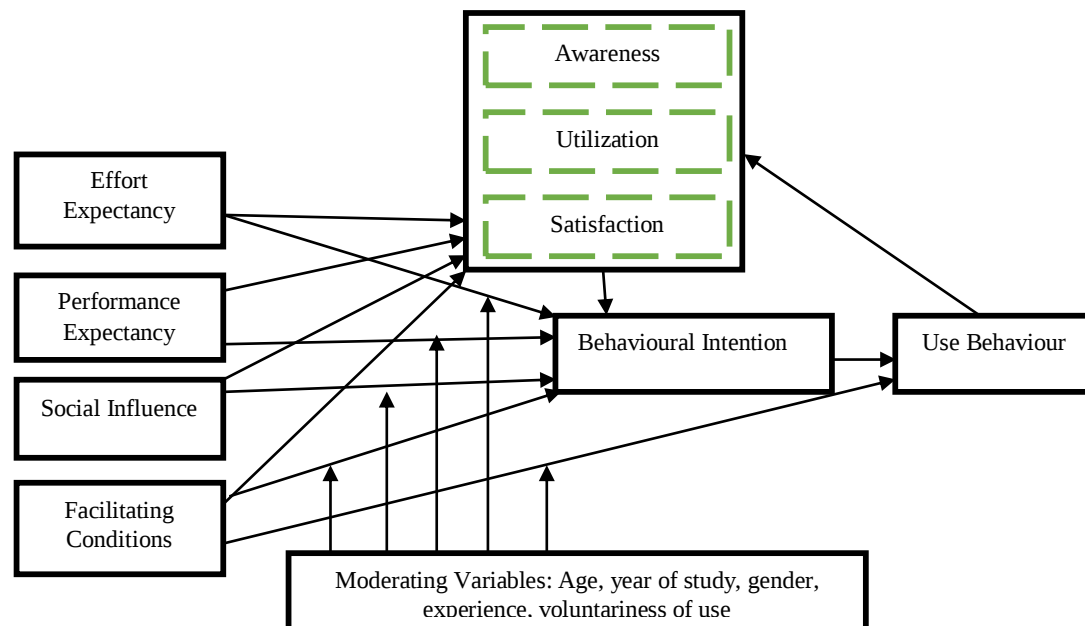


Figure 1: Conceptual Framework adapted from UTAUT model (Venkatesh et al., 2003)

The first two constructs, which are effort expectancy and performance expectancy, directly influence utilization and satisfaction with the OPAC among undergraduate CBU students. Effort expectancy which refers to the perceived ease of use, is expected to lead to increased utilization and satisfaction with the OPAC among undergraduate CBU students. When students find the OPAC easy to navigate and interact with, they are more likely to utilize it for their academic tasks, leading to higher satisfaction levels. Performance expectancy, which represents the perceived benefits and usefulness of the OPAC, plays a role in explaining user utilization and satisfaction. If students perceive the OPAC as an effective tool for finding relevant resources and improving their academic performance, they are more likely to be aware and familiar with its functionality, leading to increased utilization and higher satisfaction levels.

Social influence and facilitating conditions contribute to all three dependent variables: awareness, utilization, and satisfaction. The Positive social influences, such as peer and faculty recommendations of the OPAC, can lead to increased awareness among students. When students are aware of the OPAC, they are more likely to utilize it, which in turn has implications for their satisfaction. Facilitating conditions, such as the accessibility and availability of the OPAC, training programs, or support from library staff, also play a role in increasing utilization and satisfaction. When students have easy access to the OPAC and receive the necessary support and resources to effectively use it, their utilization and satisfaction levels are likely to be higher.

Additionally, the conceptual framework recognizes the role of moderating variables such as gender, voluntariness of use, and year of study. These variables can influence the four constructs of the model. For example, gender differences may impact students' perceptions of performance expectancy and effort expectancy. The voluntariness of use may affect the influence of social factors on students' awareness, utilization, and satisfaction. The year of study may also play a role in shaping students' perceptions of the OPAC and their utilization behaviors.

Overall, the conceptual framework suggests that the UTAUT constructs, along with moderating variables, play a significant role in explaining undergraduate students' awareness, utilization, and satisfaction with the OPAC at CBU. Additionally, the use behaviour that results from the interactions of the constructs benefits has implications for awareness, utilization and satisfaction with the OPAC.

1.11 Operational Definitions of Concepts

1. **Awareness:** According Suleiman et al., (2018), awareness means knowing or understanding something that exists or a situation that is happening now. This understanding comes from what you have learned or experienced before. In the context of this study, awareness will be taken to mean the level of knowledge that undergraduate students have about the CBU OPAC, measured by the percentage of students who know about the existence and basic functionalities of the catalogue.
2. **Behavioural Intention:** The individual's subjective likelihood or intention to engage in a specific behavior, in this case, utilizing the CBU Library OPAC. It represents the individual's willingness and readiness to perform the behavior in the near future (Venkatesh et al., 2003). It is measured by assessing the individual's expressed intention or plans to use the OPAC.
3. **Effort Expectancy:** The perceived ease of use associated with using the technology, such as the CBU Library OPAC (Venkatesh et al., 2003). It reflects an individual's belief about the simplicity and ease of interaction with the technology, without requiring excessive mental or physical effort. It is measured by evaluating the perceived ease of navigation, search capabilities, and overall user-friendliness of the OPAC.
4. **Facilitating Conditions:** The perceived resources, support, and infrastructure available to an individual to facilitate their use of the technology (Venkatesh et al., 2003). It includes factors such as technical support, training programs, access to necessary tools or resources, and availability of assistance from library staff. It is measured by evaluating the adequacy of technical resources, availability of support services, and the level of assistance provided for effective utilization of the OPAC.
5. **Moderating Variables:** These are factors that can influence the relationships between the constructs in the UTAUT model (Venkatesh et al., 2003). In this study, the moderating variables include gender, voluntariness of use, and year of study. Gender may influence individuals' perceptions and behaviors towards the OPAC. Voluntariness of use refers to whether individuals are required or choose to use the OPAC, which can affect their attitudes and engagement. Year of study represents the academic progression of the

students and may influence their familiarity and experience with technology and library resources.

6. **OPAC:** According to the American Library Association (ALA) Glossary of Library and Information Science, an OPAC is a computerized database of bibliographic records that can be searched by patrons to find books, journals, and other materials available in a library collection (Levine-Clark & Carter, 2013). In the operational variables of this study, the term OPAC will be used to refer to the computerized and web-based database that provides access to the CBU Library collections.
7. **Performance Expectancy:** The degree to which an individual believes that using a specific technology, such as the CBU Library OPAC, will enhance their performance and help them achieve desired outcomes. It is measured by assessing the perceived benefits and usefulness of the technology in improving task performance and academic outcomes (Venkatesh et al., 2003).
8. **Satisfaction:** According to Musyoka and Chirchir (2013), who reference Oliver (1997), customer satisfaction is the evaluation of a specific attribute, feature, or the overall product or service itself, offers enjoyable and gratifying use or consumption. In simpler terms, it refers to the degree of pleasure or contentment a customer experiences with a product or service. In this study satisfaction is the degree to which undergraduate students are pleased with the CBU OPAC, measured by a composite score of ratings on different aspects of the catalogue, such as ease of use, search accuracy, the relevance of search results, availability of resources, and overall user experience.
9. **Social Influence:** The impact of others' opinions, recommendations, and expectations on an individual's intention to use the technology (Venkatesh et al., 2003). It considers the subjective norms, social pressure, and support from peers, faculty, or important individuals or groups that shape one's inclination to adopt and utilize the technology. It is measured by assessing the extent of influence from others' recommendations, peer usage, or the perceived importance of complying with social norms.
10. **Use Behaviour:** The actual usage or behavior exhibited by individuals in utilizing the CBU Library OPAC. It reflects the frequency, extent, and manner in which individuals engage

with the technology (Venkatesh et al., 2003). It is measured by tracking and analyzing the actual usage patterns, such as the number of searches performed, materials accessed, or time spent using the OPAC.

11. **Utilization:** In the context of library and information science, utilization refers to using the resources and services of the library to find solutions to personal or academic problems (Nwankwo & Amechi, 2019). Building upon that, in this study utilization will mean the extent to which undergraduate students use the CBU OPAC to search for and locate materials, measured by the frequency and duration of catalogue use, as well as the number of materials accessed through the catalogue.

1.12 Summary of Chapter 1

Chapter 1 serves as an introduction to the study. The chapter begins with an overview of the study and is followed by the background of the study, which presents information on the CBU OPAC and the need for the study. The statement of the problem and the research objectives are then outlined, highlighting the gap in knowledge regarding undergraduate students' satisfaction with the CBU Library OPAC. The research questions are also presented to guide the study. The significance of the study is discussed, emphasizing the potential impact of the findings on enhancing user satisfaction and library efficiency. The limitations of the study are also acknowledged, including the potential for biased responses and the scope of the study. The chapter then presents the theoretical framework, which is the Unified Technology Acceptance and Use of Technology (UTAUT) framework, providing a basis for understanding factors that influence user satisfaction with online catalogues. The conceptual framework is also presented, which illustrates the relationships between the variables in the study. Operational definitions of concepts are provided to clarify the meaning of key terms used in the study. Finally, the chapter ends with a summary, highlighting the main points presented in the chapter.

CHAPTER 2: LITERATURE REVIEW

2.1 Overview

The preceding background information has explored the evolution of library catalogues, the importance of information access and retrieval in academic libraries, barriers to access, challenges in the absence of catalogues, and the significance of online catalogues. Building upon this foundation, the literature review delves deeper into the existing research on undergraduate students' awareness, utilization, and satisfaction with library OPACs (OPACs). This review aims to answer the following questions:

1. What factors influence undergraduate students' awareness and utilization of library OPACs?
2. How do undergraduate students perceive and evaluate the usability and effectiveness of library OPACs?
3. What are the impacts of students' awareness, utilization, and satisfaction with library OPACs on their academic performance and information-seeking behaviour?

The questions are addressed in the following sections: Section 2.2 examines the factors influencing students' awareness and utilization of OPACs, Section 2.3 focuses on students' perceptions and evaluations of OPAC usability and effectiveness, and Section 2.4 explores the impacts of students' awareness, utilization, and satisfaction with OPACs. Based on the findings from section 2.2, 2.3 and 2.4, 2.5 identify the gaps in the literature followed by the conclusion of the chapter. By synthesizing the existing literature related to the subject matter of the current study, this review aims to provide the theoretical underpinnings and empirical basis of the study.

2.2 Factors Influencing Undergraduate Students' Awareness and Utilization of OPACs

A number of studies have emphasized the significance of comprehending the concepts of awareness and utilization concerning library OPACs (Aju & Foti, 2020, p. 20). Generally, when awareness is mentioned in terms of technology, it entails knowledge and understanding that an individual holds in terms of a specific technology (Ahmed, Zin, & Majid, 2016). Thus, when placed in the context of this study, awareness refers to students' knowledge and recognition of the

existence and purpose of OPACs as tools for accessing library resources. Utilization, on the other hand, refers to the actual usage and engagement of students with OPACs to search for, retrieve, and access library materials and resources. In their study on “undergraduates’ awareness, utilization, and satisfaction with the OPAC in public university libraries in Nasarawa State” Aju and Tofi define OPAC utilization as, “the actual use of the OPAC in university libraries in a manner that aligns with its intended purpose and functionality”. Research has shown that a strong understanding of these concepts is crucial for examining the factors that influence students’ engagement with OPACs (Aju & Foti, 2020). In the succeeding sub-sections, factors that influence undergraduate awareness and utilisation of OPACs in academic libraries are identified from the literature.

2.2.1 Information Literacy Skills

Information literacy skills encompass a range of abilities and competencies that enable individuals to identify, locate, evaluate, and effectively use information to meet their information needs. These skills involve the ability to determine the nature and extent of information needed, access information from various sources, critically evaluate the relevance and reliability of information, and ethically use and cite information (Association of College and Research Libraries, 2015). Information literacy also involves understanding the organization and structure of information systems, such as library OPACs, and being able to navigate and retrieve information efficiently (Bruce, 2008).

Information literacy skills and knowledge have been identified as crucial factors influencing students’ awareness and utilization of OPACs. Research studies have underscored the significance of students possessing the necessary skills to effectively locate, evaluate, and utilize information resources (Herring, 2011; Ramamurthy & Siridevi, 2015). Proficiency in information literacy is essential for students to navigate the complexities of OPACs and engage in successful information-seeking behaviours (Kuruppu Arachchi, 2015). Research by Julien et al., (2018) demonstrated that librarians perceived students with higher levels of information literacy as being more likely to be aware of OPACs and use them as their primary resource for academic purposes. Thus, a strong foundation in information literacy equips students with the skills and knowledge needed to make effective use of OPACs in their academic endeavours (Julien et al., 2018).

2.2.2 Instruction and Training Programs

Literature generally highlights a positive impact of library instruction programs and training initiatives on students' awareness and utilization of OPACs. For instance, (Gana et al., 2019) found that students who participated in library orientation programmes and instruction sessions reported higher levels of awareness and confidence in using OPACs compared to those who did not receive any instruction. Similarly, Miller (2018) presents that targeted training programs that focus on enhancing library user search strategies and information retrieval skills significantly improve their utilization of library resources such as OPACs. Effective library instruction programs incorporate various instructional methods, such as workshops, online tutorials, one-on-one consultations, and classroom sessions (Association of College and Research Libraries, 2015). These programs provide students with hands-on experiences and guidance on using OPACs, including search techniques, advanced search options, and how to evaluate search results. By empowering students with the necessary knowledge and skills, instruction and training programs contribute to increased awareness and utilization of OPACs among undergraduate students.

It is important to note that the effectiveness of instruction and training programs depends on their alignment with students' needs and preferences. Customization and tailoring of instructional content to suit the specific requirements and learning styles of undergraduate students have been shown to yield better outcomes (Becker, 2013). This may involve incorporating interactive elements, multimedia resources, and practical exercises that simulate real-world research scenarios. Such tailored programs create a supportive and engaging learning environment, fostering greater awareness and utilization of OPACs among students. Through ongoing assessment and improvement of instruction and training initiatives, libraries can continue to enhance students' awareness and utilization of OPACs, ultimately improving their overall information literacy skills and academic success (Deans & Durrant, 2016).

2.2.3 User Interface Design and Navigation

In the course of this review, the researcher found that studies also emphasize the role of user interface design and navigation in influencing students' utilization of OPACs. For instance, Meadows (2011) found that undergraduate students were more likely to be utilise OPACs with visually appealing interfaces that were easy to navigate. Students appreciated interfaces that had

clear labels, intuitive menus, and logical organization of information. Additionally, Barifah (2021) conducted a study that demonstrated the positive impact of user-friendly interfaces on students' satisfaction and regular utilization of online catalogues such as OPACs.

Some of the key elements of the user interface design that contribute to students' effective utilization of OPACs are advanced search options and filters. The availability of options such as keyword searching, Boolean operators, truncation, and proximity searching allows students to refine their search queries and retrieve relevant results more efficiently (Lawless & Foster, 2020). Furthermore, filters based on criteria such as publication date, format, and subject categories enable students to narrow down their search results and access resources that are most relevant to their information needs (Lawless & Foster, 2020).

Clear display of search results is another important aspect of user interface design that impacts students' awareness and utilization of OPACs. Research shows that students' value interfaces that present search results in a well-organized and easily scannable manner (Barifah, 2021). Features such as brief but informative descriptions, highlighting of search terms, and options to sort and save results enhance the usability of OPACs and facilitate students' decision-making process in selecting relevant resources. It is important for libraries to consider user feedback and conduct usability testing during the design and development of OPAC interfaces (Kani-Zabihi, Ghinea, & Chen, 2008). Regular assessment and updates based on user input can ensure that the interface remains intuitive, user-friendly, and aligned with students' preferences and expectations. By prioritizing user interface design and navigation, libraries can enhance students' awareness and utilization of OPACs, ultimately facilitating their access to valuable information resources. Libraries should invest in designing user-friendly interfaces and regularly seek user feedback to ensure that OPACs meet students' needs and preferences.

2.2.4 Accessibility and Availability of OPACs

The accessibility and availability of OPACs have been recognized as important considerations in influencing students' awareness and utilization. Physical accessibility refers to the placement and availability of OPACs within the library environment (Ternenge & Kashimana, 2019). Research has shown that students are more likely to be aware of and utilize OPACs when they are located conveniently within the library space (Ternenge & Kashimana, 2019). Libraries should ensure that

the technological infrastructure supporting OPACs is robust and reliable. This includes providing adequate computing resources, stable internet connectivity, and compatibility with various devices and operating systems. Further, the resources must be placed in visible and easily accessible areas, such as near library entrances or in high-traffic zones, increases the likelihood of students encountering and engaging with OPACs.

In addition to physical accessibility, the availability of OPACs remotely through online platforms plays a significant role in extending their accessibility and utilization. Online access to OPACs allows students to search for and access library resources anytime and from anywhere, providing convenience and flexibility (Rachna, 2017). This remote availability enables students to engage with OPACs beyond the library's operating hours, accommodating their diverse schedules and preferences. Students perceive online availability of OPACs positively and consider it an important factor in their utilization (Eserada & Okolo, 2019).

Ensuring the accessibility and availability of OPACs is crucial for meeting the needs of diverse student populations. Accessibility considerations should include providing accommodations for students with disabilities, such as assistive technologies and alternative formats (Ezeani, Ukwoma, Gani, Igwe, & Agunwamba, 2017). Libraries should also consider the availability of OPACs on multiple devices and platforms, including mobile devices, to cater to students' preferences and technological capabilities (MacWhinnie, 2003). By prioritizing accessibility and availability, libraries can effectively support students' information-seeking endeavors. Furthermore, prompt and efficient technical support is essential for addressing any issues or challenges that students may encounter while using OPACs. Technical problems, such as system errors or difficulties in navigating the interface, can impede students' utilization of OPACs. Effective technical support services that provide timely assistance and resolution of technical issues contribute to a positive user experience and encourage continued utilization of OPACs (Mulla & Chandrashekara, 2009). By addressing technological barriers and providing comprehensive technical support, libraries can enhance students' awareness and utilization of OPACs.

2.2.5 External Influences

External influences, such as faculty recommendations and peer interactions, have a substantial impact on students' awareness and utilization of electronic information resources like OPACs

(Rowley, et al., 2001). Consequently, faculty members play a crucial role in shaping students' perceptions and behaviours regarding library resources, including OPACs. When faculty members actively endorse and recommend the use of OPACs as valuable tools for academic research and information retrieval, students are more likely to become aware of their existence and incorporate them into their study practices (Waldman, 2003). Faculty recommendations serve as a form of external validation, signalling to students the importance and relevance of OPACs in their academic pursuits. Moreover, peer interactions and discussions among students also contribute to awareness and utilization of OPACs (Puustinen & Rouet, 2009). When students engage in conversations about their experiences with OPACs and share recommendations or tips for effective usage, it can create a positive peer influence and encourage others to explore and utilize OPACs. Peer recommendations are often seen as more relatable and trustworthy, leading to increased awareness and utilization of OPACs among students (Abrizah, et al., 2014).

Based on the foregoing, it is important for libraries and educational institutions to recognize the impact of external influences and actively promote faculty engagement and peer interactions related to OPACs. Encouraging faculty members to integrate OPACs into their curriculum, provide guidance on their usage, and emphasize their value can significantly enhance students' awareness and utilization (Gakibayo, Ikoja-Odongo, & Okello-Obura, 2013). Facilitating opportunities for students to engage in peer discussions, workshops, or collaborative projects focused on OPACs can also foster a culture of awareness and utilization among the student community (Hicks & Graber, 2010).

2.2.6 Cultural and Demographic Factors

Cultural and demographic factors have been recognized as important influences on students' awareness and utilization of OPACs. Students' cultural backgrounds, educational experiences, and demographic characteristics can shape their attitudes and behaviors towards OPACs (Booth, 2009). For instance, students from technologically proficient backgrounds, such as those who have grown up with access to digital tools and resources, may exhibit higher levels of awareness and utilization of OPACs (Booth, 2009). Moreover, cultural factors can influence students' comfort level and engagement with OPACs. As such, understanding the diverse information-seeking practices and preferences of students from different cultural backgrounds can help libraries tailor

their OPAC services to better meet their needs (Association of College and Research Libraries, 2015).

Demographic characteristics, such as age, programme and academic level, may also influence students' awareness and utilization of OPACs. Younger students, who have grown up in the digital age, may be more comfortable with technology and exhibit higher levels of awareness and utilization of OPACs compared to older students (Waldman, 2003). Additionally, students at different academic levels may have varying information needs and preferences, which can influence their utilization of OPACs (Waldman, 2003). By addressing cultural and demographic factors, libraries can enhance students' awareness and utilization of OPACs, fostering a more inclusive and supportive information environment.

2.3 Undergraduate Students' Perceptions and Evaluations of OPAC Usability and Effectiveness

It is essential to acknowledge that user satisfaction with an OPAC system goes beyond technical functionalities because it involves user perception and not actual reality. Even if an OPAC system satisfies all the technical factors discussed in the previous section, if users do not perceive it as effective or user-friendly, issues of user satisfaction are still likely to arise. Undergraduate students' perceptions and evaluations of OPAC usability and effectiveness are influenced by user satisfaction and perceived ease of use (Cordes, 2014). User satisfaction refers to students' contentment with the system, while perceived ease of use relates to their assessment of its simplicity and absence of complexity (Cordes, 2014). Because user satisfaction is based on perceptions of the users, regular gathering of user feedback, assessing usability, and incorporating improvements based on user input are essential (Aju & Foti, 2020). Some of the most notable factors that contribute to positive perceptions and evaluations of OPAC systems among undergraduate students are discussed below.

2.3.1 Search Capabilities and Retrieval Performance

Search capabilities and retrieval performance are crucial aspects that influence students' perceptions of OPAC usability and effectiveness. The literature emphasizes the importance of OPACs providing robust search functionalities to meet the information needs of undergraduate

students. Students value OPACs that offer various search options, such as keyword search, advanced search features, and filters for narrowing down results (Lawless & Foster, 2020; Barifah, 2021). These features empower students to conduct precise and targeted searches, saving time and effort in locating relevant resources.

In addition to search capabilities, efficient retrieval performance is a key factor in shaping students' perceptions and evaluations of OPACs. Students expect OPACs to deliver quick response times when retrieving search results. Slow response times can negatively impact their user experience and lead to frustration (Lawless & Foster, 2020). Furthermore, the accuracy of search results is crucial in building students' trust and confidence in the system. When OPACs consistently provide accurate and relevant search results, students perceive them as effective tools for information discovery and retrieval (Lawless & Foster, 2020). By prioritizing search capabilities and retrieval performance, academic libraries can enhance students' perceptions of OPAC usability and effectiveness. This, in turn, promotes greater utilization of OPACs as valuable tools for information access and retrieval.

2.3.2 User Interface Design and Features

Empirical studies have reliably highlighted the significance of user interface design and features in shaping undergraduate students' perceptions and evaluations of OPAC usability and effectiveness. Research findings demonstrate that a visually appealing interface and a logical layout of information contribute to positive user experiences (Barifah, 2021). Students appreciate interfaces that are aesthetically pleasing, well-organized, and easy to navigate (Barifah, 2021). Studies have found that an intuitive interface design enhances students' overall satisfaction and positively influences their evaluations of OPAC usability and effectiveness (Meadows, 2011).

Moreover, evidence in the literature supports the importance of incorporating specific features into OPAC systems to improve students' interactions. The inclusion of faceted search, for instance, has been found to significantly enhance students' search experiences (Barifah, 2021). By allowing users to refine search results using various criteria, such as author, subject, or publication date, faceted search enables students to quickly narrow down their searches and locate relevant resources efficiently (Lawless & Foster, 2020). Relevance ranking is another crucial feature that empirical studies have found to positively impact students' evaluations (Meadows, 2011). By

prioritizing search results based on their relevance to the user's query, relevance ranking enables students to easily identify and access the most useful resources.

Furthermore, related literature demonstrates the value of availability indicators in influencing students' perceptions and evaluations of OPACs. These indicators provide real-time information about the availability of resources, such as whether a book is currently on loan or available for borrowing (Xu, Kang, Song, & Clarke, 2015). By offering such information, OPACs assist students in making informed decisions about resource selection and usage, thereby enhancing their overall satisfaction and evaluation of the system.

The findings discussed above reinforce the importance of user interface design and the incorporation of specific features in OPAC systems to improve students' perceptions and evaluations (Barifah, 2021). By leveraging these findings, academic libraries can enhance the usability and effectiveness of their OPACs, resulting in more positive user experiences and increased satisfaction among undergraduate students.

2.3.3 Information Organization and Display

Research studies have provided evidence that effective information organization plays a crucial role in facilitating students' efficient retrieval of relevant resources. Clear categorization, subject headings, and hierarchical structures have been shown to enhance students' ability to navigate the system and locate resources that align with their information needs (Mi & Weng, 2008). These findings suggest that well-organized information within OPACs positively impacts students' evaluations of usability and effectiveness, consequently improving user satisfaction.

The presentation of search results has also been identified as a significant aspect influencing students' perceptions of OPAC. Literature emphasizes the importance of providing concise and descriptive metadata in search results (Mi & Weng, 2008). By including relevant information such as author, title, publication date, and abstracts, students can quickly assess the relevance and suitability of resources for their research needs (Barifah, 2021). Additionally, the inclusion of availability status and item location details in search results enables students to determine the accessibility and availability of resources, further shaping their evaluations of OPACs (Meadows, 2011). By incorporating effective information organization and presenting search results with comprehensive metadata, academic libraries can enhance students' experiences with OPACs.

These strategies contribute to students' ability to efficiently locate relevant resources and make informed decisions about resource selection. Consequently, students' positive perceptions of OPAC usability and effectiveness are reinforced, leading to increased satisfaction and utilization of the system.

2.3.4 Relevance and Accuracy of Search Results

The relevance and accuracy of search results within OPACs (OPACs) have been extensively studied in the literature, providing valuable insights into their impact on students' evaluations of system effectiveness. Research findings consistently highlight the importance of delivering highly relevant and accurate search results in OPACs to meet students' information needs (Mi & Weng, 2008). Students express a preference for OPACs that provide precise and pertinent search results, minimizing the need for manual filtering and evaluation (Kim & Sin, 2007).

To ensure the relevance and accuracy of search results, OPACs employ various techniques and mechanisms informed by research and best practices (Rico, Vila-Suero, Botezan, & Gómez-Pérez, 2019). Sophisticated indexing methods are utilized, involving the systematic assignment of subject terms and metadata to resources (Rico, Vila-Suero, Botezan, & Gómez-Pérez, 2019). These indexing approaches enhance the retrieval of relevant resources by matching users' search queries with appropriate subject headings and keywords. Additionally, relevance ranking algorithms are implemented to prioritize search results based on factors such as relevance score, citation count, and recency (Rico, Vila-Suero, Botezan, & Gómez-Pérez, 2019). These algorithms contribute to the precision and effectiveness of search results in OPACs.

Quality control measures are also implemented to ensure the accuracy and reliability of search results (Dube, 2011). Data validation processes, elimination of duplicate records, and regular updates are employed to maintain data integrity (Harpel-Burke, 2012). These practices improve the accuracy of search results and enhance students' confidence in the reliability of the system. Furthermore, the currency and freshness of data have been found to positively influence students' evaluations of OPAC effectiveness, emphasizing the importance of regular updates. By delivering highly relevant and accurate search results, OPACs can enhance students' satisfaction and confidence in the system's effectiveness.

2.3.5 Personalization and Customization Options

In the literature, personalization and customization options within OPACs (OPACs) have been recognized as influential factors in shaping students' perceptions of usability and effectiveness. The ability to personalize the OPAC interface to match individual preferences and information needs contributes to a more positive user experience and increased satisfaction (Sweeney, 2005). OPACs that offer personalization features, such as the ability to save searches, create personalized lists, or set up alerts and notifications, allow students to customize their information-seeking process (Sonawane, 2018). By saving searches, students can conveniently revisit their search queries without the need to reconstruct them. Creating personalized lists enables users to organize and manage resources according to their specific interests and research projects. Moreover, receiving alerts and recommendations based on individual preferences helps students stay informed about new resources or relevant updates, enhancing their perception of the OPAC's effectiveness.

Personalization and customization options contribute to user satisfaction and engagement with OPACs. Students who can personalize their OPAC experience according to their preferences and workflow report higher levels of satisfaction and are more likely to perceive the system as effective (Sweeney, 2005). By providing these options, OPACs can accommodate individual information-seeking behaviors and improve the overall usability and effectiveness of the system. Personalization and customization options are not only beneficial for students but also align with the overarching goal of academic libraries to enhance user experiences and support diverse information needs. By allowing students to tailor their OPAC interactions, libraries can foster a sense of ownership and empowerment, ultimately leading to increased engagement and loyalty. Incorporating personalization and customization options into OPACs requires a user-centered approach and ongoing assessment of users' preferences and needs. User studies, surveys, and usability testing can inform the design and implementation of these features, ensuring they align with students' expectations and enhance their perceptions of usability and effectiveness (Cordes, 2014).

2.3.6 Comparison with Alternative Information Sources

As technology continues to evolve and provide various avenues for accessing information, it is crucial to assess how OPACs fare in meeting the needs and expectations of undergraduate students. By examining the strengths and weaknesses of OPACs in relation to alternative sources, academic libraries can gain insights into areas for improvement, enhance the user experience, and ensure that OPACs remain valuable tools for students' information-seeking endeavours. With that in mind, some studies have conducted comparisons between OPACs (OPACs) and alternative information sources, such as search engines, databases, or online resources (Fast & Campbell, 2004; Brophy & Bawden, 2005; (Eun Oh & Colón-Aguirre, 2019)). Findings show that students often evaluate OPACs based on their comprehensiveness of content, considering whether the catalogue provides access to a wide range of resources including books, journals, multimedia materials, and other relevant holdings (Georgas, 2015). They also assess the relevance of search results, comparing the quality and specificity of results obtained through the OPAC with those obtained from alternative information sources (Georgas, 2015).

Ease of use is another aspect students consider when comparing OPACs with alternative sources. They evaluate the user interface, search functionalities, and overall user-friendliness (Kumar S. , 2014). OPACs that offer engaging interfaces, clear search options, and user-friendly features may be perceived as more effective and usable compared to alternative sources (Barifah, 2021). Furthermore, students examine the unique features and capabilities of OPACs that differentiate them from other platforms. For example, the ability to search within specific collections, access localized information, or utilize specialized library services and resources can contribute to the perceived effectiveness of OPACs (Georgas, 2015).

Understanding how OPACs fare in relation to alternative sources helps libraries identify areas for enhancement, such as improving search algorithms, expanding resource coverage, or integrating additional functionalities (Kumah, 2015). Therefore, conducting comparative studies and user feedback surveys that explore students' perceptions and evaluations of OPACs in comparison to alternative sources can inform the development and enhancement of OPAC systems, ensuring they remain relevant and effective in supporting students' information-seeking processes (Kumah, 2015).

2.4 Impacts of Students' Awareness, Utilization, and Satisfaction with OPACs: Positive Experiences

To this point, several aspects that influence students' awareness, utilization and satisfaction with OPAC systems have been explored. At this point, the review delves into the impacts that the three variables themselves produce. The literature acknowledges that undergraduate students' awareness, utilization, and satisfaction with OPACs (OPACs) have significant impacts across various dimensions of their academic experience (Esse, 2014). This section synthesizes the literature on the effects of students' interactions with OPACs, connecting the different subsections to provide a comprehensive understanding of these impacts.

2.4.1 Academic Performance and Learning Outcomes

Research has shown that students who are aware of and effectively utilize OPACs (OPACs) experience improved academic performance and enhanced learning outcomes (Onuoha, 2017). By accessing a diverse range of resources available through OPACs, such as scholarly books, journals, and databases, students can gather relevant information to support their coursework and research activities. This plays a central role in spearheading their academic success and overall learning outcomes. The availability of comprehensive and up-to-date resources through OPACs enhances students' understanding of the subject matter and fosters deep learning. Students who are exposed to the effective use of the university OPAC are will likely develop their critical thinking and increase the rate of their intellectual growth (Onuoha, 2017). The exposure to a breadth of information enhances students' comprehension of the subject matter and enriches their learning experience.

2.4.2 Self-Efficacy and Confidence in Using Library Resources

Positive experiences with OPACs (OPACs), characterized by user-friendliness, reliability, and ease of use, contribute to students' self-efficacy and confidence in utilizing library resources effectively (Kato, Kisangiri, & Kaijage, 2021). When students find OPACs intuitive and capable of meeting their information needs, they develop a sense of mastery over the library's collections and digital resources. This increased self-assurance motivates students to engage in independent

research and information-seeking activities, as they feel empowered to explore and utilize the resources available to them (Oluwatayo, Ezema, Opoko, & Uwakonye, 2015).

As students become more proficient in using OPACs, their confidence in locating, accessing, and utilizing high-quality information resources grows. Studies show that there is a significant relationship between the frequency of using library resources and the self-efficacy of students; in fact, the two reinforce each other (Gakibayo, Ikoja-Odongo, & Okello-Obura, 2013). Meanwhile, students who feel confident in their abilities to navigate library resources are more likely to utilize a wide range of library materials, participate in research activities, and seek assistance from library staff when needed (Esse, 2014). This increased self-efficacy not only enhances students' academic performance but also equips them with valuable skills for lifelong learning and information literacy.

2.4.3 Engagement with other Library Services and Resources

Positive experiences with Online Public Access Catalogs (OPACs) play a crucial role in fostering students' engagement with a wide range of library services and resources (Newsum, 2016). When students have positive interactions with OPACs and perceive them as effective tools for accessing information, they are more likely to explore additional library offerings (Laird & Kuh, 2005). For instance, students who have successfully utilized OPACs to access relevant materials may extend their engagement with the library by utilizing interlibrary loan systems to obtain resources not available within their institution (Chen & Albee, 2012). This demonstrates how OPACs can serve as a gateway to discovering and accessing a broader range of resources beyond the library's physical or digital collections. What is more, positive experiences with OPACs can lead students to seek research assistance from librarians, attend library workshops on advanced search techniques, or participate in information literacy programs. As students recognize the value and effectiveness of OPACs, they develop a deeper appreciation for the expertise and support provided by library staff (Delaney & Bates, 2015). This engagement with library services and resources further enriches students' academic experiences and promotes their overall learning outcomes.

2.4.4 User Loyalty and Library Patronage

The satisfaction of students with OPACs (OPACs) has a significant influence on their loyalty and patronage towards the library, as evidenced by scholarly research (Haruna, Madu, & Adamu, 2017). Positive experiences with OPACs, characterized by their perceived value and satisfaction, contribute to students' continued use of library services and resources throughout their academic journey (Singh & Klingenberg, 2009). Students who have positive interactions with OPACs are more likely to develop loyalty towards the library and maintain their patronage over time (Haruna, Madu, & Adamu, 2017). These students perceive OPACs as valuable tools that facilitate their information retrieval needs, and this satisfaction extends to their overall perception of the library as a reliable and supportive institution. Moreover, as earlier presented, students' satisfaction with OPACs leads to increased utilization of other library resources and services (Laird & Kuh, 2005). This expanded engagement reflects their trust and reliance on the library as a comprehensive source of information and support, strengthening the connection between students and the library.

2.4.5 Overall Student Satisfaction with the Library Experience

Everything that has been discussed above culminates into overall satisfaction with the library experience in its totality. Research has established a strong association between the awareness, utilization, and satisfaction with OPACs (OPACs) and students' overall satisfaction with their library experience. OPACs play a vital role as an entry point to the library's resources, and when students perceive them as effective, user-friendly, and valuable, it positively impacts their perception of the library as a whole (Kumar & Singh, 2014).

By understanding the multifaceted impacts of students' awareness, utilization, and satisfaction with OPACs, academic libraries can better tailor their services and resources to meet the needs of undergraduate students, fostering an enriched and fulfilling educational environment. Understanding these impacts is crucial for academic libraries to develop effective strategies for promoting awareness, supporting utilization, and enhancing satisfaction with OPACs, thereby maximizing the benefits for undergraduate students and fostering a positive and enriching learning environment.

2.5 Impacts of Students' Unawareness, Underutilization, and Dissatisfaction with OPACs: Negative Experiences

The positive impacts of students' awareness, utilization, and satisfaction with OPACs (OPACs) have been extensively discussed in the literature. Positive experiences with OPACs have been shown to have significant benefits across various dimensions of the undergraduate students' academic experience. These include improved academic performance, enhanced learning outcomes, increased self-efficacy, heightened engagement with library services, and overall satisfaction with the library experience. However, it is important to note that when students are not aware, do not utilize, or are not satisfied with the performance of OPACs, it can lead to the inverse of the gains discussed above, resulting in negative impacts (Fabunmi & Asubiojo, 2013).

When students are not aware of the existence or functionalities of OPACs, they may miss out on accessing valuable resources and information that could support their academic pursuits (Fabunmi & Asubiojo, 2013). Similarly, if students do not utilize OPACs effectively, they may struggle to locate relevant materials, which can hinder their research and learning processes (Kumar & Vohra, 2013). Furthermore, when students are not satisfied with the usability or performance of OPACs, it can lead to frustration and dissatisfaction with the library's resources and services (Eserada & Okolo, 2019). This can result in decreased engagement with library materials, limited utilization of library services, and a negative perception of the library as a whole. These undesirable impacts can hinder students' academic performance, limit their access to high-quality resources, and impede their overall learning experience. When OPACs are not effectively utilized or fail to meet students' information needs, it can result in a waste of resources for the library and the university as a whole (Fabunmi & Asubiojo, 2013). Investments in acquiring and maintaining library collections and digital resources may not yield the desired outcomes if students are not aware of them, do not utilize them, or are dissatisfied with their accessibility and usability (Kwadzo, 2015). Therefore, it is crucial for academic libraries to address these negative experiences by improving awareness, promoting effective utilization, and enhancing the satisfaction of students with OPACs. By addressing these challenges libraries can optimize the benefits of OPACs, ensuring that students have the necessary tools and resources to support their academic success and overall satisfaction with the library experience.

2.6 Gaps and Limitations in Existing Literature

While extensive research has been conducted on various aspects of OPACs (OPACs) and their impact on undergraduate students (Aju & Tofi, 2020; Wanyonyi, Odini, & Sikolia, 2018), several critical gaps and limitations persist. One notable shortcoming is the scarcity of context-specific case studies. Although studies from different regions and institutions (e.g., Mason, 2023; Barifah, 2021) have provided valuable insights into OPAC usability and user satisfaction, their findings often do not capture the unique socio-cultural and institutional nuances. In this particular case, the intricacies undergraduate students interaction with the OPAC of the CBU library.

For instance, there is no empirical study that exclusively examines CBU undergraduate students' awareness, utilization, and satisfaction with the CBU library OPAC. The limited generalizability of findings from studies conducted in other contexts (Aguolu & Aguolu, 2002) means that these insights may not fully address the distinct challenges faced by CBU students. Moreover, many existing studies rely heavily on self-reported data and cross-sectional designs, lacking the longitudinal perspective necessary to understand how sustained system usability improvements or enhanced support mechanisms might influence user engagement over time (Miller, 2018; Lawless & Foster, 2020).

Another gap in the literature is the insufficient exploration of how specific factors—such as system usability, accessibility, and user feedback integration—affect student engagement with OPACs in a setting like CBU. While some studies have noted the importance of facilitating conditions and user training (Eserada & Okolo, 2019), few have delved into how these elements interact within the unique technological and pedagogical environment at CBU.

The current study aims to address these gaps by conducting a focused case study on undergraduate students at CBU. It will investigate not only their levels of awareness, utilization, and satisfaction with the library OPAC but also how factors like performance expectancy, effort expectancy, facilitating conditions and other UTAUT factors affect these interactions (Venkatesh et al., 2003).

2.7 Summary of Chapter 2

The literature review highlights key findings regarding undergraduate students' perceptions and evaluations of OPACs. It emphasizes the importance of user satisfaction, perceived ease of use,

search capabilities, user interface design, and information organization, relevance of search results, personalization options, and comparisons with alternative sources. The review also emphasizes the positive impact of OPAC utilization on academic performance, learning outcomes, self-efficacy, engagement with library services, and overall student satisfaction.

The current study addressed the identified gaps in the literature by conducting a case study at CBU University focusing on undergraduate students. It investigated students' awareness, utilisation and satisfaction with the CBU OPAC. By focusing on a specific university and population, the study provides valuable insights and practical implications for improving OPACs and enhancing student engagement with library resources.

CHAPTER 3: METHODOLOGY

3.1 Overview

Chapter Two of this study outlines the plan and approach that will be employed to collect, analyse, and interpret data to address the research objectives and questions. The chapter serves as the methodological foundation for the entire research process, ensuring that the study's findings are accurate, reliable, and ethically obtained. Several critical components are discussed, including the research design choice (quantitative with a cross-sectional approach), the target population (CBU undergraduate students), sample size determination using Yamane's formula, the development of a structured questionnaire based on the UTAUT framework, the methodology for conducting a self-administered survey, planned data analysis techniques involving descriptive and inferential statistics, ethical considerations, recognition of potential limitations, and strategies to ensure the study's validity and reliability. This chapter ensures that the research process is well-structured, ethical, and capable of yielding dependable findings.

3.2 Research Philosophy

This study is grounded in the positivist paradigm. This paradigm asserts that objective reality can be measured and quantified through systematic observation and empirical investigation (Saunders, Lewis, & Thornhill, 2019). This philosophical stance justifies the use of a structured questionnaire and statistical analysis to uncover relationships among the research variables based on the indicated responses of the participants (Bhattacharjee, 2012). By adhering to positivism, the research ensures objectivity, replicability, and generalizability of findings, thereby providing a robust basis for understanding undergraduate students' awareness, utilisation, and satisfaction with the CBU Library OPAC.

3.3 Research Approach

This study employs a quantitative research approach rooted in the positivist paradigm. Quantitative research focuses on the systematic collection and analysis of numerical data to uncover patterns, relationships, and statistical associations (Saunders, Lewis, & Thornhill, 2019). Positivism emphasizes the objective and empirical investigation of phenomena, aiming for generalizability

and the discovery of causal relationships (Bhattacharjee, 2012). This approach aligns with the study's aim to quantitatively measure and analyze factors influencing undergraduate students' awareness, utilization, and satisfaction with the CBU OPAC.

3.4 Research Design

A survey research design was employed for this study. Surveys are a widely recognized method for collecting data from a large number of participants in a structured and standardized manner (Creswell, 2014). This design enables the systematic collection of information on participants' experiences, perceptions, and behaviors related to the research topic. In this case, the survey served as the primary means to gather data on undergraduate students' awareness, utilization, and satisfaction with the CBU Library OPAC.

3.5 Population and Sample Size

The target population for this study consisted of approximately 10,220 undergraduate students registered at the CBU (CBU Academic Office, 2023). To obtain a representative sample, Yamane's sample size formula, a commonly used formula when the population is known, was applied (Rassel, Berner, O'Sullivan, & DeVance, 2016). This formula ensures that the sample size is adequate for reliable statistical analysis while considering the characteristics of the population. Yamane's sample size formula is:

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

Where N is the Population of study; K is the constant (1); e is the degree of error expected; and n=sample size. In this particular study, N is 10220. K remains 1, while the degree of error is 0.05. Therefore:

$$n = \frac{10220}{1 + 10220(0.05)^2}$$

$$n = \frac{10220}{1 + 10220(0.0025000000000000005)}$$

$$n = 384.9340866290018$$

$$n \approx 385 \text{ (rounded sample size)}$$

3.6 Data Collection Instrument

The primary data collection instrument for this study was a structured questionnaire. This questionnaire contained Likert-scale items designed to measure participants' responses in alignment with the Unified Theory of Acceptance and Use of Technology (UTAUT) model. The UTAUT model's constructs, including performance expectancy, effort expectancy, social influence, and facilitating conditions, were assessed through these items. Additionally, demographic information was collected to better understand the characteristics of the sample. The utilization of a structured questionnaire in this study is justified for several reasons. Firstly, it allows for a systematic and standardized collection of data, ensuring consistency in responses across participants (Creswell, 2014). Secondly, the Likert-scale items employed in the questionnaire are well-suited for measuring complex constructs such as performance expectancy, effort expectancy, social influence, and facilitating conditions as outlined in the UTAUT model. The Likert-scale provides a range of response options, enabling nuanced insights into participants' attitudes and perceptions (Roy, 2020). Furthermore, by incorporating demographic questions, the questionnaire will enable a comprehensive analysis of how these individual characteristics may influence technology acceptance and use patterns.

3.7 Data Collection Procedures

Data collection was executed through a self-administered survey questionnaire. The questionnaire was designed using Google Forms and digitally distributed randomly to undergraduate students via email and WhatsApp using the library's contact list. To obtain a representative sample of approximately 385 undergraduate students from CBU, a systematic sampling approach was employed, selecting every 27th student from the total population of approximately 10,220, with the sampling interval set at 27, starting with a randomly chosen student, and obtaining informed consent before administering the survey. This method ensures broad access to potential participants while maintaining the confidentiality of their responses (Bocarnea, Reynolds, & Baker, 2012). Clear instructions accompanied the questionnaire, and participants were provided with a specified deadline for completion.

To enhance response rates, reminders were sent to individuals who had not completed the survey within a reasonable timeframe. The decision to employ a digitally distributed survey was inspired

by a number of reasons. Firstly, digital surveys facilitate the process of data collection by ensuring that responses are accurately captured through user-friendly interfaces (Bocarnea, Reynolds, & Baker, 2012). Furthermore, these surveys incorporate data validation mechanisms, minimizing the likelihood of missing or inconsistent data, which can often occur with paper-based surveys. Efficient data management is another advantage. Because online surveys automate the collection and storage processes, they have two extra benefits, they reduce the risk of data transcription errors as well as saving valuable research times (Reynolds & Woods, 2007). Ultimately, the rapid dissemination of surveys through email and messaging platforms ensures broad access to potential participants. The cost-efficiency and environmental sustainability of online surveys further underscore their suitability for research in the modern era (Bocarnea, Reynolds, & Baker, 2012). It is worth noting that the study was conducted during vacation, making digital distribution particularly appropriate for reaching participants during this period.

3.8 Data Analysis

Data analysis encompassed both descriptive and inferential statistical techniques. Descriptive statistics were employed to summarize participants' demographic characteristics, as well as their levels of awareness, utilization, and satisfaction with the CBU Library OPAC. This involved calculating frequencies, percentages, means, and standard deviations as appropriate (Anderson, et al., 2015). Inferential statistical analysis explored the relationships between the UTAUT constructs (performance expectancy, effort expectancy, social influence, facilitating conditions) and the dependent variables (awareness, utilization, satisfaction). This included correlation analysis, regression analysis, and analysis of variance (ANOVA).

Data analysis was conducted using SPSS, a powerful and versatile statistical software. SPSS has been chosen as the data analysis tool for several reasons. Firstly, SPSS provides a wide range of statistical functions specifically designed for both descriptive and inferential analysis (Zamora, Quesada, Hurtado, & Mondéjar, 2020). Secondly, SPSS facilitates reproducible research through its script-based approach, ensuring transparency and traceability in the analysis process (Zamora, Quesada, Hurtado, & Mondéjar, 2020). The fact that SPSS offers advanced visualization capabilities means that the researcher was able to analyse and create visual presentations of research findings from the same place, thereby saving time and other challenges of moving across applications for a variety of tasks (Zamora, Quesada, Hurtado, & Mondéjar, 2020).

3.8 Limitations

Several limitations arose during the execution of this study. First, the self-reported nature of the data may have introduced response bias and social desirability bias. Participants may have provided answers they believed are expected or socially desirable rather than reflecting their true experiences and perceptions. This phenomenon is commonly known as response bias (Bhattacharjee, 2012). Second, the cross-sectional design limits the ability to credibly establish impact relationships between variables (Saunders, Lewis, & Thornhill, 2019). This is because the study captures a snapshot of students' awareness, utilization, and satisfaction at a specific point in time, without accounting for potential changes over time. Third, the study's generalizability is limited to the specific context of the CBU and its undergraduate student population. The findings may not be fully applicable to other academic libraries or different student populations.

3.9 Ethical Considerations

Research ethics are a vital consideration in any research study, especially if it involves human participants (Saunders, Lewis, & Thornhill, 2019). To uphold ethical standards, informed consent was diligently obtained from all participants, providing full information about the study's purpose, procedures, and potential concerns and benefits. The data collection instrument was accompanied by a clear emphasis on voluntary participation. Through the informed consent form, participants were also informed of the approximate time commitment they were expected to take in order to respond to the questionnaire; which was approximately 10-15 minutes. To protect participants' identities and data security, measures were taken to ensure anonymity and confidentiality. No personally identifying information such as names and student ID requested in the questionnaire and participants' responses were automatically anonymised through Google Form settings. The data was stored securely with restricted access, and only the researcher had access to the raw data. Any publication of results was done in an aggregated and anonymised format to prevent the identification of individual participants. The data collection instrument and data collection process ensured to mitigate any potential deception. In cases where subtlety was used for the good of the research findings, participants were promptly debriefed. Measures were taken to prevent any potential emotional or psychological harm. Participants expressing interest have been given the option to receive study findings, while their privacy choices remain fully respected. These ethical

considerations collectively strengthen the study's commitment to conducting research with the utmost integrity and participant well-being at its core. The researcher also sought ethical clearance from the Humanities and Social Sciences Research Ethics Committee (HSSREC).

3.10 Validity and Reliability

Validity and reliability are fundamental concepts in research methodology which aim to ensure that the data collected are both accurate and consistent (Bhattacharjee, 2012). To ensure the validity of the study, the questionnaire was developed based on an established theoretical framework (UTAUT) and validated survey instruments. Content validity was established through a review, ensuring that the questionnaire items effectively measure the intended constructs. On the other hand, reliability was assessed by conducting a pilot study with a small sample of undergraduate students to evaluate the internal consistency and stability of the questionnaire. Cronbach's alpha coefficient was calculated to measure the internal reliability of the questionnaire items. The sampling formulas employed in this study are generally accepted within the research community, adding an additional layer of methodological validity to the research design.

3.11 Summary of Chapter 3

This chapter has outlined the methodology to be used in the study. A quantitative research design utilizing a cross-sectional survey approach will be used. The population and sample selection, data collection instrument, data collection procedure, and data analysis techniques have been explained. Other crucial aspects covered in this chapter include ethical considerations, limitations, and strategies for ensuring validity and reliability. All in all, the methodology chapter provides a comprehensive plan for collecting and analyzing data to address the research objectives and research questions of this study.

CHAPTER 4: DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter focuses on presenting and analysing the data collected from the undergraduate students at CBU regarding their awareness, utilization, and satisfaction with the Library's OPAC. The primary objective of this chapter is to provide a comprehensive analysis of the collected data to address the research questions and objectives outlined in previous chapters. By systematically examining the data through both descriptive and inferential statistical techniques, this chapter aims to uncover significant patterns, relationships, and insights that can inform improvements in the OPAC system and enhance user experience.

4.2 Descriptive Statistics

4.2.1 Demographic Characteristics

In this section, the demographic characteristics of the study participants are presented. The analysis includes frequencies and percentages for variables such as gender, age group, program of study, and year of study. The data is summarized in tabular form, with each demographic variable being discussed in detail to provide a clear understanding of the sample composition.

Gender Distribution

The gender distribution of the participants is shown in Table 4.1. Out of the total respondents, 121 (32.9%) are female, while 247 (67.1%) are male. This indicates a higher representation of male students in the sample.

Table 4. 1: Gender Distribution

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Female	121	32.9%	32.9%	32.9%
Male	247	67.1%	67.1%	100.0%

Age Group Distribution

Table 4.2 presents the distribution of participants by age group. The majority of the respondents (63.0%) are aged between 20-24 years, followed by those aged 16-19 years (27.2%). A smaller proportion of students (9.8%) fall into the 36-year-old category.

Table 4. 2: Age Group Distribution

Age Group	Frequency	Percent	Valid Percent	Cumulative Percent
16-19	100	27.2%	27.2%	27.2%
20-24	232	63.0%	63.0%	90.2%
36	36	9.8%	9.8%	100.0%

Program of Study

The distribution of participants by their schools is detailed in Table 4.3. The largest group of respondents is from the School of Business (25.5%), followed by Mines & Mineral Sciences (16.6%), Math & Natural Science (14.7%), ICT (13.9%), Engineering (9.5%), Natural Resources (3.0%), and Built Environment (1.6%).

Table 4. 3: Faculty

Faculty	Frequency	Percent	Valid Percent	Cumulative Percent
School of Business	94	25.5	25.5	25.5
School of Natural Resources	12	3.3	3.3	28.8
School of Engineering	37	10.1	10.1	38.9
School of Mathematics and Natural Science	62	16.8	16.8	55.7
School of Mines and Mineral Sciences	73	19.8	19.8	75.5
School of Built Environment	6	1.6	1.6	77.2
School of Information and Communication Technology	51	13.9	13.9	91.0
School of Humanities	33	9.0	9.0	100.0
Total	368	100.0	100.0	

Year of Study

Table 4.4 illustrates the distribution of respondents by their year of study. The highest number of respondents are in their first year (43.8%), followed by second-year students (24.5%), fourth-year students (16.3%), third-year students (11.7%), and fifth-year students (3.8%).

Table 4. 4: Year of Study

Year of Study	Frequency	Percent	Valid Percent	Cumulative Percent
Year 1	161	43.8%	43.8%	43.8%
Year 2	90	24.5%	24.5%	68.2%
Year 3	43	11.7%	11.7%	79.9%
Year 4	60	16.3%	16.3%	96.2%
Year 5	14	3.8%	3.8%	100.0%

4.2.2 Awareness of OPAC

Participants' Awareness of the Existence of the OPAC

Under the awareness category, respondents were first asked whether they are aware of the existence of the OPAC. The responses to this question are summarized in the following table.

Table 4. 5: Participants' Awareness of the Existence of the OPAC

Response Category	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	42	11.4	11.4	11.4
Disagree	80	21.7	21.7	33.2
Neutral	56	15.2	15.2	48.4
Agree	157	42.7	42.7	91.0
Strongly Agree	33	9.0	9.0	100.0
Total	368	100.0	100.0	100.0

The responses indicate varying levels of awareness among participants. A small percentage of respondents, 11.4%, strongly disagree that they are aware of the CBU Library OPAC, and an additional 21.7% disagree, indicating a significant lack of awareness. Meanwhile, 15.2% of the

respondents remain neutral, neither agreeing nor disagreeing with the statement, suggesting some uncertainty or moderate awareness. On the other hand, a substantial proportion of respondents, 42.7%, agree that they are aware of the OPAC's existence, and 9.0% strongly agree, reflecting high awareness levels among these participants. Overall, the majority of respondents, combining those who agree and strongly agree, amount to 51.7%, demonstrating that more than half of the participants are aware of the CBU Library OPAC. However, a notable portion, comprising 33.1% of the respondents, either disagree or strongly disagree, indicating room for increased awareness efforts. The bar chart below offers a visual summary the data.

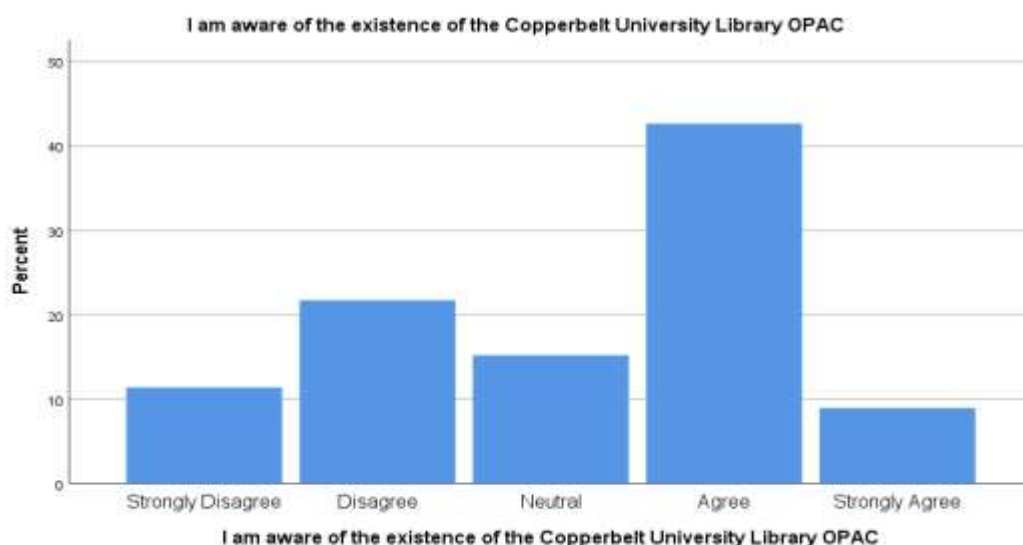


Figure 2: Participants' Awareness of the Existence of the OPAC

Participants' Knowledge of How to Access the OPAC

Under the same section, respondents were asked whether they knew how to access the OPAC or not. The responses are summarized in the table below.

Table 4. 6: Participants' Knowledge of How to Access the OPAC

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	72	19.6	19.6	19.6
Disagree	119	32.3	32.3	51.9
Neutral	51	13.9	13.9	65.8
Agree	98	26.6	26.6	92.4
Strongly Agree	28	7.6	7.6	100.0
Total	368	100.0	100.0	

The data indicates that a significant proportion of respondents feel they lack knowledge about accessing the OPAC. Specifically, 19.6% of respondents strongly disagree with knowing how to access the OPAC, and 32.3% disagree. This suggests that over half of the participants, totaling 51.9%, are uncertain about their ability to access the system. In contrast, 26.6% of respondents agree and 7.6% strongly agree that they know how to access the OPAC. This distribution reflects a moderate level of awareness regarding access to the library's online system, with a notable portion of the student body indicating gaps in their knowledge. The chart below summarizes these results, providing a visual representation of the distribution of responses.

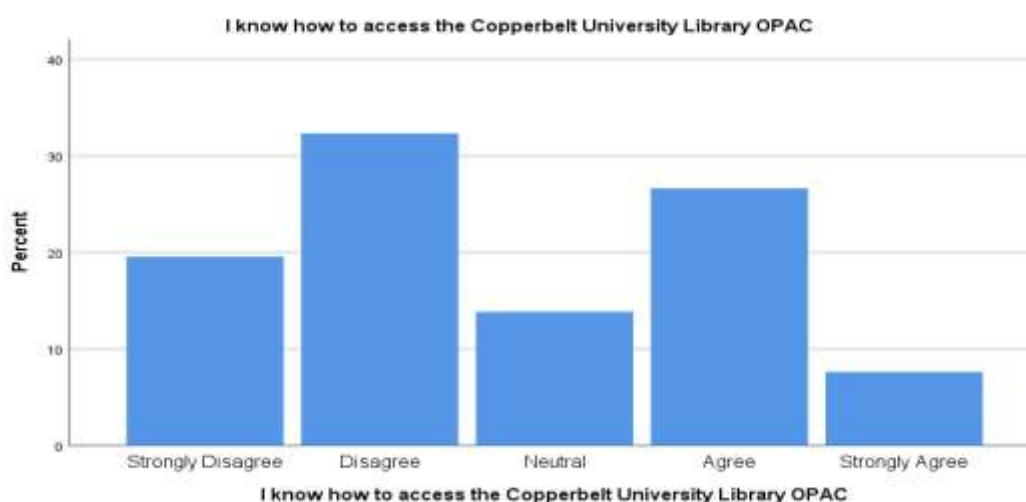


Figure 3: Participants' Knowledge of How to Access the OPAC

Understanding of OPAC Features and Capabilities

Under the aspect of understanding the features and capabilities of the CBU Library OPAC, respondents were asked to indicate their level of agreement with the statement: "I understand the features and capabilities of the CBU Library OPAC." The responses are summarized in the table below.

Table 4. 7: Understanding of OPAC Features and Capabilities

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	63	17.1	17.1	17.1
Disagree	134	36.4	36.4	53.5
Neutral	77	20.9	20.9	74.5
Agree	86	23.4	23.4	97.8
Strongly Agree	8	2.2	2.2	100.0
Total	368	100.0	100.0	

The table presents a summary of participants' responses to their understanding of the features and capabilities of the CBU Library OPAC. A substantial portion of respondents, 36.4%, disagreed with the statement, while 17.1% strongly disagreed, indicating a significant level of uncertainty or lack of understanding regarding the OPAC's features. Conversely, 23.4% of respondents agreed with the statement, and only 2.2% strongly agreed, reflecting a relatively lower level of comprehensive understanding. The remaining 20.9% of respondents were neutral, neither agreeing nor disagreeing with the statement. As highlighted in the chart below, this distribution suggests that while some respondents have a grasp of the OPAC's functionalities, a considerable proportion either lack this understanding or are unsure.

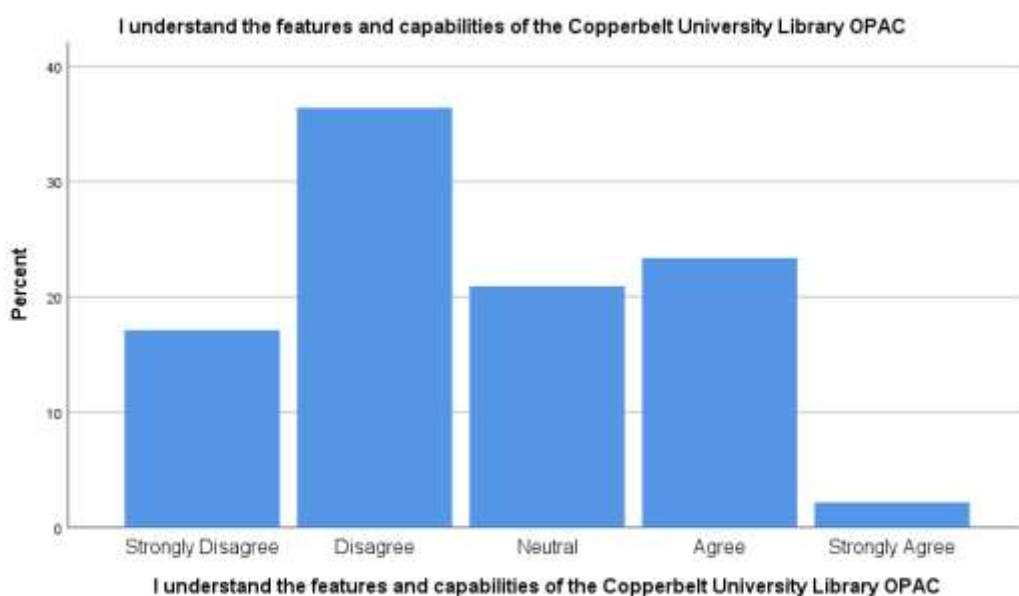


Figure 4: Understanding of OPAC Features and Capabilities

Participants' Perceived Impact of OPAC on Academic Performance

Under this item, respondents were asked to express their agreement with the statement: "I believe that using the CBU Library OPAC can enhance my academic performance." The responses are summarized as follows.

Table 4. 8: Participants' Perceived Impact of OPAC on Academic Performance

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	19	5.2	5.2	5.2
Disagree	23	6.3	6.3	11.5
Neutral	96	26.1	26.3	37.8
Agree	173	47.0	47.4	85.2
Strongly Agree	54	14.7	14.8	100.0
Total	365	99.2	100.0	
Missing	3	0.8		
Overall Total	368	100.0		

The table provides a summary of participants' perceptions regarding the impact of the CBU Library OPAC on their academic performance. A majority of respondents, 47.4%, agreed with the statement, and 14.8% strongly agreed, suggesting a positive perception of the OPAC's influence on academic success. Conversely, 5.2% strongly disagreed, and 6.3% disagreed, indicating a minority of respondents do not perceive a beneficial impact. Additionally, 26.3% of respondents remained neutral, neither agreeing nor disagreeing. This data implies that while many students believe that the OPAC can enhance their academic performance, there is a notable portion who either do not see a significant benefit or are uncertain about its impact. It is also eminent that this item may have suffered from response bias as most respondents may have assumed the OPAC to be a beneficial technology even if they have never used it before.

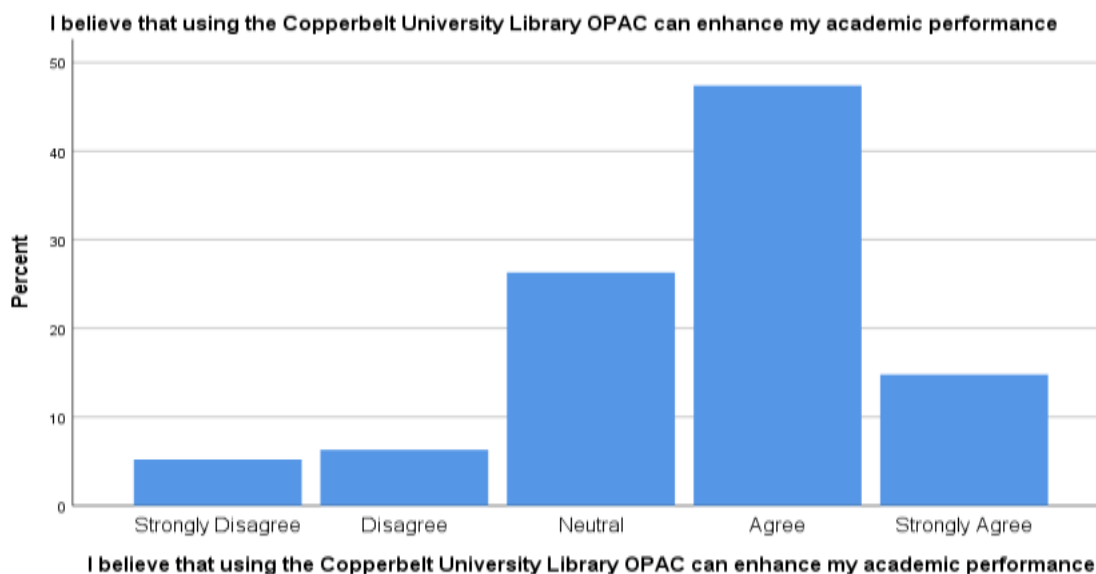


Figure 5: Participants' Perceived Impact of OPAC on Academic Performance

4.2.3 Utilization of OPAC

Utilization of OPAC for Finding Books and Other Resources

In this section, respondents were asked to rate the frequency with which they use the CBU Library OPAC for finding books and other resources within the library. The responses are summarized in the table below.

Table 4. 9: Utilization of OPAC for Finding Books and Other Resources

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Never	149	40.5	40.5	40.5
Rarely	73	19.8	19.8	60.3
Sometimes	102	27.7	27.7	88.0
Often	36	9.8	9.8	97.8
Very Often	8	2.2	2.2	100.0
Total	368	100.0	100.0	

The table above shows the frequency distribution of how often respondents use the CBU Library OPAC to locate books and other resources. The data reveals that a substantial proportion of participants, 40.5%, reported that they never use the OPAC for this purpose. Additionally, 19.8% rarely use it, while 27.7% sometimes utilize it. Only a small percentage of respondents indicated frequent usage, with 9.8% using it often and 2.2% using it very often. These results suggest that a significant number of students do not regularly use the OPAC for finding books and other resources, indicating a potential area for increasing awareness and promoting the utility of the OPAC among students.

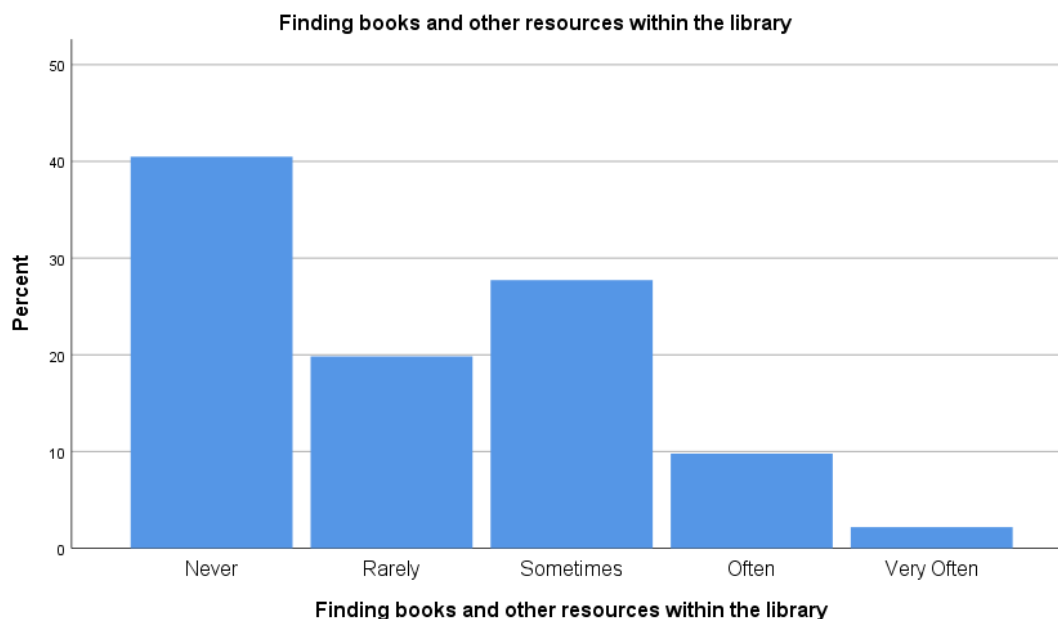


Figure 6: Utilization of OPAC for Finding Books and Other Resources

Utilization of OPAC for Checking the Availability of Books and Resources

In this section, respondents were asked to rate the frequency with which they use the CBU Library OPAC to check the availability of books and resources in the library. The responses are summarized in the table below.

Table 4. 10: Utilization of OPAC for Checking the Availability of Books and Resources

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Never	149	40.5	40.5	40.5
Rarely	109	29.6	29.6	70.1
Sometimes	63	17.1	17.1	87.2
Often	39	10.6	10.6	97.8
Very Often	8	2.2	2.2	100.0
Total	368	100.0	100.0	

The table displays the frequency distribution of how often respondents use the CBU Library OPAC to check the availability of books and resources. The data indicates that a significant portion of participants, 40.5%, reported never using the OPAC for this purpose. Additionally, 29.6% rarely use it, while 17.1% sometimes utilize it. A smaller percentage of respondents indicated frequent usage, with 10.6% using it often and 2.2% using it very often. These results highlight that many students do not frequently use the OPAC to check the availability of books and resources, suggesting a need to increase awareness and promote the OPAC's capabilities in this regard among the student body.

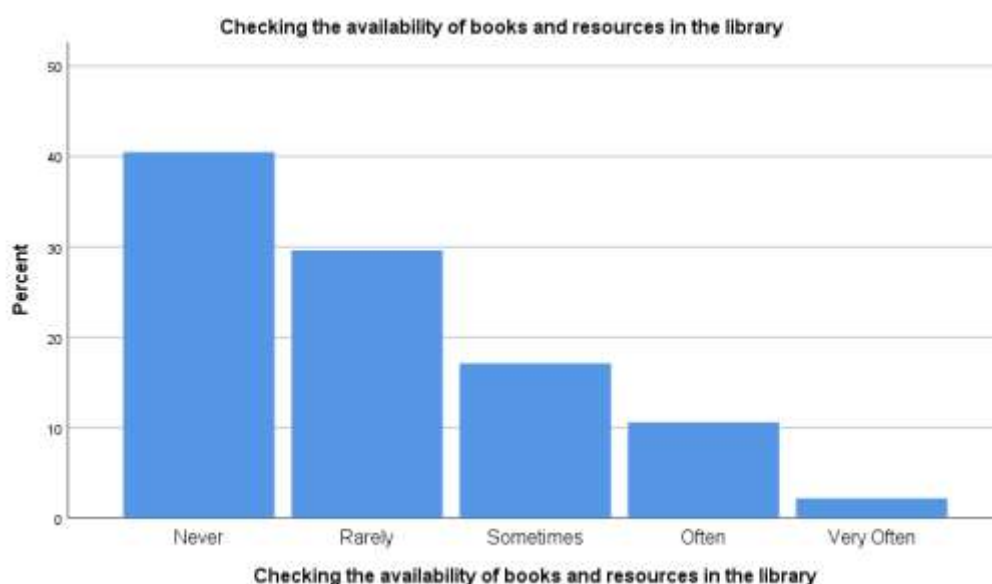


Figure 7: Utilization of OPAC for Checking the Availability of Books and Resources

Utilization of OPAC for Renewing or Reserving Items

In this section, respondents were asked to rate the frequency with which they use the CBU Library OPAC to renew or reserve items. The responses are summarized in the table below.

Table 4. 11: Utilization of OPAC for Renewing or Reserving Items

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Never	231	62.8	62.8	62.8
Rarely	52	14.1	14.1	76.9
Sometimes	52	14.1	14.1	91.0
Often	25	6.8	6.8	97.8
Very Often	8	2.2	2.2	100.0
Total	368	100.0	100.0	

Under utilisation, respondents were asked how frequently they use the CBU Library OPAC for renewing or reserving items. The table above summarizes the responses. A majority of the participants, 62.8%, reported that they never use the OPAC for this purpose, while 14.1% indicated that they rarely use it. Another 14.1% use the OPAC sometimes for renewing or reserving items. Only a small fraction of respondents, 6.8%, reported using it often, and 2.2% reported using it very often. These results suggest that the OPAC's functionality for renewing or reserving items is underutilized, pointing to potential areas for improving student awareness and engagement with these features.

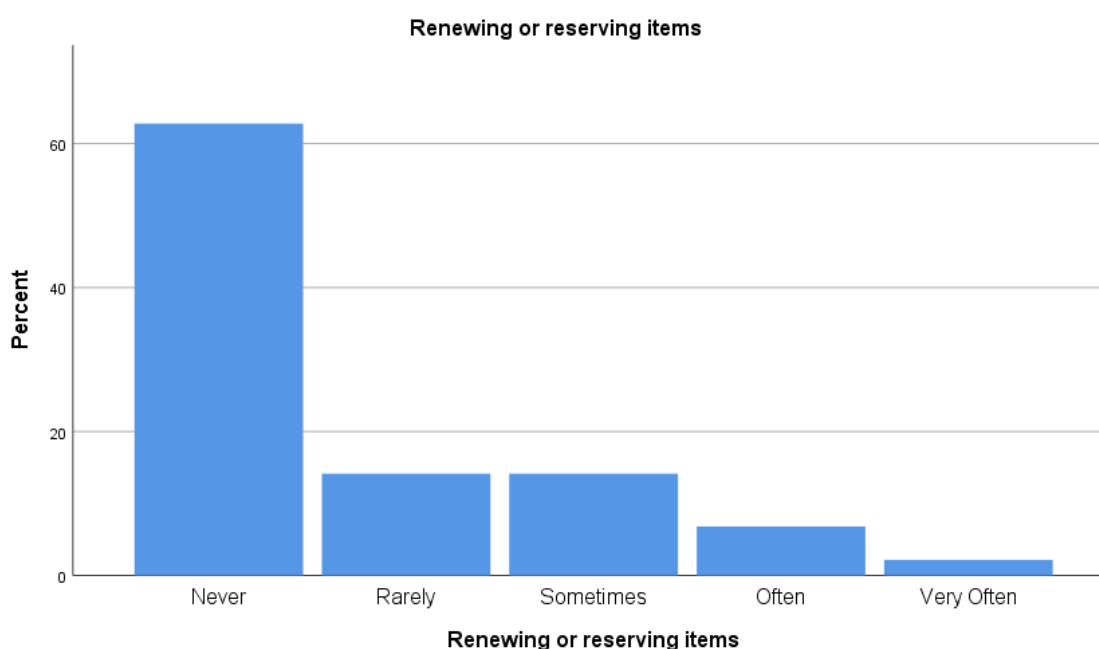


Figure 8: Utilization of OPAC for Renewing or Reserving Items

Utilization of OPAC for Using Advanced Search Features

In this section, respondents were asked to rate the frequency with which they use the advanced search features of the CBU Library OPAC. The responses are summarized in the table below.

Table 4. 12: Utilization of OPAC for Using Advanced Search Features

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Never	231	62.8	62.8	62.8
Rarely	33	9.0	9.0	71.7
Sometimes	67	18.2	18.2	89.9
Often	33	9.0	9.0	98.9
Very Often	4	1.1	1.1	100.0
Total	368	100.0	100.0	

Under utilization, respondents were asked how frequently they use the advanced search features of the CBU Library OPAC. The table above summarizes the responses. A significant majority of participants, 62.8%, reported that they never use the advanced search features, while 9.0% indicated that they rarely use them. Another 18.2% use the advanced search features sometimes. Only 9.0% reported using them often, and a minimal 1.1% reported using them very often. These results indicate that the advanced search features of the OPAC are underutilized, highlighting a need for better user education and support to maximize the potential of these tools.

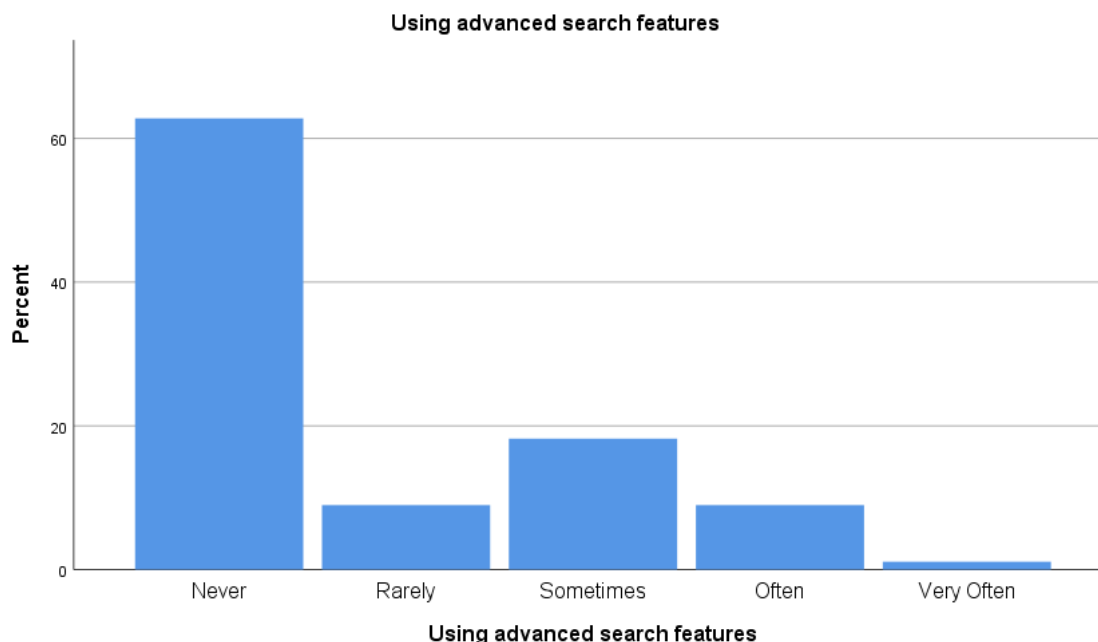


Figure 9: Utilization of OPAC for Using Advanced Search Features

Utilization of OPAC for Accessing Citation Information to Create Accurate Bibliographies

In this section, respondents were asked about their frequency of accessing citation information through the CBU Library OPAC to create accurate bibliographies. The responses are summarized in the table below.

Table 4. 13: Accessing Citation Information to Create Accurate Bibliographies

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Never	203	55.2	55.8	55.8
Rarely	54	14.7	14.8	70.6
Sometimes	63	17.1	17.3	87.9
Often	32	8.7	8.8	96.7
Very Often	12	3.3	3.3	100.0
Total	364	98.9	100.0	
Missing	4	1.1		
Total	368	100.0		

Under utilization, respondents were asked how frequently they access citation information through the CBU Library OPAC to create accurate bibliographies. The table above summarizes the responses. A notable 55.8% of participants reported that they never use the OPAC for accessing citation information, while 14.8% indicated they rarely use it. Another 17.3% sometimes use this feature. Only 8.8% reported using it often, and a mere 3.3% reported using it very often. These results suggest that accessing citation information through the OPAC is not commonly practiced among the respondents, indicating a potential area for improvement in promoting and educating students on this useful feature.

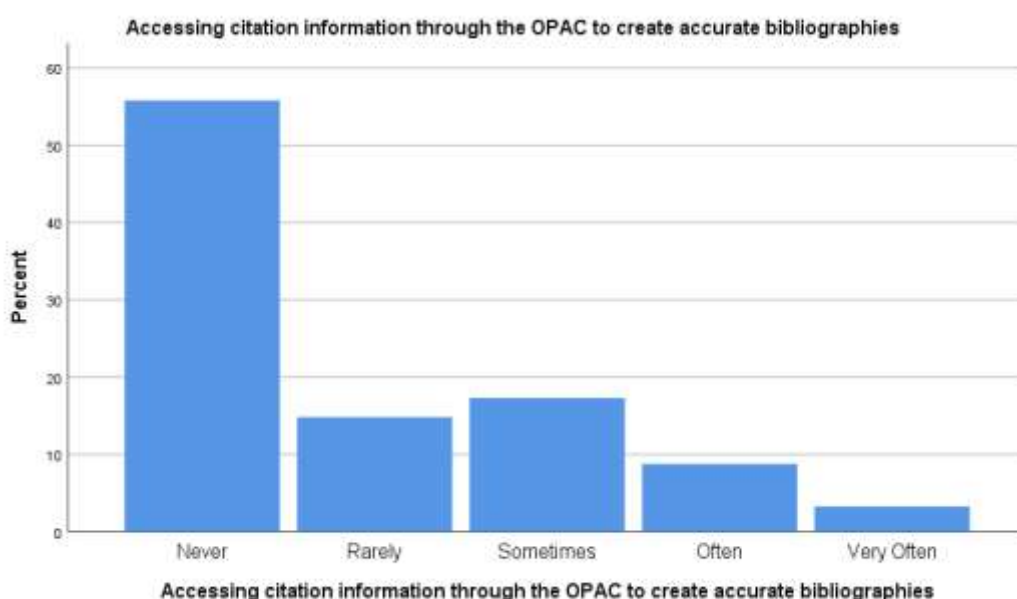


Figure 10: Accessing Citation Information to Create Accurate Bibliographies

Utilization of OPAC for Accessing Electronic Resources

In this section, respondents were asked about their frequency of accessing electronic resources such as e-books, e-journals, and online databases through the CBU Library OPAC. The responses are summarized in the table below.

Table 4. 14: OPAC for Accessing Electronic Resources

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Never	211	57.3	57.3	57.3
Rarely	54	14.7	14.7	72.0
Sometimes	49	13.3	13.3	85.3
Often	41	11.1	11.1	96.5
Very Often	13	3.5	3.5	100.0
Total	368	100.0	100.0	

Under utilization, respondents were asked how frequently they access electronic resources such as e-books, e-journals, and online databases through the CBU Library OPAC. The table above summarizes the responses. A significant 57.3% of participants reported that they never use the OPAC for accessing electronic resources, while 14.7% indicated they rarely use it. Another 13.3% sometimes use this feature. Only 11.1% reported using it often, and a mere 3.5% reported using it very often. These results suggest that accessing electronic resources through the OPAC is not commonly practiced among the respondents, indicating a potential area for improvement in promoting and educating students on the availability and benefits of these resources.

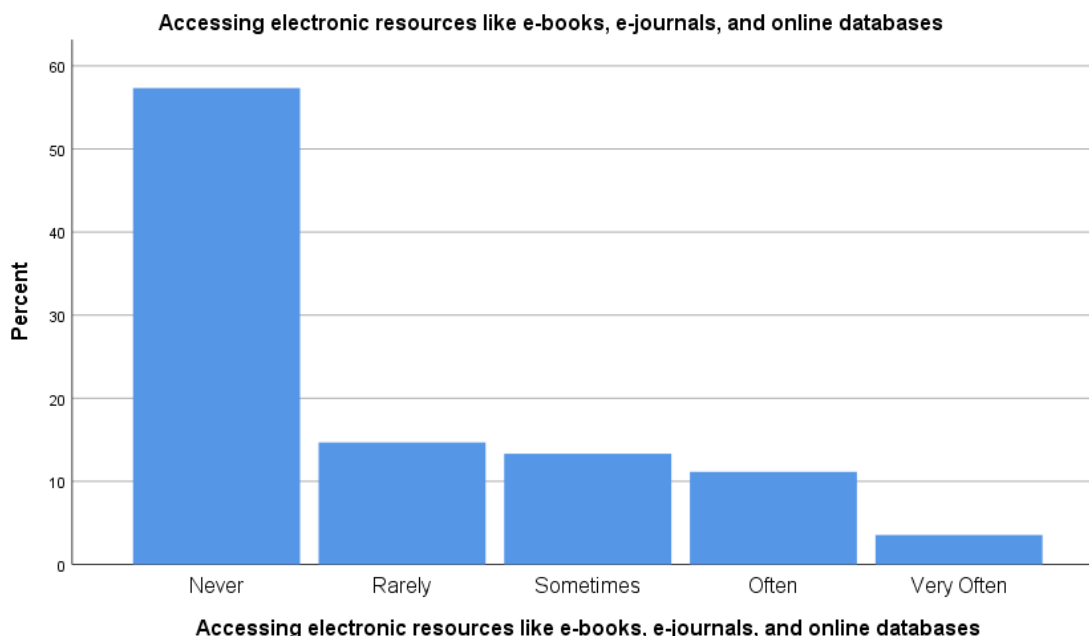


Figure 11: OPAC for Accessing Electronic Resources

Utilization of OPAC for Searching Materials from Other CBU Library Branches

In this section, respondents were asked about their frequency of using the OPAC to search for materials from other CBU library branches. The responses are summarized in the table below.

Table 4. 15: Searching Materials from Other CBU Library Branches

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Never	235	63.9	64.6	64.6
Rarely	54	14.7	14.8	79.4
Sometimes	45	12.2	12.4	91.8
Often	23	6.3	6.3	98.1
Very Often	7	1.9	1.9	100.0
Total	364	98.9	100.0	
Missing	4	1.1		
Total	368	100.0		

Under utilization, respondents were asked how frequently they use the OPAC to search for materials from other CBU library branches. The table above summarizes the responses. A significant 63.9% of participants reported that they never use the OPAC for this purpose, while 14.7% indicated they rarely use it. Another 12.2% sometimes use this feature. Only 6.3% reported

using it often, and a mere 1.9% reported using it very often. These results suggest that utilizing the OPAC to search for materials from other library branches is not commonly practiced among the respondents, indicating a potential area for improvement in promoting the inter-branch search capabilities of the OPAC.

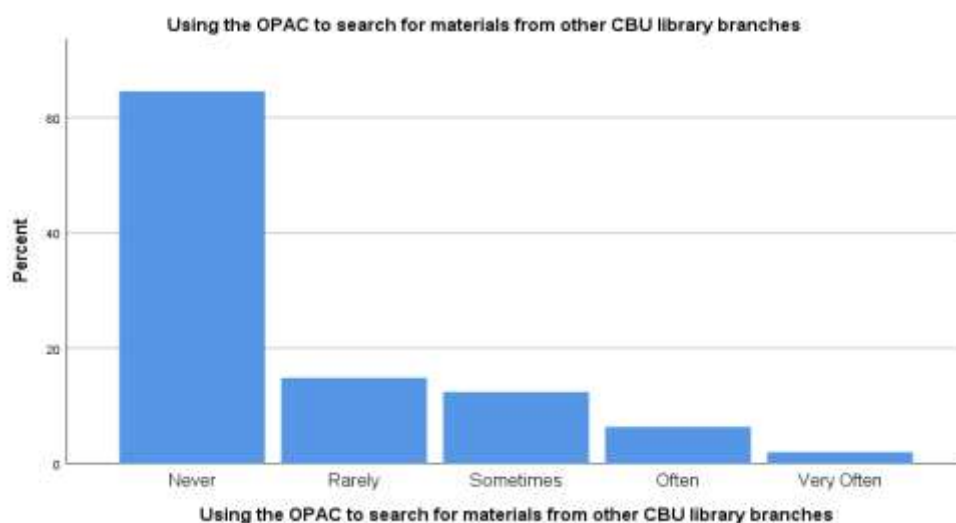


Figure 12: Searching Materials from Other CBU Library Branches

Utilization of OPAC for Exploring Related Readings Based on Search Queries

In this section, respondents were asked about their frequency of using the OPAC to explore related readings provided based on their search queries. The responses are summarized in the table below.

Table 4. 16: Exploring Related Readings Based on Search Queries

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Never	217	59.0	59.0	59.0
Rarely	41	11.1	11.1	70.1
Sometimes	78	21.2	21.2	91.3
Often	29	7.9	7.9	99.2
Very Often	3	0.8	0.8	100.0
Total	368	100.0	100.0	

The table shows that a significant majority of respondents, 59.0%, reported never using the OPAC to explore related readings based on their search queries. An additional 11.1% rarely use this feature, indicating that 70.1% of the respondents do not frequently utilize the OPAC for this purpose. In contrast, 21.2% of respondents sometimes use this feature, while a smaller proportion, 7.9%, often use it. Only 0.8% of respondents reported using this feature very often. The data suggests that the feature of exploring related readings based on search queries is underutilized by the majority of students. This could imply a lack of awareness or understanding of the feature's benefits or possibly a usability issue with the OPAC interface.

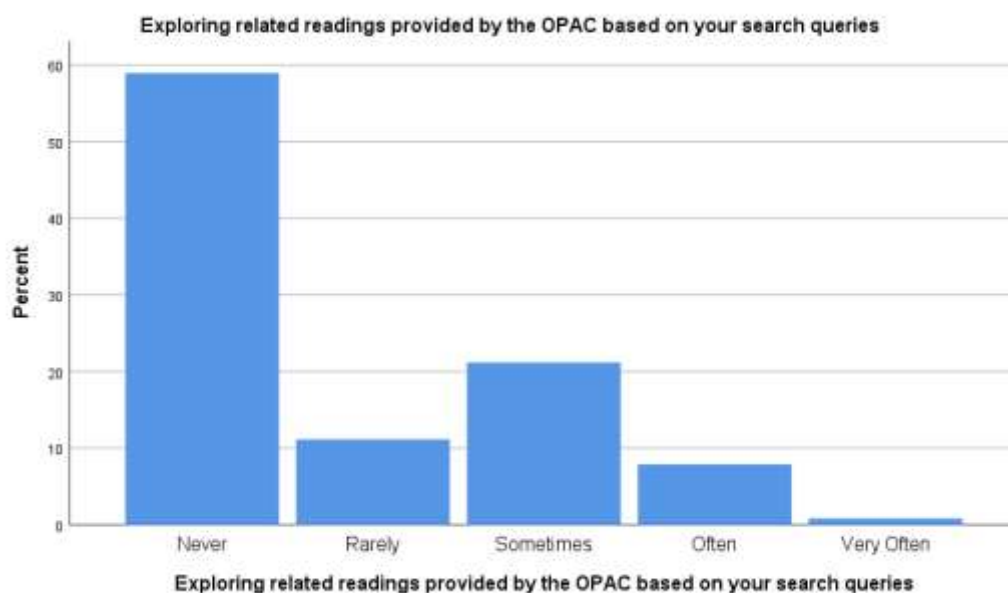


Figure 13: Exploring Related Readings Based on Search Queries

4.2.4 Satisfaction with OPAC

User-Friendliness of the OPAC Interface

In this section, respondents were asked about their satisfaction with the user-friendliness of the OPAC interface. The responses are summarized in the table below.

Table 4. 17: User-Friendliness of the OPAC Interface

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Very Dissatisfied	25	6.8	6.8	6.8
Dissatisfied	15	4.1	4.1	10.9
Neutral	240	65.2	65.2	76.1
Satisfied	80	21.7	21.7	97.8
Very Satisfied	8	2.2	2.2	100.0
Total	368	100.0	100.0	

The data shows that 65.2% of respondents reported a neutral stance on the user-friendliness of the OPAC interface, suggesting it is neither particularly problematic nor exceptional. Meanwhile, 21.7% of users were satisfied, and 2.2% were very satisfied, indicating that roughly a quarter of users find the interface satisfactory or better. Conversely, 10.9% of respondents were dissatisfied to varying degrees, highlighting usability issues for this minority. These results suggest that while the interface is generally acceptable, there is room for improvement. Addressing the concerns of dissatisfied users and conducting usability tests could enhance user satisfaction and the overall effectiveness of the OPAC system.

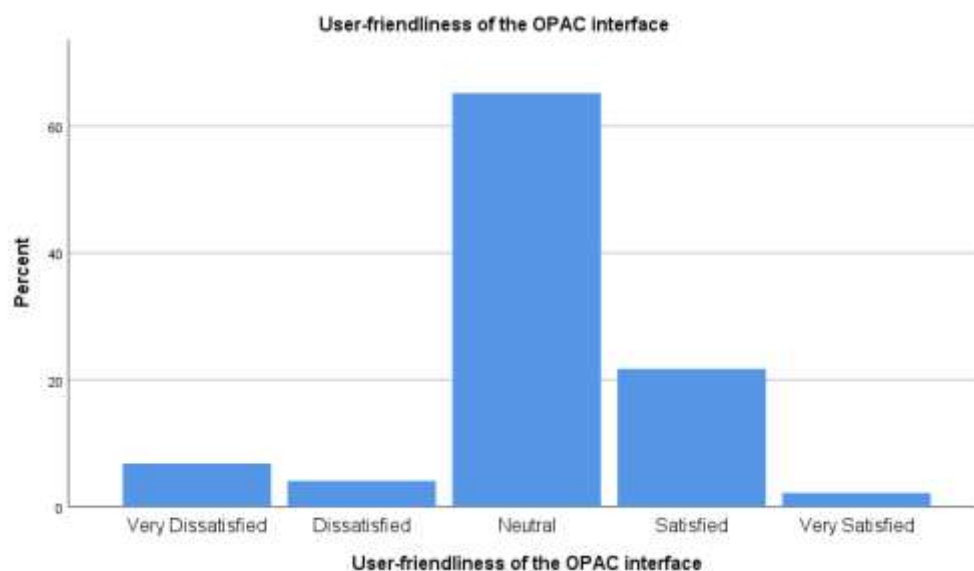


Figure 14: User-Friendliness of the OPAC Interface

Relevance of Search Results

For the question regarding the relevance of search results in the OPAC, the responses are summarized in the table below:

Table 4. 18: Relevance of Search Results

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Very Dissatisfied	24	6.5	6.5	6.5
Dissatisfied	16	4.3	4.3	10.9
Neutral	219	59.5	59.5	70.4
Satisfied	102	27.7	27.7	98.1
Very Satisfied	7	1.9	1.9	100.0
Total	368	100.0	100.0	

The data reveals that 59.5% of respondents had a neutral opinion on the relevance of search results, indicating that the results neither significantly impressed nor dissatisfied them. Additionally, 27.7% of users reported satisfaction with the relevance, and 1.9% were very satisfied, showing that a portion of users find the search results to be effective. Conversely, 6.5% of respondents were very dissatisfied, and 4.3% were dissatisfied, pointing to a notable minority who struggle with the relevance of the search results. These findings suggest that while many users are either neutral or satisfied, improvements are needed to enhance the search results' relevance and address the concerns of dissatisfied users. Enhancing search algorithms and integrating user feedback could help improve overall satisfaction with the OPAC's search results.

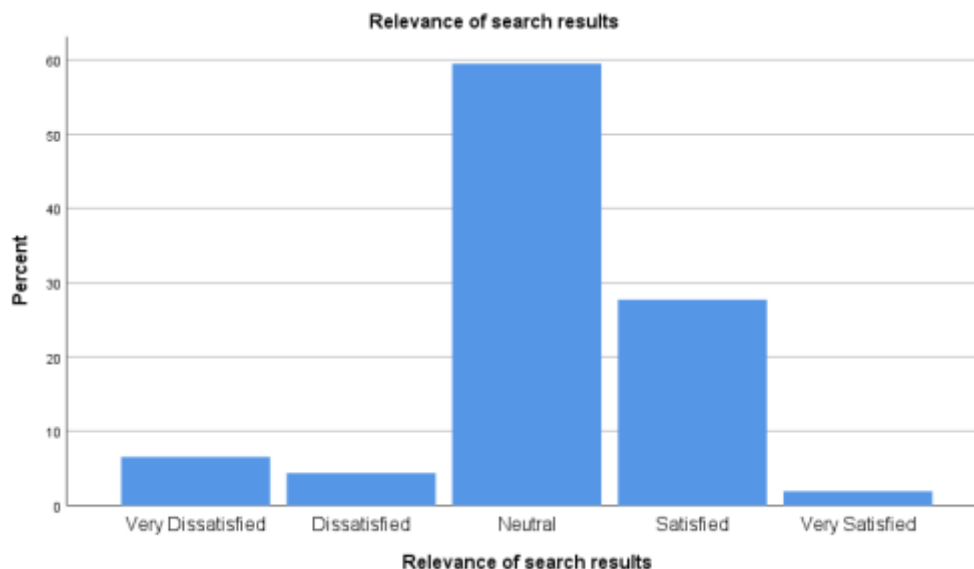


Figure 15: Relevance of Search Results

Speed of Search and Response

The responses to the question on the speed of search and response within the OPAC are summarized in the table below:

Table 4. 19: Speed of Search and Response

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Very Dissatisfied	28	7.6	7.6	7.6
Dissatisfied	34	9.2	9.2	16.8
Neutral	217	59.0	59.0	75.8
Satisfied	72	19.6	19.6	95.4
Very Satisfied	17	4.6	4.6	100.0
Total	368	100.0	100.0	

The data indicates that a majority of respondents (59.0%) reported a neutral stance on the speed of search and response, suggesting that the system's performance neither stood out as particularly fast

nor slow. Meanwhile, 19.6% of users were satisfied with the speed, and 4.6% were very satisfied, reflecting a smaller proportion of users who find the search and response speed to be commendable. On the other hand, 7.6% of respondents were very dissatisfied, and 9.2% were dissatisfied, indicating that there is a notable segment of users who experience delays or inefficiencies. These findings suggest that while a significant portion of users are neutral or satisfied, there is room for improvement in the speed of search and response to address the concerns of those who are dissatisfied. Enhancing system performance and optimizing search algorithms could help in improving user satisfaction in this area.

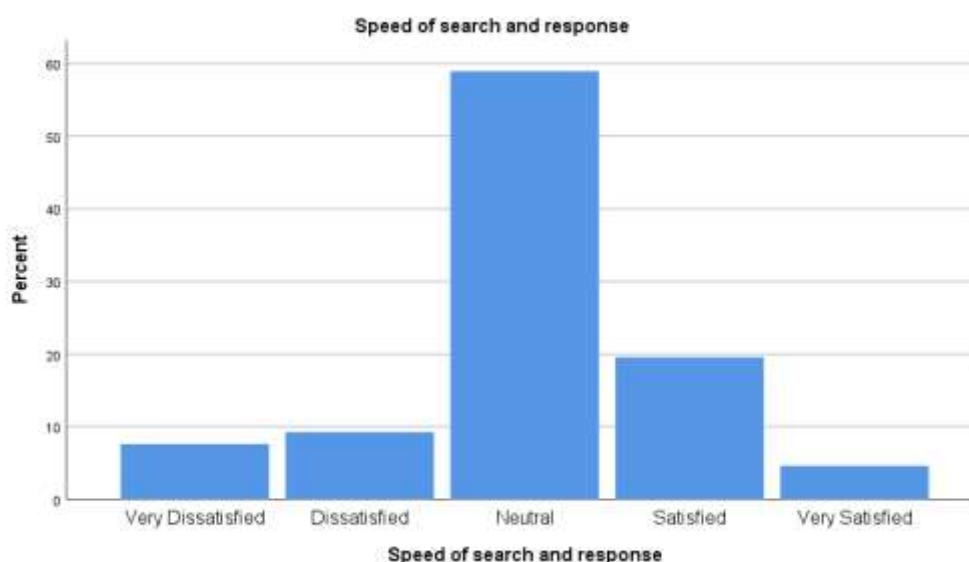


Figure 16: Speed of Search and Response

Availability of Online Help and Support

The responses to the question about the availability of online help and support within the OPAC are summarized in the table below:

Table 4. 20: Availability of Online Help and Support

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Very Dissatisfied	37	10.1	10.1	10.1
Dissatisfied	28	7.6	7.6	17.7
Neutral	221	60.1	60.1	77.7
Satisfied	72	19.6	19.6	97.3
Very Satisfied	10	2.7	2.7	100.0
Total	368	100.0	100.0	

The data reveals that a substantial majority of respondents (60.1%) have a neutral view on the availability of online help and support, suggesting that while there is support available, it does not significantly impact their experience. A notable portion, 19.6%, expressed satisfaction with the support provided, and 2.7% were very satisfied, indicating that these users find the online help and support useful. However, 10.1% of respondents were very dissatisfied, and 7.6% were dissatisfied, pointing to a segment of users who feel that the support is lacking or inadequate. These insights suggest that while a majority of users are neutral or satisfied, there is a need to improve the quality and accessibility of online help and support to address the concerns of dissatisfied users and enhance overall user experience.

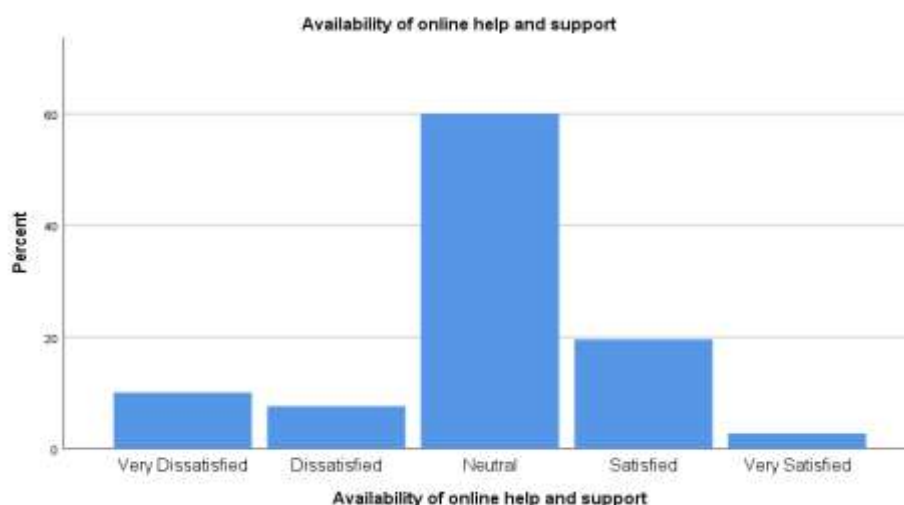


Figure 17: Availability of Online Help and Support

Overall Satisfaction with the CBU Library OPAC

The table below presents the distribution of responses regarding overall satisfaction with the CBU Library OPAC:

Table 4. 21: Overall Satisfaction with the CBU Library OPAC

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Very Dissatisfied	15	4.1	4.1	4.1
Dissatisfied	44	12.0	12.1	16.2
Neutral	190	51.6	52.1	68.2

Satisfied	94	25.5	25.8	94.0
Very Satisfied	22	6.0	6.0	100.0
Total	365	99.2	100.0	
Missing	3	0.8		
Grand Total	368	100.0		

The data indicates that over half of the respondents (51.6%) reported a neutral stance regarding their overall satisfaction with the OPAC, suggesting that their experience with the system is neither particularly positive nor negative. A significant portion of participants (25.5%) expressed satisfaction, and 6.0% were very satisfied, reflecting a positive overall perception among these users. Conversely, 4.1% of respondents were very dissatisfied, and 12.0% were dissatisfied, highlighting a segment of users with a negative view of the OPAC. This distribution of responses suggests that while there is a notable degree of satisfaction, there is also a clear need to address the issues faced by dissatisfied users to enhance the overall effectiveness and user experience of the OPAC system.

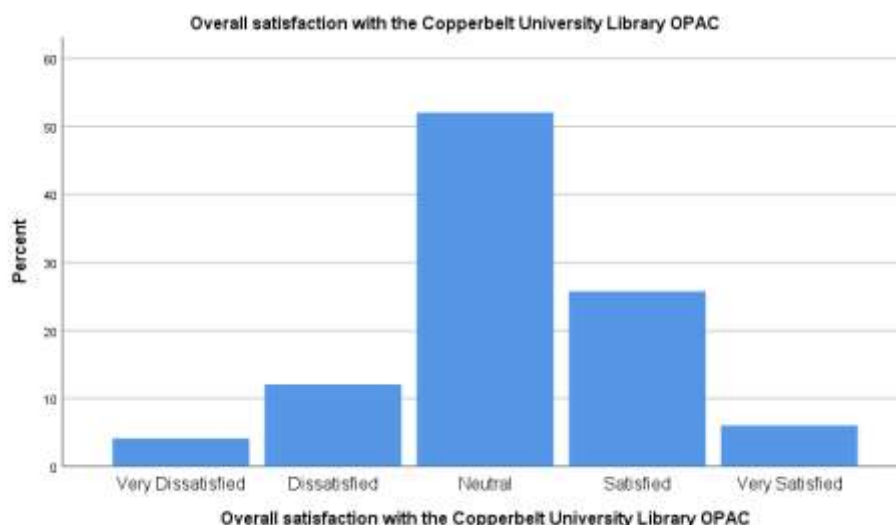


Figure 18: Overall Satisfaction with the CBU OPAC

4.3 Inferential Statistics

4.3.1 Correlation Analysis

UTAUT Constructs and Awareness

The correlation analysis was conducted to examine the relationships between the UTAUT constructs (Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions) and Awareness among users of the OPAC system. The results are presented in the correlation matrix below:

Table 4. 22: Correlation Table- UTAUT Constructs and Awareness

	Performance Expectancy	Effort Expectancy	Social Influence	Facilitating Conditions	Awareness
Performance Expectancy	1.000	.615**	.624**	.507**	.531**
Effort Expectancy	.615**	1.000	.563**	.620**	.463**
Social Influence	.624**	.563**	1.000	.595**	.422**
Facilitating Conditions	.507**	.620**	.595**	1.000	.619**
Awareness	.531**	.463**	.422**	.619**	1.000

Correlation is significant at the 0.01 level (2-tailed).

Key Findings

- **Performance Expectancy:** The correlation between Performance Expectancy and Awareness is significant and positive ($r = .531$, $p < 0.01$). This suggests that users who perceive the OPAC system as beneficial in improving their performance are also more likely to be aware of its features and functionalities.
- **Effort Expectancy:** There is a significant positive correlation between Effort Expectancy and Awareness ($r = .463$, $p < 0.01$). This indicates that as users find the OPAC system easier to use, their awareness of its features tends to increase.
- **Social Influence:** The correlation between Social Influence and Awareness is positive and significant ($r = .422$, $p < 0.01$). This implies that social factors, such as the opinions and

usage behaviors of peers or influencers, are associated with increased awareness of the OPAC system.

- **Facilitating Conditions:** Facilitating Conditions have the highest correlation with Awareness ($r = .619$, $p < 0.01$) among the UTAUT constructs. This strong positive correlation suggests that the presence of adequate resources, support, and infrastructure significantly enhances users' awareness of the OPAC system.

Implications

The results indicate that each of the UTAUT constructs has a significant and positive relationship with user awareness of the OPAC system. Facilitating Conditions, in particular, play a crucial role in enhancing awareness, indicating that providing users with adequate support and resources can substantially improve their understanding and utilization of the system. Effort Expectancy and Performance Expectancy are also important, as easier and more beneficial usage of the system correlates with higher awareness. Social Influence, while still significant, has the lowest correlation with Awareness, suggesting that social factors, while important, may not be as critical in driving awareness as the other constructs.

UTAUT Constructs and Utilization

This section presents the correlation analysis conducted to examine the relationships between the UTAUT constructs (Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions) and the Utilization of the OPAC system among users. The correlation matrix is displayed below:

Table 4. 23: Correlation Table-UTAUT Constructs and Utilization

	Performance Expectancy	Effort Expectancy	Social Influence	Facilitating Conditions	Utilization
Performance Expectancy	1.000	.615**	.624**	.507**	.378**
Effort Expectancy	.615**	1.000	.563**	.620**	.416**

Social Influence	.624**	.563**	1.000	.595**	.431**
Facilitating Conditions	.507**	.620**	.595**	1.000	.473**
Utilization	.378**	.416**	.431**	.473**	1.000

Correlation is significant at the 0.01 level (2-tailed).

Key Findings

- **Performance Expectancy:** The correlation between Performance Expectancy and Utilization is positive and significant ($r = .378$, $p < 0.01$). This indicates that users who believe the OPAC system can enhance their performance are more likely to utilize the system.
- **Effort Expectancy:** Effort Expectancy shows a significant positive correlation with Utilization ($r = .416$, $p < 0.01$). This suggests that users who perceive the OPAC system as easy to use tend to use it more frequently.
- **Social Influence:** The correlation between Social Influence and Utilization is also positive and significant ($r = .431$, $p < 0.01$). This means that social factors, such as the influence of peers or superiors, contribute to the increased use of the OPAC system.
- **Facilitating Conditions:** Facilitating Conditions have the strongest correlation with Utilization ($r = .473$, $p < 0.01$) among the UTAUT constructs. This implies that the availability of resources and support significantly influences the frequency and manner in which users engage with the OPAC system.

Implications

The results reveal that all four UTAUT constructs—Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions—have significant positive correlations with the Utilization of the OPAC system. Facilitating Conditions, in particular, play a critical role in driving utilization, suggesting that users are more likely to use the system if they have access to the necessary resources and support.

Effort Expectancy and Social Influence also contribute significantly to utilization, indicating that users who find the system easy to use and those who are influenced by their social environment are more likely to engage with the OPAC system. Performance Expectancy, while still important, shows the lowest correlation with utilization, suggesting that while the perceived benefits of the system are important, they may be less critical than ease of use and social factors in determining actual use.

These findings suggest that efforts to increase OPAC system utilization should focus on improving facilitating conditions, ensuring ease of use, and leveraging social influence to encourage adoption.

UTAUT Constructs and Satisfaction

This section presents the correlation analysis between the UTAUT constructs (Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions) and user Satisfaction with the OPAC system. The correlation matrix is provided below:

Table 4. 24: Correlation Table-UTAUT Constructs and Satisfaction

	Performance Expectancy	Effort Expectancy	Social Influence	Facilitating Conditions	Satisfaction
Performance Expectancy	1.000	.615**	.624**	.507**	.668**
Effort Expectancy	.615**	1.000	.563**	.620**	.581**
Social Influence	.624**	.563**	1.000	.595**	.455**
Facilitating Conditions	.507**	.620**	.595**	1.000	.556**
Satisfaction	.668**	.581**	.455**	.556**	1.000

Correlation is significant at the 0.01 level (2-tailed).

Key Findings

- **Performance Expectancy:** The correlation between Performance Expectancy and Satisfaction is the strongest among the constructs, with a positive and significant correlation ($r = .668$, $p < 0.01$). This indicates that users who believe the OPAC system enhances their performance are highly likely to be satisfied with the system.

- **Effort Expectancy:** Effort Expectancy also shows a significant positive correlation with Satisfaction ($r = .581, p < 0.01$). This suggests that ease of use is an important factor in determining how satisfied users are with the OPAC system.
- **Social Influence:** The correlation between Social Influence and Satisfaction is positive and significant ($r = .455, p < 0.01$), though weaker than the other constructs. This implies that while social factors influence satisfaction, they are less critical compared to performance and effort expectations.
- **Facilitating Conditions:** Facilitating Conditions also have a significant positive correlation with Satisfaction ($r = .556, p < 0.01$). This suggests that the availability of adequate resources and support significantly impacts user satisfaction.

Implications

The correlation analysis reveals that all four UTAUT constructs have significant positive correlations with user Satisfaction with the OPAC system. Performance Expectancy has the highest correlation with Satisfaction, suggesting that the perceived usefulness of the system is a major determinant of how satisfied users are. This emphasizes the importance of ensuring that the OPAC system effectively meets user needs and enhances their performance.

Effort Expectancy also plays a crucial role in user satisfaction, indicating that making the system easier to use could lead to higher satisfaction levels. Facilitating Conditions are similarly important, as the presence of necessary resources and support significantly influences user satisfaction.

While Social Influence has a positive correlation with Satisfaction, it is comparatively lower than the other constructs, suggesting that while social factors do affect satisfaction, they are not as influential as the system's performance and ease of use.

These findings suggest that to improve user satisfaction with the OPAC system, focus should be placed on enhancing the system's performance capabilities, making it more user-friendly, and ensuring that users have access to adequate support and resources.

4.3.2 Regression Analysis

UTAUT constructs and awareness

This section presents the results of the regression analysis conducted to examine the relationship between the UTAUT constructs (Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions) and Awareness of the OPAC system. The analysis assesses the extent to which these variables predict users' awareness of the system.

Model Summary

The model summary is presented below:

Table 4. 25: Regression Model-UTAUT constructs and awareness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.671	.450	.444	.685

- **R:** The R value of 0.671 indicates a strong positive correlation between the predictor variables (UTAUT constructs) and the dependent variable (Awareness).
- **R Square:** The R Square value of 0.450 indicates that approximately 45.0% of the variance in Awareness is explained by the model. This means that the UTAUT constructs collectively explain a significant portion of the variation in Awareness.
- **Adjusted R Square:** The Adjusted R Square value of 0.444 provides a more accurate estimate, adjusting for the number of predictors in the model, and confirms that the model is robust.
- **Standard Error of the Estimate:** The Standard Error of 0.685 indicates the average distance that the observed values fall from the regression line.

Coefficients

The table below presents the coefficients for each of the UTAUT constructs in the regression model:

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Std. Error	Beta	
(Constant)	.659	.169		3.901
Performance	.343	.057	.329	6.031
Effort Expectancy	-.009	.069	-.007	-.132
Social Influence	-.095	.068	-.078	-1.412
Facilitating Conditions	.540	.058	.503	9.367

- **Constant:** The constant (intercept) value of 0.659 is the predicted value of Awareness when all UTAUT constructs are held at zero. The significance level ($p < 0.001$) suggests that this constant is statistically significant.
- **Performance Expectancy:** Performance Expectancy has a positive and significant impact on Awareness ($B = 0.343$, $p < 0.001$). The standardized coefficient (Beta = 0.329) indicates that for each one-unit increase in Performance Expectancy, Awareness increases by 0.329 units, holding all other factors constant.
- **Effort Expectancy:** Effort Expectancy has a negative but non-significant relationship with Awareness ($B = -0.009$, $p = 0.895$). This suggests that Effort Expectancy does not have a substantial impact on users' Awareness of the OPAC system.
- **Social Influence:** Social Influence also shows a negative but non-significant impact on Awareness ($B = -0.095$, $p = 0.159$). This implies that the influence of peers and others is not a major factor in determining Awareness of the system.
- **Facilitating Conditions:** Facilitating Conditions has the strongest positive and significant influence on Awareness ($B = 0.540$, $p < 0.001$). The Beta coefficient of 0.503 indicates that Facilitating Conditions are the most influential predictor in the model, meaning that the availability of resources and support greatly enhances Awareness of the OPAC system.

Implications

The regression analysis reveals that among the UTAUT constructs, Performance Expectancy and Facilitating Conditions are the most significant predictors of Awareness, with Facilitating Conditions having the strongest impact. This suggests that efforts to improve awareness of the OPAC system should focus on enhancing the system's performance and ensuring that users have access to the necessary resources and support.

In contrast, Effort Expectancy and Social Influence do not significantly contribute to Awareness, indicating that ease of use and social factors may be less critical in influencing how aware users are of the OPAC system. This insight can guide strategies for increasing user engagement and promoting system utilization.

UTAUT constructs and Utilization

This section presents the regression analysis results assessing the relationship between UTAUT constructs (Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions) and the Utilization of the OPAC system at CBU.

Model Summary

The model summary is provided in the table below:

Table 4. 26: Regression Model-UTAUT constructs and Utilization

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.521	.272	.263	.762

- **R:** The R value of 0.521 indicates a moderate positive correlation between the predictor variables (UTAUT constructs) and the dependent variable (Utilization).
- **R Square:** The R Square value of 0.272 suggests that 27.2% of the variance in Utilization is explained by the UTAUT constructs. While the constructs account for a significant portion of the variance, a considerable percentage is also influenced by other factors not included in the model.
- **Adjusted R Square:** The Adjusted R Square value of 0.263, which slightly adjusts for the number of predictors, supports the robustness of the model in predicting Utilization.

- **Standard Error of the Estimate:** The standard error of 0.762 reflects the average distance that the observed values of Utilization deviate from the predicted values.

Regression Coefficients

The table below presents the coefficients for each of the UTAUT constructs in the regression model:

Table 4. 27: Regression Coefficients

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Std. Error	Beta	
(Constant)	-.120	.188		.640
Performance	.069	.063	.069	1.097
Effort Expectancy	.137	.077	.114	1.774
Social Influence	.194	.075	.164	2.579
Facilitating Conditions	.280	.064	.270	4.369

- **Constant:** The constant (intercept) value of -0.120 is not statistically significant ($p = 0.523$), indicating that it does not contribute meaningfully to the model when all other predictors are held at zero.
- **Performance Expectancy:** Performance Expectancy has a positive but non-significant relationship with Utilization ($B = 0.069$, $p = 0.274$). This suggests that, although there is a positive effect of Performance Expectancy on Utilization, it is not strong enough to be statistically significant in this model.
- **Effort Expectancy:** Effort Expectancy shows a positive impact on Utilization ($B = 0.137$, $p = 0.077$), but this effect is marginally non-significant. This suggests that users' perceptions of the ease of using the OPAC system may influence its utilization, but the evidence is not strong enough to confirm this conclusively.
- **Social Influence:** Social Influence has a statistically significant positive impact on Utilization ($B = 0.194$, $p = 0.010$). The standardized coefficient (Beta = 0.164) indicates

that users who perceive social pressure or encouragement to use the OPAC system are more likely to actually utilize it.

- **Facilitating Conditions:** Facilitating Conditions also show a significant positive influence on Utilization ($B = 0.280$, $p < 0.001$). The Beta value of 0.270 suggests that the availability of resources and support is a key determinant of whether users will utilize the OPAC system.

Implications

The regression analysis indicates that Social Influence and Facilitating Conditions are significant predictors of the utilization of the OPAC system, with Facilitating Conditions having the strongest effect. This implies that for users to engage more with the system, there needs to be a supportive environment with adequate resources, and users need to feel a sense of social encouragement to use the system.

Performance Expectancy and Effort Expectancy, though positively correlated with Utilization, do not show statistically significant impacts within this model. This suggests that while these factors may play a role in user engagement, other factors, potentially including the quality of the system itself and external influences, might be more critical in driving actual utilization.

These findings can help in formulating strategies to enhance user engagement with the OPAC system by focusing on improving the social environment around its use and ensuring that necessary facilitating conditions are met.

UTAUT constructs and Satisfaction

This section presents the results of the regression analysis conducted to evaluate the relationship between the UTAUT constructs (Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions) and user satisfaction with the OPAC system at CBU.

Model Summary

The model summary for the regression analysis is provided in the table below:

Table 4. 28: Regression Model-UTAUT constructs and Satisfaction

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.727	.528	.523	.450

- **R:** The R value of 0.727 indicates a strong positive correlation between the UTAUT constructs (independent variables) and Satisfaction (dependent variable).
- **R Square:** The R Square value of 0.528 suggests that approximately 52.8% of the variance in user satisfaction with the OPAC system can be explained by the UTAUT constructs. This indicates that the model has a good explanatory power for predicting satisfaction.
- **Adjusted R Square:** The Adjusted R Square value of 0.523 slightly adjusts for the number of predictors, affirming the model's robustness in predicting satisfaction.
- **Standard Error of the Estimate:** The standard error of 0.450 indicates the average distance that the observed values of Satisfaction deviate from the predicted values, suggesting a reasonably good fit of the model.

Regression Coefficients- UTAUT constructs and Satisfaction

The table below displays the coefficients for each UTAUT construct in the regression model:

Table 4. 29: Regression Coefficients- UTAUT constructs and Satisfaction

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Std. Error	Beta	
(Constant)	1.105	.111		9.959
Performance	.365	.037	.494	9.763
Effort Expectancy	.156	.046	.177	3.418
Social Influence	-.092	.044	-.107	-2.086
Facilitating Conditions	.197	.038	.259	5.210

- **Constant:** The constant (intercept) value of 1.105 is statistically significant ($p < 0.001$), indicating that when all other predictors are zero, the baseline level of user satisfaction is positive.

- **Performance Expectancy:** Performance Expectancy has a significant positive effect on Satisfaction ($B = 0.365$, $p < 0.001$). The standardized coefficient ($Beta = 0.494$) suggests that higher expectations of performance significantly enhance user satisfaction with the OPAC system. This indicates that users who believe the system meets their performance needs are more likely to be satisfied with it.
- **Effort Expectancy:** Effort Expectancy also has a significant positive impact on Satisfaction ($B = 0.156$, $p = 0.001$). The Beta value of 0.177 indicates that users who find the system easy to use tend to be more satisfied, though its impact is smaller compared to Performance Expectancy.
- **Social Influence:** Social Influence exhibits a negative but statistically significant effect on Satisfaction ($B = -0.092$, $p = 0.038$). The negative Beta value (-0.107) suggests that, counterintuitively, as users perceive more social pressure or encouragement to use the OPAC system, their satisfaction slightly decreases. This may imply that external social pressures might create unrealistic expectations or stress, leading to lower satisfaction.
- **Facilitating Conditions:** Facilitating Conditions positively influence Satisfaction ($B = 0.197$, $p < 0.001$), with a Beta value of 0.259. This suggests that the presence of adequate resources and support significantly boosts user satisfaction with the OPAC system.

Implications

The regression analysis indicates that Performance Expectancy, Effort Expectancy, and Facilitating Conditions are significant positive predictors of user satisfaction with the OPAC system. Among these, Performance Expectancy has the most substantial impact, underscoring the importance of the system's capability to meet user needs effectively.

The negative relationship between Social Influence and Satisfaction is an interesting finding, suggesting that while social encouragement may drive system utilization, it may also lead to lower satisfaction if it creates additional pressure or unmet expectations.

These results highlight the importance of ensuring the OPAC system is not only functional and easy to use but also supported by an environment that provides the necessary resources and reduces

undue social pressure on users. This can help in crafting strategies to improve overall user satisfaction with the OPAC system at CBU.

4.4 ANOVA Results for Awareness, Utilization, and Satisfaction based on Gender

To examine whether there are significant differences in awareness, utilization, and satisfaction levels based on gender, a one-way Analysis of Variance (ANOVA) was conducted using gender as the factor. The results are presented below.

4.4.1 Awareness and Gender

The ANOVA results for awareness show that there is no statistically significant difference in awareness levels between genders, as indicated by the following statistics:

- $F(1, 366) = 1.589, p = 0.208$.
- The between-groups sum of squares is 1.340, and the within-groups sum of squares is 308.527.

Given that the p-value is greater than the typical significance level of 0.05, we fail to reject the null hypothesis. This suggests that there is no significant difference in awareness levels between males and females in this sample.

4.4.2 Utilization and Gender

Similarly, the ANOVA results for utilization also show no statistically significant difference between genders:

- $F(1, 366) = 0.691, p = 0.406$.
- The between-groups sum of squares is 0.545, and the within-groups sum of squares is 288.477.

Again, with a p-value greater than 0.05, we conclude that gender does not have a significant impact on the utilization levels of the system among participants.

4.4.3 Satisfaction and Gender

Finally, the ANOVA conducted on satisfaction levels reveals no significant difference between males and females:

- $F(1, 366) = 1.095, p = 0.296$.
- The between-groups sum of squares is 0.464, and the within-groups sum of squares is 155.032.

The p-value is once again greater than 0.05, indicating that satisfaction levels do not differ significantly between genders.

The results of the one-way ANOVA suggest that there are no statistically significant differences in awareness, utilization, or satisfaction levels based on gender among the participants. Therefore, it can be inferred that gender does not play a significant role in influencing these constructs in the context of this study.

4.5 ANOVA Results for Awareness, Utilization, and Satisfaction Across Age Groups

To assess whether there are significant differences in awareness, utilization, and satisfaction levels across different age groups, a one-way Analysis of Variance (ANOVA) was conducted. The results are summarized below:

4.5.1 Awareness and Age Group

The ANOVA results for awareness indicate significant differences between age groups:

- $F(2, 365) = 13.072, p = 0.000$.
- The between-groups sum of squares is 20.712, and the within-groups sum of squares is 289.156.

The p-value is less than the significance level of 0.05, indicating that there are significant differences in awareness levels across the different age groups. This suggests that age has a notable effect on awareness levels, and further post-hoc analysis may be required to identify which specific groups differ from each other.

4.5.2 Utilization and Age Group

The ANOVA results for utilization also reveal significant differences among age groups:

- $F(2, 365) = 14.122, p = 0.000$.
- The between-groups sum of squares is 20.758, and the within-groups sum of squares is 268.264.

With a p-value below 0.05, we reject the null hypothesis, concluding that age significantly influences utilization levels. Further analysis could help determine which age groups have different utilization levels.

4.5.3 Satisfaction and Age Group

The ANOVA results for satisfaction show significant differences between age groups:

- $F(2, 365) = 3.522, p = 0.031$.
- The between-groups sum of squares is 2.944, and the within-groups sum of squares is 152.552.

Since the p-value is below 0.05, there are significant differences in satisfaction levels across age groups. This indicates that age does affect satisfaction levels, and post-hoc tests could provide insight into which specific age groups differ significantly. The ANOVA results demonstrate significant differences in awareness, utilization, and satisfaction levels across different age groups. This suggests that age is an important factor influencing these constructs. To understand the specific nature of these differences, further post-hoc analyses are recommended to pinpoint which age groups significantly differ from one another.

4.6 ANOVA Results for Awareness, Utilization, and Satisfaction Across Programmes

To examine whether there are significant differences in awareness, utilization, and satisfaction levels across different programmes of study, a one-way Analysis of Variance (ANOVA) was performed. The results are detailed below:

6.1.1 Awareness and Programme of Study

The ANOVA results for awareness indicate significant differences among programmes of study:

- $F(7, 337) = 2.232, p = 0.031$.
- The between-groups sum of squares is 12.323, while the within-groups sum of squares is 265.825.

The p-value of 0.031, which is less than the significance level of 0.05, suggests that there are significant differences in awareness levels across different programmes of study. This implies that the programme of study can influence the level of awareness, and further post-hoc analysis is warranted to identify which specific programmes differ from one another.

Utilization and Programme of Study

The ANOVA results for utilization show significant differences between programmes of study:

- $F(7, 337) = 7.044, p = 0.000$.
- The between-groups sum of squares is 33.441, and the within-groups sum of squares is 228.560.

With a p-value of 0.000, which is well below the 0.05 threshold, we reject the null hypothesis, indicating that there are significant differences in utilization levels across programmes of study. This suggests that the programme of study has a substantial effect on utilization levels, and post-hoc tests will help to specify which programmes have distinct differences.

6.1.2 Satisfaction and Programme of Study

The ANOVA results for satisfaction reveal significant differences among programmes of study:

- $F(7, 337) = 5.938, p = 0.000$.
- The between-groups sum of squares is 16.389, with a within-groups sum of squares of 132.881.

The p-value of 0.000 is below the significance level of 0.05, indicating significant differences in satisfaction levels across different programmes of study. This finding highlights that programme

of study is an important factor in determining satisfaction levels. Further investigation through post-hoc analysis could provide more detailed insights into which specific programmes differ in terms of satisfaction.

4.7 ANOVA Results for Awareness, Utilization, and Satisfaction Across Year of Study

To assess whether there are significant differences in awareness, utilization, and satisfaction levels based on the year of study, a one-way Analysis of Variance (ANOVA) was conducted. The results are outlined below:

4.7.1 Awareness and Year of Study

The ANOVA results for awareness by year of study indicate significant differences:

- $F(4, 363) = 2.697, p = 0.031$.
- The between-groups sum of squares is 8.943, and the within-groups sum of squares is 300.925.

With a p-value of 0.031, which is below the conventional alpha level of 0.05, there are statistically significant differences in awareness levels among students in different years of study. This suggests that the year of study influences awareness levels. Further post-hoc analysis would be necessary to identify which specific years differ from one another.

4.7.2 Utilization and Year of Study

The ANOVA results for utilization across different years of study also reveal significant differences:

- $F(4, 363) = 3.103, p = 0.016$.
- The between-groups sum of squares is 9.557, with the within-groups sum of squares being 279.465.

The p-value of 0.016 is less than 0.05, indicating that utilization levels vary significantly between different years of study. This finding highlights that the year of study can impact utilization levels. To understand specific differences between years, post-hoc analyses should be conducted.

4.7.3 Satisfaction and Year of Study

The ANOVA results for satisfaction based on year of study show significant differences:

- $F(4, 363) = 3.686, p = 0.006$.
- The between-groups sum of squares is 6.069, and the within-groups sum of squares is 149.426.

A p-value of 0.006, which is below the 0.05 threshold, indicates significant differences in satisfaction levels across different years of study. This suggests that students' satisfaction levels vary depending on their year of study. Further post-hoc analysis is recommended to pinpoint the exact differences among the years.

4.8 Chapter Summary

Chapter 4 has provided a detailed analysis of the data collected on the CBU Library OPAC. The findings reveal generally neutral to positive user experiences, with notable areas for improvement in speed and support services. Correlation analysis shows significant relationships between UTAUT constructs (performance expectancy, effort expectancy, social influence, facilitating conditions) and user outcomes like awareness, utilization, and satisfaction. Regression analysis further identifies performance expectancy and facilitating conditions as key predictors of awareness, utilization, and satisfaction. ANOVA results highlight significant differences in user experiences based on age, program of study, and year of study, but not gender. This chapter provides valuable insights into user perceptions and suggests areas for enhancing the OPAC system.

CHAPTER 5: DISCUSSION OF RESULTS

5.1 Overview

This chapter presents a discussion of the study's findings on the CBU OPAC. It examines levels of awareness, utilization, and satisfaction, as well as the factors influencing system use among undergraduate students. In doing so, the discussion not only relates these findings to existing literature but also explores emerging issues. The results are contextualized in the light of issues such as information literacy (IL) and digital literacy. By doing this, implications for enhancing user engagement and system effectiveness are highlighted.

5.2 Awareness of the OPAC

Descriptive data indicates that while a large proportion of students are aware of the OPAC's existence (51.7%), this basic awareness does not extend to deep knowledge of the systems advanced features. Specifically, 59.0% of respondents stated that they have never explored the "related readings" feature, and over half (51.9%) are uncertain about how to access the system, with 19.6% strongly disagreeing and 32.3% disagreeing that they know how to navigate it. These findings echo those of Aju and Foti (2020) and Ahmed, Zin, and Majid (2016), who stress that awareness involves not just recognition but an understanding of a technology's functionality. Bruce (2008) further argues that without a solid grasp of information system organization, users are unlikely to make full use of digital tools.

Correlation analysis reinforces these observations, revealing a strong positive relationship between facilitating conditions and awareness ($r = 0.619$, $p < 0.01$). This suggests that when adequate support and resources are in place, students are more likely to understand and engage with OPAC features. Regression analysis supports this view, with facilitating conditions ($B = 0.540$, $p < 0.001$) and performance expectancy ($B = 0.343$, $p < 0.001$) emerging as significant predictors of awareness. In contrast, effort expectancy ($B = -0.009$, $p = 0.895$) and social influence ($B = -0.095$, $p = 0.159$) were not significant predictors. This indicates that while ease of use and peer recommendations may initially attract students to the OPAC, they are insufficient to drive deeper engagement.

Furthermore, ANOVA results reveal significant differences in awareness across demographic factors, such as age and academic level ($F(4, 363) = 2.697, p = 0.031$). This suggests that demographic characteristics play a critical role in influencing students' familiarity with and use of advanced OPAC features. This fact is often highlighted in literature (Booth, 2009; Waldman, 2003). In the context of this particular study, younger students and those from more technologically intensive programs tend to exhibit higher digital literacy. This makes the more likely to engage more deeply with the OPAC.

These findings align with studies by Herring (2011), Ramamurthy and Siridevi (2015), and Julien et al. (2018), which underscore that robust information literacy (IL) is essential for transforming basic awareness into effective utilization. The gap between recognition and in-depth use of OPAC functionalities strongly indicates that targeted IL programs, coupled with improved facilitating conditions, are necessary. By enhancing IL and digital literacy through customized training and user support initiatives libraries can bridge the gap between awareness and effective use, just as recommended by Gana et al. (2019) and Miller (2018). Ultimately, this enables students to leverage the full potential of the OPAC for academic success.

5.3 Utilization of the OPAC

Utilisation of the OPAC remains suboptimal with 40.5% indicating that they never use it and only 12% use it often or very often. There is also notable variability in the frequency of use across different functionalities. For instance, when searching for books and other resources, 40.5% of students reported never using the OPAC, 19.8% used it rarely, 27.7% sometimes, 9.8% often, and only 2.2% very often. Similar patterns emerged for checking the availability of items where 40.5% indicated never using this feature. For advanced search functionalities, a striking 62.8% reported never engaging with these options. Even more concerning, functionalities such as renewing or reserving items, accessing citation information, and exploring electronic resources exhibited very low utilization rates, with between 57.3% and 62.8% of respondents indicating they never used these features.

The correlation analysis reinforces these descriptive findings by demonstrating that facilitating conditions are significantly associated with utilization ($r = 0.473$, $p < 0.01$), suggesting that when students perceive that adequate support, training, and resources are available, they are more likely to engage with the OPAC. Social influence also shows a positive, though slightly lower, correlation ($r = 0.431$, $p < 0.01$), indicating that recommendations from peers and faculty can encourage increased usage. In the regression model predicting utilization, while performance expectancy did not significantly contribute ($B = 0.069$, $p = 0.274$), effort expectancy exhibited a marginal effect ($B = 0.137$, $p = 0.077$). Importantly, both social influence ($B = 0.194$, $p = 0.010$) and facilitating conditions ($B = 0.280$, $p < 0.001$) emerged as significant predictors, reinforcing the idea that external support and positive social cues are essential drivers of effective utilization.

ANOVA results further underscore the role of demographic factors in influencing OPAC usage. Significant differences in utilization were found across age groups ($F(2, 365) = 14.122$, $p = 0.000$), programmes of study ($F(7, 337) = 7.044$, $p = 0.000$), and years of study ($F(4, 363) = 3.103$, $p = 0.016$). These results imply that younger students and those enrolled in certain programs—likely possessing higher levels of digital literacy and information literacy (IL)—are more inclined to use the OPAC regularly. Such demographic disparities suggest that familiarity with digital tools and prior IL training may significantly impact students' ability to engage deeply with OPAC functionalities.

Integrating these empirical results with existing literature, the moderate and varied utilization levels are consistent with findings by Brown and Green (2020) and Miller (2019), who documented underutilization of digital tools due to usability challenges and inadequate user training. The literature emphasizes that while an OPAC may be technically sound, its effective use depends largely on the users' digital and information literacy skills. For instance, studies by Aju and Foti (2020) and Ahmed, Zin, and Majid (2016) highlight that effective utilization is not merely a matter of availability but also of users having the competencies required to navigate complex systems. Moreover, the significant role of facilitating conditions and social influence observed in this study echoes the recommendations by Gana et al. (2019) and Miller (2018), who advocate for enhanced support services and targeted IL programs to improve engagement with digital library resources.

5.4 Satisfaction with the OPAC

The descriptive findings indicate that overall satisfaction with the OPAC is moderate among undergraduate students. Specifically, regarding the user-friendliness of the interface, 65.2% of respondents are neutral, only 21.7% express satisfaction, and a mere 2.2% are very satisfied. In terms of the relevance of search results, 59.5% remain neutral, 27.7% are satisfied, and only 1.9% are very satisfied. A similar pattern is observed for the speed of search and response, where 59.0% of respondents are neutral and 19.6% are satisfied, and for the availability of online help and support, with 60.1% remaining neutral and 19.6% expressing satisfaction. Overall, 51.6% of respondents are neutral about the OPAC, 25.5% are satisfied, and 6.0% report strong satisfaction.

The inferential analysis further clarifies the determinants of satisfaction. Correlational analysis reveals that performance expectancy has the strongest positive relationship with satisfaction ($r = 0.668$, $p < 0.01$), suggesting that when students believe the OPAC can enhance their academic performance, their satisfaction increases markedly. Effort expectancy ($r = 0.581$, $p < 0.01$) and facilitating conditions ($r = 0.556$, $p < 0.01$) also exhibit significant positive correlations, indicating that ease of use and the availability of support and resources are crucial for fostering a positive user experience. In the regression model, performance expectancy ($B = 0.365$, $p < 0.001$) and facilitating conditions ($B = 0.197$, $p < 0.001$) emerge as significant predictors of satisfaction, while effort expectancy ($B = 0.156$, $p = 0.001$) reinforces this relationship further. Interestingly, social influence shows a negative, yet significant, effect ($B = -0.092$, $p = 0.038$), implying that excessive external pressure or unrealistic expectations might actually detract from overall satisfaction.

Additional insights are provided by the ANOVA results that examine satisfaction across demographic variables. For instance, the analysis indicates significant differences in satisfaction levels among different age groups ($F(2, 365) = 3.522$, $p = 0.031$). This suggests that age plays an important role in shaping how students perceive the OPAC. Similarly, significant differences were observed among programmes of study ($F(7, 337) = 5.938$, $p = 0.000$) and across different years of study ($F(4, 363) = 3.686$, $p = 0.006$). These findings indicate that factors such as a student's academic discipline and progression through their studies can significantly affect their satisfaction with the system. This is likely due to varying levels of digital literacy and different information needs.

These results align with the broader literature on technology acceptance and user satisfaction. For example, Venkatesh et al. (2003) emphasize that perceived usefulness—or performance expectancy—is a fundamental determinant of satisfaction with digital systems. Similarly, Miller (2019) underscores the importance of supportive infrastructure and clearly demonstrable benefits in fostering positive user experiences. The strong influence of facilitating conditions, as observed in this study, reinforces Davis's (1989) arguments regarding the critical role of a robust support system—including technical assistance and user training—in enhancing satisfaction.

Moreover, the moderate overall satisfaction levels observed in the study highlight potential areas for improvement, particularly in the realm of information literacy (IL) and digital literacy training. Research by Cordes (2014) and Julien et al. (2018) suggests that when students receive targeted training and are equipped with advanced IL skills, they are better able to utilize the full range of OPAC functionalities, thereby experiencing higher satisfaction. Integrating comprehensive IL initiatives into library instruction programs could help students navigate and exploit advanced features more effectively, ultimately improving their perceptions of usability and the overall effectiveness of the system.

5.5 Factors Affecting OPAC Use

The study identifies several key factors influencing the use of the Online Public Access Catalog (OPAC), including performance expectancy, effort expectancy, social influence, and facilitating conditions. Demographic characteristics, awareness and satisfaction have also been identified as major factors affecting OPAC use.

In more specific detail, regression analyses reveal that performance expectancy and facilitating conditions are significant predictors of awareness, utilization, and satisfaction, highlighting their critical role in user engagement with the OPAC. Specifically, performance expectancy ($B = 0.343$, $p < 0.001$) and facilitating conditions ($B = 0.540$, $p < 0.001$) significantly predict awareness, while social influence ($B = 0.194$, $p = 0.010$) and facilitating conditions ($B = 0.280$, $p < 0.001$) significantly predict utilization. Regarding satisfaction, performance expectancy ($B = 0.365$, $p < 0.001$), effort expectancy ($B = 0.156$, $p = 0.001$), and facilitating conditions ($B = 0.197$, $p < 0.001$) significantly contribute, with social influence showing a slight negative effect ($B = -0.092$, $p = 0.038$).

ANOVA results indicate significant differences in user experiences based on demographic factors such as age and program of study. For instance, utilization varies significantly with age ($F(2, 365) = 14.122, p = 0.000$), with younger students generally showing higher engagement. Similarly, the program of study affects both utilization ($F(7, 337) = 7.044, p = 0.000$) and satisfaction ($F(7, 337) = 5.938, p = 0.000$), suggesting that academic discipline influences digital literacy and comfort with technology.

These findings align with the UTAUT model, which posits that performance expectancy, effort expectancy, social influence, and facilitating conditions are critical determinants of technology use (Venkatesh et al., 2003). The combined inferential statistics confirm that both individual expectations (performance and effort) and external conditions (facilitating conditions and social influence) are critical determinants of technology use. The significant demographic variations echo findings by White (2022) and Graham (2021) who both present that demographic variables play a huge role in how OPACs are perceived and utilized.

5.6 Summary of Chapter 5

The discussion integrates findings from descriptive, correlation, regression, and ANOVA analyses with extant literature to provide a comprehensive view of how students interact with the CBU Library OPAC. Although baseline awareness is high, effective utilization and satisfaction remain moderate due to challenges in accessing advanced features, insufficient facilitating conditions, and varying levels of digital literacy and IL. The strong influence of performance expectancy and facilitating conditions across all models underscores the importance of improving both the technological infrastructure and user training initiatives. Tailored interventions to enhance IL and digital literacy, particularly for specific demographic groups, are recommended to bridge the gap between awareness and effective utilization, ultimately leading to higher user satisfaction and academic performance. Future research should continue to explore these relationships, ensuring that digital library systems evolve to meet the dynamic needs of diverse student populations.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

6.1 Overview

Chapter six (6) presents the key conclusions drawn from the study on the CBU OPAC and offers actionable recommendations. The chapter summarizes the study's findings regarding students' awareness, utilization, and satisfaction with the OPAC, and identifies critical factors affecting its use. It concludes that while awareness and satisfaction levels are relatively high, there is room for improvement in OPAC utilization and user engagement. Recommendations are provided for decision-makers at CBU to enhance awareness and functionality, for library staff to focus on user support and system evaluation, and for future researchers to investigate further aspects of OPAC use and improvement. This chapter aims to guide stakeholders in optimizing the OPAC system and improving library services.

6.2 Conclusions

This study aimed to evaluate the CBU OPAC in terms of undergraduate students' awareness, utilization, satisfaction, and the factors affecting its use. Based on the research objectives and findings:

6.3.1 Level of Awareness

The study reveals that while the awareness of the CBU Library OPAC is relatively high among undergraduate students, there is a notable gap between awareness and active use. A significant proportion of students are familiar with the OPAC but do not fully utilize its features. This suggests a need for enhanced awareness campaigns and user education to bridge the gap between knowing about the system and effectively using it.

6.3.2 Extent of Utilization

Utilization of the OPAC is moderate, with students engaging with the system to varying degrees. The data indicates that while some students frequently use the OPAC, others do so infrequently. Factors such as performance expectancy and facilitating conditions play a critical role in shaping utilization levels, as evidenced by the significant relationships found in the study.

6.3.3 Extent of Satisfaction

Satisfaction with the OPAC is generally neutral to positive, with a notable proportion of students expressing satisfaction. However, there is room for improvement in terms of system functionality and user experience. The correlation between satisfaction and UTAUT constructs like performance expectancy and facilitating conditions highlights the need for ongoing evaluation and enhancement of the OPAC.

6.3.4 Factors Affecting Use

The study identifies key factors influencing the use of the OPAC, including performance expectancy, effort expectancy, social influence, and facilitating conditions. These factors are crucial in determining how students interact with and benefit from the OPAC. Addressing these factors can enhance user engagement and satisfaction.

6.3 Recommendations

6.3.1 For Decision-Makers at CBU

- i. Develop and implement targeted awareness campaigns to increase students' knowledge of the OPAC's features and benefits. This could include orientation sessions, workshops, and online tutorials.
- ii. Invest in upgrading the OPAC system to address usability issues and enhance its functionality. Ensure that the system is user-friendly and meets the needs of students by incorporating feedback and conducting regular usability tests.
- iii. Offer training sessions for students on how to effectively use the OPAC. Providing ongoing support and resources can help students overcome any barriers to using the system.

6.3.2 For Library Staff

- i. Continuously monitor and evaluate the OPAC's performance and user satisfaction. Use feedback from students to make informed improvements and adjustments to the system.

- ii. Engage with students to understand their needs and preferences. Tailor the OPAC's features and resources to better align with user expectations and enhance their experience.
- iii. Act on identified usability issues by collaborating with IT specialists to refine and optimize the OPAC interface. Ensure that common problems are addressed promptly.

6.3.3 For Future Researchers:

- i. Conduct further research to investigate how different demographic factors, such as age, program of study, and year of study, influence OPAC use and satisfaction. This can provide deeper insights into how various student groups interact with the system.
- ii. Study the impact of specific improvements made to the OPAC on user satisfaction and utilization. This can help in understanding the effectiveness of changes and guide future enhancements.
- iii. Consider comparative studies with other university libraries to identify best practices and innovative approaches in OPAC management and user engagement.

In conclusion, addressing the identified issues and implementing the recommended strategies can significantly improve the effectiveness and user satisfaction of the CBU Library OPAC. By focusing on awareness, system functionality, and user support, CBU can enhance the overall library experience for its students.

REFERENCES

- Abrizah, A., Badawi, F., Zoohorian-Fooladi, N., Nicholas, D., Jamali, H. R., & Norliya, A. K. (2014). What do scholarly channels and resources do authors trust to read, cite and publish in? *5th International Conference on Libraries, Information and Society*. Kuala Lumpur.
- Aguolu, C. C., & Aguolu, I. E. (2002). *Libraries and information management in Nigeria: seminal essays on themes and problems*. Ed-Linform Services.
- Ahmed, U., Zin, M. L., & Majid, A. H. (2016). Impact of Intention and Technology Awareness on Transport Industry's E-service: Evidence from an Emerging Economy. *International Journal of Industrial Distribution & Business*, 7(3), 13-18.
- Aju, D. T., & Foti, S. T. (2020). Undergraduates' awareness, utilization and satisfaction with OPAC. *Library and Information Perspectives and Research*, 2(1), 18-29.
- Amin, M., Rezaei, S., & Abolghasemi, M. (2014). User satisfaction with mobile websites: the impact of perceived usefulness (PU), perceived ease of use (PEOU) and trust. *Nankai Business Review International*.
- Anderson, D. R., Sweeney, D. J., Williams, T. A., Camm, J. D., Cochran, J. J., Fry, M. J., & Ohlmann, J. W. (2015). *Quantitative methods for business*. Boston: Cengage.
- Antoney, L., & Vazhacharickal, P. J. (2019). Service Quality and Customer Satisfaction in Private and Public Sector Banks in Kerala: A Comparative Study. Kerala: Department of Biotechnology, Mar Augusthinose College .
- Association of College and Research Libraries. (2015). *Framework for information literacy for higher education*. Chicago: American Library Association.
- Atuase, D., & Maluleka, J. (2023). Marketing of library resources and its impact on the library usage of distance-learning students. *Digital Library Perspectives*, 39(1), 111-123.
- Auten, B., Glauner, D., Lefoe, G., & Henry, J. (2016). Educating faculty members on the importance of requiring High-Quality information resources at a community college. *Auten, B., Glauner, D., Lefoe, G., & Henry, J. (2016). Educating faculty members on the*

- importance of requiring High-Quality inCommunity & Junior College Libraries*, 22(1-2), 19-30.
- Barifah, M. H. (2021). *From facet-based to visualised digital library interfaces: an empirical study of user experiences with digital libraries*. Università della Svizzera italiana.
- Becker, B. W. (2013). Gamification of library instruction. *Behavioral & Social Sciences Librarian*, 32(3), 199-202.
- Bhattacharjee, A. (2012). *Social science research: Principles, methods, and practices*. Tampa, FL: University of South Florida.
- Bocarnea, M., Reynolds, R., & Baker, J. (2012). *Online Instruments, Data Collection, and Electronic Measurements: Organizational Advancements*. Information Science Reference.
- Booth, C. (2009). *Informing Innovation: Tracking student interest in emerging library technologies at Ohio University*. Ohio: Association of College & Research Libraries.
- Bruce, C. (2008). *Informed learning*. Chicago: Association of College and Research Libraries.
- Chen, H. L., & Albee, B. (2012). An open source library system and public library users: Finding and using library collections. *Library & information science research*, 34(3), 220-227.
- CBU. (2023). *The CBU Library*. Retrieved from https://www.cbu.ac.zm/schoolsAndUnits/library/?page_id=11
- Cordes, S. (2014). Student perceptions of search tool usability. *Internet reference services quarterly*, 19(1), 3-32.
- Creswell, J. W. (2014). *Research design: qualitative, quantitative and mixed methods approaches*. Thousand Oaks, CA: Sage.
- Deans, M. J., & Durrant, C. F. (2016). An investigation into the knowledge and use of electronic library resources in Jamaican community colleges. *Journal of Web Librarianship*, 10(4), 239-266.
- Delaney, G., & Bates, J. (2015). Envisioning the academic library: A reflection on roles, relevancy and relationships. *New review of academic librarianship*, 21(1), 30-51.

- Dube, L. (2011). Quality assurance practices in university libraries in South Africa. *South African Journal of Libraries and Information Science*, 77(1), 26-36.
- Eserada, R. E., & Okolo, S. E. (2019). Use of OPAC in selected university libraries in South-South Nigeria. *Library Philosophy and Practice*, 2586.
- Esse, U. C. (2014). Effects of library instruction on satisfaction with the use of library and its services: A study of undergraduate students in five universities in the Southern part of Nigeria. *European Scientific Journal*, 10(13).
- Eun Oh, K., & Colón-Aguirre, M. (2019). *A comparative study of perceptions and use of Google Scholar and academic library discovery systems*. Retrieved May June, 2023, from <http://hdl.handle.net/10342/7832>
- Ezeani, C. N., Ukwoma, S. C., Gani, E., Igwe, P. J., & Agunwamba, C. G. (2017). *Towards Sustainable Development Goals: What Role for Academic Libraries in Nigeria in Assuring Inclusive Access to Information for Learners with Special Needs?* International Federation of Library Associations.
- Fabunmi, O. M., & Asubiojo, B. O. (2013). Awareness and use of OPAC by students of Obafemi Awolowo University, Ile-Ife, Nigeria. *Library Philosophy and Practice*, 922.
- Gakibayo, A., Ikoja-Odongo, J. R., & Okello-Obura, C. (2013). Electronic information resources utilization by students in Mbarara University Library. University of Nebraska-Lincoln.
- Georgas, H. (2015). Google vs. the library (part III): Assessing the quality of sources found by undergraduates. *Libraries and the Academy*, 15(1), 133-161.
- Hampwaye, G., & Mweemba, L. (2020). 15 Zambia. Retrieved from <http://dspace.unza.zm/bitstream/handle/123456789/6983/Main%20Document.pdf?sequence=1>
- Harpel-Burke, P. (2012). Catalog Maintenance in the Discovery System: Opinions of Early Adopters. *College & Undergraduate Libraries*, 19(2-4), 246-263.

- Haruna, B., Madu, A. U., & Adamu, D. B. (2017). An Exploration of the Relationship between Service Quality, Users' Satisfaction, and Loyalty in the Academic Libraries. *International Journal of Library Science*, 15(1), 23-36.
- Hicks, A., & Graber, A. (2010). Shifting paradigms: teaching, learning and Web 2.0. *Reference Services Review*, 38(4), 621-633.
- Kani-Zabihi, E., Ghinea, G., & Chen, S. Y. (2008). User perceptions of online public library catalogues. *International journal of information management*, 28(6), 492-502.
- Kato, A., Kisangiri, M., & Kaijage, S. (2021). A review development of digital library resources at university level. *Education Research International*, 1-13.
- Kim, K. S., & Sin, S. C. (2007). Perception and selection of information sources by undergraduate students: Effects of avoidant style, confidence, and personal control in problem-solving. *The Journal of Academic Librarianship*, 33(6), 655-665.
- Kumah, C. H. (2015). A Comparative Study of use of the Library and the Internet as Sources of Information by Graduate Students in the University Of Ghana. *Library Philosophy and Practice*, 1298.
- Kumar, R. A., & Singh, J. (2014). A journey of card catalogue to web-OPAC. *International Journals of Library and Information Studies*, 4(2), 38-40.
- Kumar, S. (2014). Relationship of OPAC users' satisfaction with their demographic characteristics, computer skills, user education, user assistance and user-friendly OPAC. *The electronic library*, 32(1), 106-123.
- Kumar, S., & Vohra, R. (2013). User perception and use of OPAC: a comparison of three universities in the Punjab region of India. *The Electronic Library*, 31(1), 36-54.
- Kuruppu Arachchi, T. (2015). *Information Literacy Competency of Undergraduate Students in University of Ruhuna: with a Special Focus on Usage of OPAC*. Matara, Sri Lanka: University of Ruhuna.

- Kwadzo, G. (2015). Awareness and usage of electronic databases by geography and resource development information studies graduate students in the University of Ghana. *Library Philosophy and Practice*.
- Laird, T. F., & Kuh, G. D. (2005). Student experiences with information technology and their relationship to other aspects of student engagement. *Research in Higher education*, 46, 211-233.
- Large, J. A., & Beheshti, J. (2013). *The Information Behavior of a New Generation: Children and Teens in the 21st Century*. Scarecrow Press.
- Lawless, J., & Foster, M. J. (2020). Searching systematically and comprehensively. *A step-by-step guide to conducting an integrative review*, 21-44.
- Levine-Clark, M., & Carter, T. M. (Eds.). (2013). *ALA Glossary of Library and Information Science*. American Library Association.
- Li, L. (2022). Reskilling and Upskilling the Future-ready Workforce for Industry 4.0 and Beyond. *Information Systems Frontiers*. doi:<https://doi.org/10.1007/s10796-022-10308-y>
- MacWhinnie, L. A. (2003). The information commons: the academic library of the future. *Portal: Libraries and the Academy*, 3(2), 241-257.
- Mason, M. K. (2023). Historical Development of Library Catalogues: Their Purpose and Organization. Retrieved from <https://www.moyak.com/papers/history-library-catalogues.html>
- Meadows, I. (2011). *Meadows, I. (2011). Graphical vs. Command User Interface: An Exploratory Study of Undergraduate Students' OPAC Interface Preferences*. Chapel Hill, North Carolina : University of North Carolina.
- Mi, J., & Weng, C. (2008). Revitalizing the library OPAC: Interface, searching, and display challenges. *Information technology and libraries*, 27(1), 5-22.
- Mulla, K. R., & Chandrashekara, M. (2009). Access of Web-OPAC in engineering college libraries in Karnataka: A survey. *SRELS Journal of Information Management*, 46(3), 321-332.

- Musyoka, K., & Chirchir, M. K. (2013). Service quality and library user satisfaction among universities in Kenya. Nairobi: University of Nairobi.
- Newsum, J. M. (2016). School collection development and resource management in digitally rich environments: An initial literature review. *School Libraries Worldwide*, 97-109.
- Nwankwo, N., & Amechi, A. (2019). Awareness and Use of Library Information Resources: A Conceptual Approach. *International Journal of Social Sciences and Humanities Reviews*, 9(2), 188–197.
- Oliver, R. L. (1997). Satisfaction: A Behavioural Perspective on the Consumer. New York: McGraw- Hill.
- Oluwatayo, A., Ezema, I., Opoko, A., & Uwakonye, O. (2015). Motivation and self-regulated learning in design education. *ICERI*, 375-380.
- Onuoha, A. E. (2017). Impact of Information Literacy Skills on Academic Performance of Students of Federal Polytechnic, Ede, Osun State, Nigeria. *Journal of Research in Education and Society*, 8(3).
- Puustinen, M., & Rouet, J. F. (2009). Learning with new technologies: Help seeking and information searching revisited. *Computers & Education*, 53(4), 1014-1019.
- Rachna, P. (2017). *Role of Digital Libraries in Supporting E-Learning*. INFLIBNET Centre.
- Rassel, G., Berner, M., O'Sullivan, E., & DeVance, T. (2016). *Research Methods for Public Administrators*. Taylor & Francis.
- Reynolds, R., & Woods, R. (2007). *Handbook of Research on Electronic Surveys and Measurements*. Idea Group Reference.
- Rico, M., Vila-Suero, D., Botezan, I., & Gómez-Pérez, A. (2019). Evaluating the impact of semantic technologies on bibliographic systems: A user-centred and comparative approach. *Journal of Web Semantics*, 59(100500).
- Rowley, J., Banwell, L., Childs, S., Gannon-Leary, P., Urquhart, C., & Armstrong, C. (2001). Encouraging and Facilitating the Use of EIS. *The Changing Universities-The Role of*

- Technology, The Changing Universities-The Role of Technology, The 7th International Conference of European University Information Systems. Gesellschaft für Informatik eV.*
- Roy, A. (2020). *A Comprehensive Guide for Design, Collection, Analysis and Presentation of Likert and Other Rating Scale Data: Analysis of Likert Scale Data*. Amazon Digital Services LLC - KDP Print US.
- Saunders, M., Lewis, P., & Thornhill, A. (2019). *Research Methods for Business Students* (8th ed.). New York: Pearson.
- Singh, N., & Klingenberg, A. (2009). Information literacy in India and Germany—university libraries as activators of life long learning. *Library and Information Science*.
- Solanke, O., & Osuchukwu, N. (2018). Libraries and Facilitation of Public Access to Information in Nigerian Society. *IJoLIS*, 3.
- Sonawane, C. S. (2018). Library catalogue in the internet age. *Digitizing the Modern Library and the Transition From Print to Electronic*, 204-223.
- Suleiman, H., Rajeev, V., & Hassana, J. (2018). Suleiman, H., Rajeev, V., & Hassana, J. (2018). Awareness and Utilization of Library Resources by Library Users' of Nims University Central Library, Jaipur, India. *International Journal of Movement Education and Social Science*, 7(2), 1067-1078.
- Sweeney, R. T. (2005). Reinventing library buildings and services for the millennial generation. *Library Leadership & Management*, 19(4), 165-176.
- Ternenge, T. S., & Kashimana, F. (2019). Availability, accessibility, and use of electronic information resources for research by students in Francis Sulemanu Idachaba Library University of Agriculture, Makurdi. *Library Philosophy and Practice*, 2352, 1-41.
- 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.
- Waldman, M. (2003). Freshmen's use of library electronic resources and self-efficacy. *Information Research*, 8(2).

- Wanyonyi, M. S., Odingi, C., & Sikolia, G. S. (2018). Effect of Library Services on the User Satisfaction at Pwani University Library. *The Strategic Journal of Business & Change Management*, 5(3), 1080-1092.
- Williams, J., & Woolwine, D. (2011). Interlibrary Loan in the United States: An Analysis of Academic Libraries in a Digital Age. *Journal of Interlibrary Loan. Document Delivery & Electronic Reserve*, 165-183. doi:10.1080/1072303X.2011.602945
- Xu, J., Kang, Q., Song, Z., & Clarke, C. P. (2015). Applications of mobile social media: WeChat among academic libraries in China. *The Journal of Academic Librarianship*, 41(1), 21-30.
- Zamora, S., Quesada, G., Hurtado, G., & Mondéjar, R. (2020). *An Introduction to Data Analysis in R: Hands-on Coding, Data Mining, Visualization and Statistics from Scratch*. Springer International Publishing.

APPENDICES

Appendix A: Questionnaire

Dear Respondent,

Ref: Invitation to Participate in Survey: Undergraduate Students' Awareness, Utilization, and Satisfaction with The CBU OPAC

My name is Chilambwe Ng'ambi, a student at the University of Zambia doing a master's programme in Library and Information Studies (LIS). I am currently conducting a study on Undergraduate Students' Awareness, Utilization, and Satisfaction with The CBU OPAC.

Your insights and opinions are crucial for the success of this research, and I would like to invite you to participate in a survey designed to gather information about your awareness, usage, and satisfaction with The CBU Library OPAC.

I appreciate your time and contribution to this research. Your feedback will contribute significantly to understanding the effectiveness of The CBU Library OPAC and enhancing its services.

If you have any questions or concerns, please feel free to contact me on +260966516111.

Sincerely,

Chilambwe Ng'ambi

SECTION 1: RESPONDENT'S DEMOGRAPHIC INFORMATION

1 Gender:

a) Male []

b) Female []

2 Age Group:

a) 16-19 years []

b) 20-24 years []

c) 25-29 years []

d) 30-34 years []

e) 35-39 years []

f) 40+ years []

3. Program of Study:

4. Year of Study:

a) Year 1 []

b) Year 2 []

c) Year 3 []

d) Year 4 []

e) Year 5 []

Other: _____

SECTION 2: RESPONDENT'S AWARENESS OF THE CBU LIBRARY OPAC

Instruction: Please tick in the following table depending on the extent to which you agree with the following statements in question 5 to 10 (on a scale between 1 and 5 where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree).

	Item	1	2	3	4	5
5	I am aware of the existence of The CBU Library OPAC					
6	I know how to access The CBU Library OPAC					
7	I understand the features and capabilities of The CBU Library OPAC					
8	I have previously used The CBU Library OPAC for academic purposes					
9	I have received training or guidance on how to effectively use The CBU Library OPAC					
10	I believe that using The CBU Library OPAC can enhance my academic performance					

SECTION 3: RESPONDENT'S UTILIZATION OF THE CBU LIBRARY OPAC

Instruction: Please indicate how frequently you use The CBU Library OPAC for any of the purposes in the table (on a scale between 1 and 5 where 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, and 5 = Very Often).

	Item					
11	Finding books and other resources within the library	1	2	3	4	5
12	Checking the availability of books and resources in the library					
13	Renewing or reserving items					
14	Locating the physical location of books in the library					
15	Using advanced search features					
16	Accessing citation information through the OPAC to create accurate bibliographies					

17	Accessing electronic resources like e-books, e-journals, and online databases					
18	Using the OPAC to search for materials from other CBU library branches					
18	Exploring related readings provided by the OPAC based on your search queries					

SECTION 4: RESPONDENT'S SATISFACTION WITH THE CBU LIBRARY OPAC

Instruction: On a scale between 1 and 5 where 1 = Very Dissatisfied, 2 = Dissatisfied, 3 = Neutral, 4 = Satisfied, and 5 = Very Satisfied, Please rate your satisfaction with The CBU Library OPAC based on the following aspects in the table.

	Item	1	2	3	4	5
19	User-friendliness of the OPAC interface					
20	Relevance of search results					
21	Speed of search and response					
22	Availability of online help and support					
23	Overall satisfaction with The CBU Library OPAC					

SECTION 5: ITEMS ON THE UTAUT CONSTRUCTS

Instruction: The following questions are designed to assess your perceptions of using The CBU Library OPAC based on the UTAUT model. On a scale between 1 and 5 where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree, Please rate your agreement with each statement in the table.

	Item	1	2	3	4	5
24 (PE1)	Using the CBU Library OPAC significantly enhances my ability to find academic resources efficiently					
25 (PE2)	The CBU Library OPAC enables me to accomplish my academic tasks effectively					
26 (EE1)	Using the CBU Library OPAC is straightforward and uncomplicated					
27 (EE2)	Learning to use The CBU Library OPAC is easy for me					
28 (SI1)	Have your peers recommended specific features or search strategies within The CBU Library OPAC that they found useful for academic research?					
29 (SI2)	Do you feel influenced by your peers' opinions about The CBU Library OPAC when deciding to use it for your research?					
30 (SI3)	Have your tutors or academic advisors specifically recommended The CBU Library OPAC as a valuable resource for your coursework or research?					

31 (SI4)	To what extent do you consider your tutors' guidance influential in your decision to utilize The CBU Library OPAC for academic purposes?					
32 (SI5)	Have your lecturers integrated the use of The CBU Library OPAC into their course materials or recommended it for supplementary research?					
33 (SI6)	To what extent do you feel compelled to use The CBU Library OPAC due to the influence of your lecturers' recommendations?					
34 (SI7)	Overall, do you think the opinions and recommendations of important academic figures (peers, tutors, and lecturers) affect your decision to use The CBU Library OPAC?					
35 (FC1)	I have access to the necessary technology and resources to use The CBU Library OPAC effectively.					
36 (FC2)	Technical support is readily available when I encounter issues while using The CBU Library OPAC.					
37 (FC3)	I have received adequate training on how to use the OPAC					

Section 6: Additional Comments

Please share any additional comments, suggestions, or feedback regarding your experience with The CBU Library OPAC.

.....

.....

.....

.....

Thank you for taking the time to complete this detailed survey. Your input is invaluable for the research.

Link to questionnaire: <https://forms.gle/DbYNk3kSRUsdGk9G6>

Appendix B: Activity Schedule

Activity	Target Month	Date Completed
Proposal Writing	May 2023-September 2023	30 th September 2023
Ethical Clearance	March 2024	April 2024
Data Collection	April 2024	May 2024
Data Analysis	May 2024	July 2024
Report Writing	August 2024	