



MZUZU UNIVERSITY

FACULTY OF HUMANITIES AND SOCIAL SCIENCES

DEPARTMENT OF INFORMATION SCIENCES

**UTILISATION OF ONLINE DATABASES BY STUDENTS AT SAINT
JOHN OF GOD COLLEGE OF HEALTH SCIENCES IN MALAWI**

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(MLIS 03/18)

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Library and Information Science in the Department of Information Science,**

Mzuzu University, Malawi

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DECLARATION

I, **Teddie Chima**, declare that:

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Supervisor: Associate Professor Winner Dominic Chawinga (PhD)

DEDICATION

This Thesis is dedicated to my loving mother, Mrs Olipa L. Chima, my brother, Mr Benson Manyera and my stunning lobelia, Victoria Malunga.

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ABSTRACT

The aim of the study was to investigate the utilisation of online databases by students at Saint John of God College of Health Sciences in Malawi. Specifically, the study aimed at establishing the level of students' awareness of online databases; establishing students' competencies in the use of online databases; investigating the benefits students accrue from using online databases and determining factors influencing the use of online databases.

The study was underpinned by the pragmatic research paradigm and was guided by the Unified Theory of Acceptance and Use of Technology (UTAUT) model. The researcher determined the sample size by employing census method to select all the 188 students to participate in the study. Purposive sampling was used to select the assistant librarian. The researcher collected quantitative data from the students using questionnaires, and an interview guide collected qualitative data from the assistant librarian. Before data collection, the instruments were pretested and refined. The quantitative data was analysed using Statistical Package for Social Sciences (SPSS) version 20.0 while qualitative data was analysed thematically.

The study findings show that the majority 178 (98.3%) of the students were aware of online databases available at the college. Specifically, 166 (91.7%) were aware of HINARI; 3 (2%) Taylor and Francis; 64 (35.4%) PubMed; 6 (3.3%) BioOne; 20 (11.0%) Cambridge University Press; 32 (17.7%) Oxford Reference Online; 4 (2.2%) EBSCOHost; 22 (12.2%) Sage; 7 (3.9%) Wiley; 52 (29.3%) African Journals Online (AJOL); 13 (7.2%) Google Scholar, and one (0.6%) Mayo Clinic.

Results further revealed that 111 (61.3%) students acknowledged that online information literacy skills are relevant for one to successfully use online. Online information literacy skills include locating, retrieving, organising, evaluating, and using information accordingly. Results further show that 91 (50.3%) students ranked their level of competency in using online databases as average.

Findings further reveal that between 65 (35.9%) and 152 (83.9%) students reported to get the following major benefits from using online databases: convenience, save time, easier access to information, search within articles, remote access, full text article access, 24 hours' access and save space.

The study also established the following key factors that encouraged students to use online databases: 169 (93.4%) students reported usefulness in their studies; 165 (91.2%) students indicated quick tasks accomplishment like assignments while 157 (86.7%) reported influence

by library staff. On the other hand, the study also established that between 41 (22.6%) and 129 (71.2%) students are discouraged from using online databases by the following factors: slow internet connection, lack of awareness of online databases, lack of skills, complicated passwords, information overload, lack of motivation from lecturers, and limited subscription and electricity blackouts. The study has revealed that performance expectancy, social influence and facilitating conditions variables of the UTAUT model provide a useful framework to the study.

Finally, the study recommended library staff to be crafting promotional and marketing strategies of online databases; collaboration of management, ICT and Library team should improve ICT infrastructure, the college management should consider providing other solutions aimed at mitigating power supply issues. and the library staff should intensify user training programmes on online databases.

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LIST OF ACRONYMS AND ABBREVIATIONS

AJOL	African Journals Online
AMU	Aligarh Muslim University
BUSE	Bindura University of Science Education
CEO	Chief Executive Officer
CINAHL	Cumulative Index to Nursing and Allied Health Literature
DBMS	Database management system
DOI	Diffusion of Innovations
DTPB	The Decomposed Theory of Planned Behaviour
HINARI	Health InterNetwork Access to Research Initiative
ICTs	Information and Communication Technologies
INASP	The International Network for the Availability of Scientific Publications
IT	Information Technology
MALA	Malawi Library Association
MALICO	Malawi Library and Information Consortium
MAREN	Malawi Research and Education Network
MAUTech	Modibbo Adama University of Technology
MEDLINE	Medical Literature Analysis and Retrieval System Online
MMR	Mixed methods research
MZUNIREC	Mzuzu University Ethics Committee
NARIS	National Agricultural Research Institutes Scientists
NCHE	The National Council for Higher Education
NUC	Next Unit of Computing
NUST	National University of Science and Technology

OA	Open Access
OARE	Online Access to Research in the Environment
OAU	Obafemi Awolowo University
OPAC	Online Public Access Catalogue
R4L	Research4Life
SADC	The Southern African Development Community
SPSS	Statistical Package for Social Sciences
TAM	The Technology Acceptance Model
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
UCC	University of Cape Coast
UK	United Kingdom
UKZN	University of Kwazulu-Natal
UNICAL	University of Calabar
UNISWA	University of Swaziland
USA	The United States of America
UTAUT	Unified Theory of Acceptance and Use of Technology
WHO	World Health Organisation
WWW	World Wide Web

CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 Introduction

The study set out to investigate the utilisation of online databases by students at Saint John of God College of Health Sciences in Malawi. The researcher was concerned about the uncertainty over the use of online databases by students. This chapter introduces the entire study by discussing the background and rationale, contextual setting, problem statement, aim of the study, research objectives, theoretical framework, significance of the study, scope and an outline of the thesis.

There are various forms of Information and Communication Technologies (ICTs) and some of them include the internet, wireless networks, computers, hardware, software, mobile technologies, satellite systems, video conferencing, social networking and other media applications and services enabling users to access, retrieve, store, transmit, and manipulate information in a digital form (Okite-Amughero et al., 2015). Advancements in ICTs have impacted the delivery of information services in universities. Okite-Amughero et al. (2015) stressed that developments in ICTs have widened the opportunity for access to electronic resources globally. There have been further recent innovations in electronic information such as online databases, electronic serials and e-books. At a more general level, electronic resources are divided into two which include those that can be freely accessed under the Open Access (OA) initiatives and those that can be accessed through subscription (Isibika & Kavishe, 2018). Online databases are named differently by different scholars, encompassing terms such as e-resources, electronic resources, and electronic information resources. For the purpose of this study, the preferred term is online databases because it is more specific and it is widely used by the students, library staff and academic members of staff at Saint John of God College of Health Sciences.

1.1.1 The history of online databases

It is pivotal to appreciate the history of online databases and the usage trends. Machimbidza and Mutula (2018) and Machimbidza (2014) reported that the adoption and use of online databases in universities across the globe was disappointingly low, inadequate, and uninspiring in the past. The history can be traced back in the mid-1960s, with the introduction of machine-readable catalogue which served as a directive tool to information resources (Hawthorne,

2008). This was followed by the use of Online Public Access Catalogue (OPAC) and bibliographic databases which were later improved through use of information on CD ROM databases in 1980s (Hawthorne, 2008). The 21st century electronic information innovations include online databases, electronic serials and e-books (Ankrah & Atuase, 2018; Hawthorne, 2008). Since the early 1990s, several initiatives to enhance the accessibility and availability of online databases in institutions of higher learning have taken place (Lwoga & Sukums, 2018). The situation has since improved drastically in the developed countries of North America, Europe, parts of Asia and the Middle East (Chandran, 2013; Machimbidza, 2014; Tenopir et al., 2003). Literature has revealed that utilisation of online databases has evolved as evidenced by the statistics of the global trends (Chandran, 2013; Tenopir et al., 2003; Woo, 2005). Tenopir et al. (2003) in his analysis of over 200 research publications on the use of e-resources published between 1995 and 2003 in USA concluded that both faculty and students had adopted online databases into their natural workflows.

1.1.2 Online databases

Online databases are organised digital collections of references that publish literature such as journal articles, newspaper articles, conference proceedings, reports, legal publications, theses and e-books among others (Aina, 2016; Ani, et al., 2015; Machimbidza, 2014; Omoskejimi et al., 2015; Sejane, 2017). For the purpose of this study, online databases include the following; Health InterNetwork Access to Research Initiative (HINARI), PubMed, BioOne, Cambridge University Press Journals, EBSCOHost, Sage, Taylor and Francis, Oxford Reference Online, Wiley and African Journals Online (AJOL) as depicted in Table 1. The researcher included the stated online databases in this study because they are reputable and most widely used in higher education institutions which offer health related academic programmes.

Table 1.1: Online databases

Name of the online database	Brief description of scope	Universal Resource Locator (URL)
HINARI	This online database provides access to biomedical, health and other social sciences literature	https://extranet.who.int/hinari/en/journals.php
PubMed	The online database focus on biomedicine and health sciences, life sciences, behavioural sciences, chemical sciences, and bioengineering.	https://pubmed.ncbi.nlm.nih.gov/
BioOne	It is an online database of subscribed and open-access titles in the biological, ecological, and environmental sciences.	https://bioone.org/
Cambridge University Press Journals	Provides access to peer-reviewed academic journals across a wide range of subject areas	https://www.cambridge.org/core/
EBSCOHost	EBSCOhost offers high-quality articles from reputable publishers to meet the specific needs of researchers.	https://www.ebsco.com/
Sage	Provides access to online journals available in a variety of subjects which include; health sciences, life and biomedical sciences, social sciences and humanities, material sciences and engineering.	https://journals.sagepub.com/
Taylor and Francis	The online database partners with leading authors in all areas of Humanities, Social Sciences, Behavioural Sciences, Science, Technology and Medicine sectors.	https://taylorandfrancis.com/ or https://www.tandfonline.com/
Oxford Reference Online	The online database includes over 2 million digitized entries from Oxford University Press's Dictionaries, Companions and Encyclopaedias	https://www.oxfordreference.com/
Wiley	Is an online database which offers books, journals, and encyclopaedias covering a lot of disciplines and subjects	https://onlinelibrary.wiley.com/
AJOL	The online database covers African-published scholarly journals	https://www.ajol.info/index.php/ajol

1.1.3 Global trends on the use of online databases

Several studies have been conducted globally by researchers in some parts of the world such as America, Europe, Asia and Africa on the use of online databases by scholars (Tenopir et al., 2003; Conti et al., 2003; Khan & Ahmad, 2009; Monopoli et al., 2002; Negahban & Talawar, 2009). Several Studies in different institutions of higher learning in developed countries have reported higher usage rates of online databases. For example, Tenopir et al., (2003) in the United States of America (USA); Conti, et al. (2003) in Italy; Khan and Ahmad (2009) in India; Monopoli, et al. (2002) in Greece; and Negahban and Talawar (2009) in Iran.

On the contrary, studies conducted in institutions of higher learning in Africa reported low levels of online databases usage by students. Some recent studies (Joshua & King, 2020; Kwafoa et al., 2019; Mollel et al., 2019) conducted in Nigeria, Tanzania and Ghana respectively have also reported low usage of online databases by scholars. In Malawi, Chimsinde (2019) and Malemia (2014) reported that only 53% and 51.9% of the students used online databases respectively.

1.2.1 Saint John of God College of Health Sciences

Saint John of God College of Health Sciences is a private institution of higher learning which was established in 2003, and it is situated in Mzuzu City, North of Malawi (Saint John of God College of Health Sciences, 2019). It is one of the health professional training colleges under the Christian Health Association of Malawi (CHAM). CHAM is the second largest provider of health services in Malawi with 179 health facilities and 11 training colleges which are located in all parts of the country (CHAM, 2020). Saint John of God College of Health Sciences has two faculties. These are Faculty of Health Sciences affiliated to Mzuzu University and Faculty of Social Sciences affiliated to the University of Malawi. Faculty of Health Sciences has two departments which are; Nursing and Midwifery Department, and the Clinical Medicine Department which offers Diploma's and degrees in Nursing and Clinical Medicine respectively. The Faculty of Social Sciences, on the other hand, offers certificates and diplomas in Psychosocial Counselling (Saint John of God College of Health Sciences, 2019). The College has a total number of 188 undergraduate students (Saint John of God College of Health Sciences, 2019).

1.2.2 Saint John of God College of Health Sciences Library

Saint John of God College of Health Sciences has the library department which supports teaching, learning and research activities to staff and students. Some of the online academic databases available in the library include Hinari, Ebscohost, JSTOR, Sage, Biomed Central, PubMed, Psychology Tools, Get Self-help, Scientific Research Open Access and others. The library staff provides usernames and passwords for the available online databases to the users. Online databases are seen as the solution to the much needed but scarce academic information resources at this college (Saint John of God College of Health Sciences, 2019).

1.3 Problem statement

The researcher who is also the librarian of Saint John of God College of Health Sciences informally observed the problem of low utilisation of online databases by students as evidenced by their low usage statistics in the Malawi Library and Information Consortium (MALICO) portal. In particular, statistics indicated that only eight students per week on average could log in the MALICO portal to access online databases. This was repeatedly done for almost two months, and the researcher observed that on average thirty-two students per month could log in the MALICO portal to access online databases. It is not known why there is such a low utilisation of online databases by students at this institution. The rationale for undertaking this study was to unearth evidence-based reasons for the low utilisation of online databases by students at the institution. Furthermore, the National Council for Higher Education (NCHE) challenges Malawi universities and colleges to provide access to online databases to their users through their libraries (NCHE, 2019). To this end, Saint John of God College of Health Sciences has invested a lot of resources in making sure that these resources are available and accessible (Saint John of God College of Health Sciences, 2019). In particular, the College provides funds every year for subscribing to e-resources through the MALICO; and purchasing ICT infrastructure such as computers and internet. The college library also has OPAC which provides access to both subscribed and free online databases that are relevant to library users at the institution. Despite these efforts, the underutilisation of these online databases seems to be undermining both the requirements of the NCHE and the efforts of the college on this aspect. It is this problem of resource under-utilisation that has necessitated this study to understand students' utilisation of these online databases and the reasons behind such trends at the institution.

1.4 Aim and objectives

1.4.1 Aim of the study

The aim of the study was to investigate the utilisation of online databases among students at Saint John of God College of Health Sciences.

1.4.2 Specific objectives

The study addressed the following four specific objectives:

1. To establish the level of students' awareness of online databases at Saint John of God College of Health Sciences
2. To establish students' competencies in the use of online databases at Saint John of God College of Health Sciences
3. To investigate the benefits that students accrue from using online databases at Saint John of God College of Health Sciences
4. To determine factors that influence students' use of online databases at Saint John of God College of Health Sciences.

1.5 Research questions

The study addressed the following four questions:

1. What is the level of students' awareness of online databases at Saint John of God College of Health Sciences?
2. What are the students' competencies in the use of online databases at Saint John of God College of Health Sciences?
3. What are the benefits students accrue from using online databases at the Saint John of God College of Health Sciences?
4. What factors influence students' use of online databases at Saint John of God College of Health Sciences?

1.6 Scope and limitation of the study

The study focussed on investigating students' utilisation of online databases at Saint John of God College of Health Sciences only, hence leaving out other CHAM colleges. Moreover, since it was conducted at Saint John of God College of Health Sciences, its findings may not be easily generalised to other public and private colleges in Malawi.

1.7 Significance of the study

The expectation of the researcher was that the results of the study would be of beneficial in a number of ways. Creswell (2014, 2018) noted that there are three broad aspects for the significance of any study which include its ability to add to scholarly research and literature in that field; to improve policy, and to improve practice.

In terms of practice, it is hoped that this study may result in more efficient use of online databases by students at Saint John of God College of Health Sciences. This would also assist in improving the quality-of-service delivery of online databases at Saint John of God of College of Health Sciences. It is believed that the ability to effectively utilise online databases among health science students may help them improve their academic performance as well as the quality of healthcare services in Malawi before and after their graduation.

Furthermore, the study may assist policy makers like the Saint John of God College of Health Sciences Management, CHAM, the Malawi Ministry of Education Science and Technology, educational planners and donor agencies in Malawi. Such policy makers may incorporate online databases in teaching and learning based on the recommendations of this study. Additionally, it is envisaged that, through the findings from this study, the college library would be able to establish the level of students' awareness and knowledge regarding online databases after becoming aware of the factors that influence students' utilisation of online databases. This way, the library staff would be better positioned to provide efficient services to the users.

Finally, and more importantly, this study is therefore significant because it will create a body of literature that would fill the knowledge gap that currently exist in regards to online databases in the field of Library and information Science in Malawi. The study may also motivate other researchers to conduct further research in the use of online databases among students in other institutions of higher learning in Malawi, and elsewhere.

1.8 Theoretical framework

Theoretical framework is a foundation for the boundaries of any study through which researchers can seek answers to the topical questions they have developed on broad subjects. A theoretical framework can also be seen as a collection of interrelated concepts, like a theory but not necessarily well worked-out, that guides a research, determining what things to measure and what statistical relationships to look for in the research. Neuman (2020) asserts that a theoretical framework provides and describes assumptions, concepts, and forms of

explanations. Pickard (2017) also points out that a theoretical framework covers the theories, concepts and issues which surround a research topic.

This study was underpinned by the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003). The UTAUT model has four main variables which are performance expectancy, effort expectancy, social influence, and facilitating conditions, and these serve as direct determinants of usage intention and behaviour (Venkatesh et al., 2003). Gender, age, experience, and voluntariness of use are posited to mediate the impact of these constructs on usage intention and behaviour. Generally, this theory assesses whether an individual is able to adopt and use the new technologies in any setting.

1.9 Outline of the thesis

The thesis has been organised into six chapters as follows:

Chapter One: Introduction and background to the study

This chapter provides the introduction, research context and background of the research followed by research problem arising from the background of the study. It also covers purpose of the study, objectives of the study, research questions, significance of the study and scope, and limitations of the study.

Chapter Two: Literature review

This chapter reviews related literature on utilisation of online databases. It looks at the level of students' awareness on online databases, students' competencies in the use of online databases, the benefits students accrue from using online databases, factors that influence utilisation of online databases by students and finally a summary of the review.

Chapter Three: Theoretical framework

This chapter review some models that are mostly used in studying information systems. Thereafter, provides a clear statement of the model adopted for the current study. Specifies theoretical assumptions underlying the study. Clearly identify strengths and weaknesses of other models. Then, comprehensively discuss the related studies which used the model. Finally, justify for the chosen model.

Chapter Four: Research methodology

This chapter covers the research methodology that was followed to conduct the study. It presents the paradigms, research designs, methods, the research population, sample population, sample size and sampling techniques; data collection methods and research instruments, data analysis techniques, validity and reliability, and ethical considerations.

Chapter Five: Data presentation and analysis

This chapter presents and analyses data collected from the questionnaires distributed to the students and interviews with the Assistant Librarian.

Chapter Six: Discussion, recommendations and conclusions

This chapter discusses the findings and interprets them based on the theoretical framework. It also discusses the findings in the lenses of previous findings from related literature. The chapter also proves that the aim and objectives of the study are successfully achieved. A summary of the findings, conclusions and recommendations of the study is also provided based on the findings of the study. The originality and contribution of the study is also demonstrated. Areas for further research are finally suggested.

1.10 Definition of key terms

The following are the key terms and concepts that have been used in the study:

E-resources

E-resources are defined as resources which require computer access or any electronic product that delivers a collection of data, be it text referring to full-text databases, electronic journals, image collections, other multi-media products and so on (Dhanavandan & Tamizhchelvan, 2012).

Electronic journals

Electronic journals are “serial publications that are available in digital formats and these journals may be distributed in various ways, such as on Compact Disk - Read Only Memory (CD-ROM) and the Internet” (Mgobozi & Ocholla, 2013, p. 81).

Library consortium

Library consortium is a formal association of libraries, not under the same institutional control of libraries, type of materials, or subject interest, which is established to develop and implement resource sharing among its members (Brimah, 2000).

Online databases

Naqvi (2012) defines online database as, “A large regularly updated file of digitised information related to a specific subject or field, consisting of records of uniform format organised for ease of search and retrieval, and managed with the aid of database management system (DBMS) that includes an internal mechanism (search interface) for searching based on proprietary metadata” (p.3).

1.11 Summary

This chapter has presented the introduction, research context and background to this study on the utilisation of online databases among students at Saint John of God College of Health Sciences in Malawi among other things. The chapter provided the research problem, research objectives and its significance. It also provided the scope of the study, limitations then the outline of the whole thesis. The next chapter (Chapter Two) will review literature in relation to the utilisation of online databases among students and other thematic areas related to the objectives of this study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature on the utilisation of online databases by students in institutions of higher learning across the globe. The rationale for conducting a literature review is “to establish what has already been done on a particular topic and familiarise oneself with what has been found and locate where the gaps exist” (Mutsvunguma, 2019, p. 46). During this process, the researcher is able to contextualise the existing literature within the current research. The researcher gets a grip on what is recognised and learn where the gaps are in the present body of knowledge (Bloomberg & Volpe, 2019). Ultimately, the researcher makes use of the ideas in existing literature to defend, explain, refute or accept a particular approach to a research problem. Important aspects of a literature review include being critical, identifying different views, arguments, agreements, omissions or biases, as well as trends of thoughts on a research topic (Bloomberg & Volpe, 2019; Kumar, 2011).

In this chapter, the literature review focuses on the following specific themes of the study: the history of online databases from a global perspective; the use of online databases from a local perspective; level of students’ awareness of online databases; students’ competency in the use of online databases; the benefits that students accrue from using online databases, and factors that influence students’ use of online databases.

2.2 The history of online databases

2.2.1 The history of online databases from a global perspective

It is important to understand the history of online databases and their usage trends from a global perspective. Machimbidza and Mutula (2018) and Machimbidza (2014) reported that the adoption and use of online databases in universities all over the world was disappointingly low, inadequate, and uninspiring in the past. The historical trail of e-resources began in the mid-1960s, with the introduction of machine-readable catalogue which served as a directive tool to information resources. This was followed by the use of Online Public Access Catalogue (OPAC) and bibliographic databases which were later improved to include the use of information on CD ROM databases in 1980s (Hawthorne, 2008). The recent 21st century electronic information innovations include online databases, electronic serials and e-books (Ankrah & Atuase, 2018; Hawthorne, 2008). Since the early 1990s, several initiatives to

enhance the availability and access of online databases in institutions of higher learning have taken place (Lwoga & Sukums, 2018). The situation has since improved drastically particularly in the developed countries of North America, Europe, parts of Asia and the Middle East (Chandran, 2013; Machimbidza, 2014; Tenopir, et al., 2003). Literature reviewed has also revealed that utilisation of online databases has evolved as evidenced by the statistics of the global trends (Chandran, 2013; Tenopir et al., 2003; Woo, 2005). A good example is the study done by Tenopir, et al. (2003) in which he analysed well over 200 research publications on the use of e-resources published between 1995 and 2003 in USA, and established both faculty and students had immensely adopted online databases within their natural workflow. Similarly, a survey carried out at the University of Hong Kong Libraries in China reported that 68.8% of the respondents preferred online journals to 31.2% who preferred printed journals (Woo, 2005). Likewise, Chandran (2013), in his study, revealed that 62.8% of academicians at the College Chennai, Tamilndu in India, gave a positive response towards the utilisation of online databases.

While there have been encouraging results in the use of online databases, some past and current research efforts globally have revealed serious issues that should be addressed if students are to use online databases effectively. Key to these issues have been lack of awareness and competencies in the use of online databases; lack of knowledge on the benefits accrued from using online databases and the factors that can encourage or discourage students from utilising these resources (Agaba, et al., 2004; Hewitson, 2002; Kwafoa et al., 2014; Larson, 2017; Lwoga & Sukums, 2018; Olajide, 2018; Tapfuma, 2016; Yebowaah & Plockey, 2017; Aina, 2016; Anane, 2016; Egberongbe, 2011; Elizabeth & Ronke, 2015; Joshua & King, 2020; Mgobozi & Ocholla, 2013; Omosekejimi, et al., 2015; Sonkar, 2014; Soyizwapi, 2005).

2.2.2 The use of online databases from a local perspective

In Malawi, Malemia (2014), Mawindo and Hoskins (2008) and Chimsinde (2019) conducted related studies on the use of e-resources at Mzuzu University, College of Medicine and the African Bible College, respectively. These studies however differ with the current study in that both Malemia (2014), Mawindo and Hoskins (2008) conducted their studies in Malawian public universities while this study was done at a private college, Saint John of God College of Health Sciences. Additionally, the aforementioned studies were done a few years ago, while

this study has been done recently hence has the potential to uncover recent issues and trends in this field given that human behaviour and practice changes with time.

That aside, Chimsinde (2019) recently investigated students' use of electronic information resources such as the Internet resources, electronic books, electronic journals, CD-ROM databases and online databases that were available at the African Bible College. While Chimsinde's study might be similar to this study in terms of recentness, the two still differs in that this current study specifically examines the utilisation of online databases only available at the Saint John of God College of Health Sciences while the latter was too general as it included an array of e-resources. Agreeably, Chimsinde (2019) carried out her study at a Christian private institution just like this current study; however African Bible College does not fall under the CHAM to which this study context falls. This fact is critical as the two systems are different, have different cultures and support systems which can affect student's adoption and utilisation of online databases.

Given these differences, it can therefore be argued that there might be a gap in the available literature on this topic since no any study of this kind has ever been conducted in any CHAM colleges in Malawi. Hence the need for undertaking this study, which took a relatively different path by focussing on students' utilisation of online databases at Saint John of God College of Health Sciences.

2.3 Awareness of online databases

Several studies have been conducted globally by researchers in an attempt to understand the use of online databases by students. It is evident from the studies that awareness is an important aspect in the domain of adoption and use of online databases if they are to be utilised by students.

Naqvi (2012) examined the impact and use of e-databases at GBPUAT library in India. To collect research data, questionnaire was administered randomly among 250 registered postgraduate students and research scholars. The study revealed that 95.74% of the research scholars and 70% of the postgraduate students were well aware about the available databases and they also used these for their different purposes. The study recommended that University library should intensify their awareness campaigns concerning the availability of databases of e-resources.

Studies held in several other institutions such as University of Hong Kong (Woo, 2005), Turkish universities (Dilek-Kayaoglu, 2008), Aligarh Muslim University (AMU) and Islamic Azad University in Iran (Shahmohammadi, 2012) all found high levels of intimate awareness among academics. After a critical analysis of the literature, it was clear that all the stated studies pointed to the need to understand users' awareness of online databases if there is any hope of increasing usage levels. Academics from the developed world may have an advantage over African academics in intimately knowing these online databases owing to abundance of infrastructure and resources in their institutions.

A study by Kumar (2018) investigated the use of E-Resources in the E-ShodhSindhu Consortium by the Research Scholars of the University of Kerala in India. The study randomly sampled 150 research scholars of the University of Kerala Library through a survey based on a structured questionnaire. The study found out that research scholars were aware of the existence of online databases available at the University of Kerala. While the findings revealed that the scholars considered online databases as essential to support higher learning and research, lack of orientation in accessing the full potential of online databases was pointed out as a major challenge. This means that when users are aware of the specific online databases available at institution, they are likely to utilise the online databases.

In another study, Malaga-Toboła et al., (2019) assessed the use of information sources and online databases for writing thesis by students of selected studies from University of Life Sciences, and the University of Agriculture in Poland respectively. The study collected data from 228 students and it revealed that all students who used online databases regularly and effectively were aware of the online databases available at their respective universities. It was further revealed that students were aware of Google scholar and polish online databases. Interestingly, it was also found out that all respondents owned a computer and had internet access at their place of residence during their studies which facilitated and motivated them to use these resources. This entails that apart from just being aware of the existence of online databases, one is also supposed to have the ICT infrastructure like computers and internet to use online databases.

After a critical analysis of the above literature, it is clear that all the stated studies point to the fact that users' awareness and understanding of online databases has the potential to increase online databases usage levels. Conversely, it could be argued that this may be the case because students from the developed countries have an advantage over developing countries since they

grew with it right from their homes (Digital Natives), and that their institutions have the right technological infrastructure and resources that make things easy for them (Machimbidza & Mutula, 2018).

Challenging this assumption, a related study was conducted by Kwadzo (2015) at the University of Ghana using a survey method among 67 students. It revealed that awareness of online databases that were available in their libraries was low and that led to the under-utilisation of these resources. The findings further demonstrated that the few students who were aware of these online databases did so through informal means such as through their lecturers not librarians. The study also established that majority of students knew about the databases from their lecturers from the central library.

After recognising such gaps in the studies findings, the current study recommends that librarians, especially subject librarians, should heighten the publicity of the online databases and the research guides to both students and faculty for them to become aware and familiar with their use and functions. Similarly, Kwafoa et al. (2019) conducted a study which investigated the use of electronic resources by postgraduate students at the University of Cape Coast in Ghana. They sought to explore role of awareness, usage, training, and access to adoption and utilisation of e-resources among students. A survey method was employed and a structured questionnaire was utilised to solicit data from 400 students. The findings revealed that 149 (37.3%) were aware of online databases. Most respondents became aware of some online databases through notices, flyers, display, newsletters, posters, and library guide (Kwafoa et al., 2019).

In Nigeria, Salaam and Aderibidge (2010) conducted a study and examined the awareness and utilisation of The Essential Electronic Agricultural Library (TEEAL) database resources by the academic staff at the University of Agriculture, Abeokuta. A survey method was used and questionnaires were distributed to 200 academic staff members that were randomly selected for the study. The findings showed that 57.8% of the respondents were aware of TEEAL online databases. Similarly, a study conducted by Joshua and King (2020) examined the utilisation of e-resources at Modibbo Adama University of Technology, (MAUTech), Yola, Adamawa State, Nigeria. A mixed method research design was adopted for the study, and questionnaires and interview schedules were used to collect data. The findings regarding students and academics familiarity with e-resources showed that students were merely familiar with the online databases.

Angello and Wema (2010) conducted a study to investigate the accessibility and use of e-resources in Tanzania. A survey method was used in which questionnaires, interviews and observations were used to collect data from 50 respondents who participated in the study. The study revealed that a few researchers were aware of some of the online databases like AGORA (24.4%); HINARI (11.1%); Medline (4.4%); INFORM (6.7%); OARE (6.7%); Tanzania Development gateway (4.4%); Africa Journals Online (4.4%), and INGENTA (2.2%) which they used to search for information for their research work. They concluded that the underutilisation of online databases was associated with the low levels of awareness (Angello & Wema, 2010).

In another study, Isibika and Kavishe (2018) conducted a study which investigated the utilisation of subscribed e-resources among 47 students and 13 lecturers at Mzumbe University library in Tanzania. The study used a mixed-method research design using cross-sectional and case study research designs. The findings revealed that participants were moderately aware of the library-subscribed e-resources. Isibika and Kavishe (2018) recommended that library users should be made aware of subscribed library e-resources databases to influence their utilisation of these resources. Isibika and Kavishe (2018) further suggested that the awareness must be given high priority by the library management and staff through various ways such as training, flyers and brochures among others.

In Malawi, Malemia (2014) conducted a study to investigate academics' use of scholarly electronic journal articles at Mzuzu University and used mixed method. Self-administered questionnaires and semi-structured interviews were used to collect data from 77 respondents. The study found out that the majority of respondents were aware of online databases available at their institution. In a related study, Chimsinde (2019) conducted a study on the use of electronic information resources by students at the African Bible College using mixed methods approach. A questionnaire and interview guides were used to collect data. The findings revealed that 58% of the students were aware of the online databases available at the institution.

Scholars like Chawinga (2017), Chaputula (2016) and Mapulanga (2012) independently reported that there is exorbitant cost of internet data in Malawi. This means that much as students can be aware of the availability of online databases, still more they may not use the them because of the high cost of internet. Nevertheless, it is still imperative that students are aware of the online databases available at Saint John of God College of Health Sciences, if they are to be extensively utilised.

2.3 Students' competencies in the use of online databases

Students digital competencies are the necessary skills required for them to use digital tools and work in computerised environments like electronic library infrastructures and services (Khan & Bhatti, 2017). Ridwan et al., (2019) defined ICT competencies as being able to handle a wide range of varying computer applications for various purposes. Information competency, sometimes referred to as information literacy, “is the ability to access, evaluate, organise and use information from a variety of sources” (Feather & Sturges, 2003, p. 261). In an electronic environment, computer literacy is seen as the basis for information literacy (Feather & Sturges, 2003). However, it should be noted that being computer literate does not guarantee being information literate.

Ankrah and Atuase (2018) argues that online information literacy is important for students to successfully use online databases. It is essential for students to have competencies in computer skills in order to effectively access information from different sources such as World Wide Web (WWW), online databases, e-journals and CD-ROMs. Apart from accessing information, Ankrah and Atuase (2018) further argue that online information literacy skills are needed for users to successfully locate, retrieve, organise, evaluate, and apply information in their academic work.

Saulus (2017) conducted a study on the usability of the institutional repository by faculty and postgraduate students at the University of Swaziland. A mixed methods approach was used and questionnaires and interview schedules were used to collect data. Respondents were asked to rate their levels of skills in searching and retrieving documents from the repository. The majority of students reported that their levels of skills in searching and retrieving online information were low.

Different findings were obtained in a study by Adeleke and Nwalo (2017) who examined the relationship between information literacy and the use of information resources by postgraduate students from the university of Ibadan in Nigeria. The study adopted a descriptive survey design, and a sample of 300 postgraduate students were selected using simple random. Data were collected using questionnaires designed to elicit response from respondents. The study reported that a lot of students lacked search techniques skills to access the intended information in online databases. Others reported that they lacked general IT skills.

Chipeta (2008) conducted a study on the teaching and learning of Information Literacy in institutions of higher learning in KwaZulu-Natal province and Malawi using qualitative and quantitative methods. Data was collected using questionnaires, observations and interview guides. The study targeted 422 students as follows: Durban University of Technology, 229 students, University of Zululand 103 students and Mzuzu University 18 students. The study revealed that students from University of Zululand and Mzuzu University who received formal information literacy training had the perception that they had the right skills to independently identify, locate, retrieve and use information sources. This means that training boosts the confidence and skills of students in online information literacy. This may also entail that in cases where students are trained, they can be highly competent in using the online databases.

2.4 The benefits of online databases

The ultimate goal of the online databases is to meet the information needs of users and enhance their scholarly endeavours. Studies conducted in form of surveys in different universities and colleges in the developed countries like the USA, UK and India, by Tenopir et al. (2009), Berzins and Hudson (2011), Ray (2010), and Ayub et al. (2014) respectively revealed common findings that online databases offer various benefits.

In the USA, Tenopir, et al. (2015) conducted a study on the evolution from print to electronic journals. Data were gathered using questionnaire surveys of university faculty and other researchers periodically. The study revealed that the main benefit for using online databases was provision of online access to articles that can be obtained and read in the convenience of the reader, that is either at office or home. The study also found that students benefited from online databases as they could access information remotely. In this case, most of the rest of the readings were done either at home or while traveling.

In the United Kingdom (UK), Berzins and Hudson (2011) conducted a study on the use of resources. The research used mixed methods and data was collected through questionnaires, one on one semi-structured interviews, phone interviews, documentary analysis and case study development of areas of good practice. The study collected data from 40 participants. The findings were then triangulated with information from online (and other) sources such as institutional web pages, and prospectuses. The study found out that quicker access to information to support learning was the key benefit of using online databases by students (Berzins & Hudson, 2011). For example, when using online databases, a student can access information at a click of a button by downloading a file as compared to print which requires

students to physically borrow from the library. In addition to that, the study also found out that students get the following benefits from using online databases: quality information obtained as it is peer reviewed and reliable; allows 24/7 access to information and accessibility to all (including disabled students) (Berzins & Hudson, 2011).

Likewise, some studies (Adeleke & Nwalo, 2017; Nkoyo & Nsante, 2016; Mwantimwa et al., 2017; Chimsinde, 2019) conducted in some institutions of higher learning in Africa which are discussed below have also yielded similar results to those of Tenopir et al. (2009), and Berzins and Hudson (2011) which were done in developed countries.

A study conducted by Adeleke and Nwalo (2017) investigated availability, use and constraints of electronic information resources by postgraduate students for academic purposes at the University of Ibadan in Nigeria. The study adopted a descriptive survey design and data was collected from 300 postgraduate students selected randomly from the seven faculties out of the 13 Faculties. Data were collected using questionnaires. The study established that access to relevant and current information from different subject areas was the main benefit students got from using online databases. They also endorsed that online database offer up-to-date information. For example, once a journal article is uploaded on the online database, it can be accessed globally the same time by many users. Additionally, the study established that online database increase timeliness among students in doing research. This means students can do their research in time since they will have information available to do literature review instead of wasting on searching for information.

Similarly, Nkoyo and Nsante (2016) studied the availability and utilisation of electronic resources by postgraduate students at the University of Calabar Library in Nigeria. Descriptive survey was adopted by collecting data from a sample of 400 postgraduate students (200 from Faculty of Education and Faculty of Science) using stratified sampling. Questionnaire was the main instrument used for data collection. The study found out that the focal benefits of using online databases by students were realisation of improved academic performance especially in research and ability to do fast searching of information. Furthermore, the study established that online database increased students' ability to access e-resources from hostels or homes; access to full text of an article; ability to access high image quality; and saves space when using them.

Likewise, Mawere and Sai (2018) conducted a study and investigated on e-resource utilisation among university students at Great Zimbabwe University. The study employed both

quantitative and qualitative approaches. The study established that online databases provide students with a simultaneous access to a wide range of electronic information resources such as e-journals, books; allow students to easily search for exact information within an article; makes it simple for students to access information and provides students with links to other important information resources; permits students to access resources remotely; helps students to access full text journals; facilitates easy surfing through the web pages and ability to access to resources 24 hours and saving storage space.

In a related study, Mwantimwa et al. (2017) conducted a study on the use of electronic information resources in selected universities in Tanzania. The study employed a mixed methods research approach and data was collected from 119 staff members and students. The questionnaires were administered with staff and students, interviews were conducted with library directors and ICT staff, and focus group discussions were held with librarians. The study established that online database had the ability to provide information to students any time of the day, and provided them with hyperlinks to other related information resources. Additionally, the study revealed that online databases provided students with various search options, and they also helped make citations easy. It is the aim of this present study to collect data from both students and assistant librarian so that findings from one source should confirm findings from another source.

In a similar study, Chimsinde (2019) investigated use of electronic information resources among students at the African Bible College, Malawi Campus. The study adopted Mixed methods approach. A questionnaire was sent to 78 third year students and 73 responded. Follow-up interviews were conducted with five students who were class representatives from five departments. The study revealed that the majority of students reported that they benefitted from online databases as they had access to a wide range of information. This enabled them access a lot of online journal articles. In addition to that, the study found out that students benefitted from online databases because they had quick access to current information. Although this current study has adopted the same method of using self-administered questionnaires, it further substantiated the self-reporting questionnaires from students with an interview with the Assistant librarian to confirm the findings from the students. Much as both studies were done on private institutions of higher learning, they differ in the sense that the current study was conducted at a CHAM facility which has a focus on health while the latter is not under CHAM and does not focus on health.

2.5 Factors influencing the utilisation of online databases

This section reviews a number of factors that either encourage or discourage students to effectively utilise online databases. The facilitating conditions construct of UTAUT is crucial in addressing this section, supported by the social influence construct.

At international level, a chain of scholars like Tenopir, King, Edwards, and Wu (2009), Berzins and Hudson (2011), Ray (2010), and Ayub, Hamid and Nawawi, (2014) conducted studies in form of surveys in different universities and colleges in the developed countries like USA, United Kingdom (UK), India, Malaysia by respectively. The studies also found the following factors that influence the utilisation of online databases either positively or negatively; availability of technological infrastructure; efficiency and speed of internet connection; reliable power supply; library support; friendliness of library website and specific online databases interfaces, low bandwidth, lack of searching skills, poor funding of institutions, high cost of information technology equipment and long passwords.

2.5.1 Training

Obasuyi and Okwilagwe (2018) conducted a study which investigated the influence of institutional factors on utilisation of Research4Life databases by National Agricultural Research Institutes scientists (NARIs) scientists in Nigeria. Research4Life is an initiative in which a partnership of UN agencies, scientific publishers, US university libraries, and technical partners have come together with the aim of reducing the knowledge gap between developed and less developed countries by providing the later with affordable access to critical scientific research through online databases (Obasuyi & Okwilagwe, 2018). The study found out that students were encouraged to use online databases because of the adequate training given to them by the library staff. It can be argued that training is important because it makes students have knowledge of online databases in their field of study. Thereafter, they can be able to construct effective search strategies, critically appraise information sources, use information sources appropriately by citing and creating references. On the other hand, lack of training may discourage students to use online databases.

2.5.2 Internet connectivity

Ankrah and Atuase (2018) examined the use of electronic resources by 275 postgraduate students of the University of Cape Coast in Ghana. The study used a cross-sectional survey design. The study revealed that the main factor that discouraged students from using online databases was poor internet connectivity. In this case, the study reported that students were

discouraged to use online databases because at times they failed to download an article because of the slow internet. Ideally, this means that fast internet can encourage students to use online databases.

Isibika and Kavishe (2018) conducted a study that investigated the utilisation of subscribed e-resources at Mzumbe University main library in Tanzania. The study used a mixed-method research design using cross-sectional and case study research designs. Data was collected from 60 respondents (academic staff, undergraduate (third-year) students and postgraduate students). For the sake of obtaining in-depth information, a purposive sampling technique was used to select staff and student representatives who were interviewed as key informants. The study found out that unstable network connectivity and lack of searching skills were the major factors that discouraged them from accessing and utilising subscribed online databases. It is important to note that the current study also used purposive sampling technique to select the Assistant librarian for interviews as it was believed that he would give relevant information on online databases available because he is directly involved in teaching students how to use these resources.

2.5.3 Awareness

Machimbidza (2014) conducted a study and investigated the factors that influenced the behaviour of academics towards peer reviewed electronic journals in some Zimbabwean universities. The study revealed that academics were discouraged to use online databases because of the following key challenges: lack of awareness on online databases, and lack of training on how to use online databases. In particular, some academics reported that they were not aware of the availability of some online databases at their institutions. From the literature, it can be deduced that adequate training can encourage students to use online databases. On the other hand, lack of proper training can discourage students from using online databases.

2.5.4 ICT Infrastructure

Several African scholars agree that one of the major barriers to the adoption and use of online databases on the continent is lack of the ICT infrastructure in African institutions (Chipeta & Chawinga, 2018; Kwafoa et al., 2014; Machimbidza, 2014; Sonkar, 2014; Ternenge & Kashimana, 2019; Verma, 2016). This includes main technologies such as computers, telecommunications technologies, Internet, bandwidth, power supply, as well as peripheral devices like printers, copiers, and scanners. Apart from having the gadgets, there is also a need to involve skilled administrative and support personnel. Generally, lack of adequate ICT

infrastructure brings a problem to the access and use of online databases (Chawinga & Zinn, 2015; Chawinga, & Zinn, 2016; Chawinga & Ngwira, 2015; Chawinga & Zinn, 2020; Chawinga & Zinn, 2020b; Chawinga & Zinn, 2019; Chawinga & Zinn, 2021; Lubanga, et al., 2018). This means that availability of ICT infrastructure can encourage students to use online databases.

Hamutumwa (2014) conducted a study and investigated the use of electronic resources by distance learners at University of Namibia. The study used both qualitative and quantitative approaches. The study established that facilitating conditions construct was significant in predicting learners' attitude to computer use and electronic resources. If facilitating conditions are not adequate or sufficient, they can negatively influence learners' attitudes and behavioural intention to use electronic resources. Therefore, ICT infrastructures as facilitating condition had influence on the learner's behavioural intention and attitude towards the use of electronic resources.

2.5.5 Passwords

Some studies have reported challenges of complicated passwords to access online databases (Angello & Wema, 2010; Machimbidza, 2014; Mwantimwa et al., 2017; Obasuyi & Okwilagwe, 2018; Ternenge & Kashimana, 2019). On the same, Coetzer and Mapulanga (2020), Alison et al., (2012), and Hadebe (2010) have all reported that the use of passwords hinder users from accessing electronic information resources. These passwords will normally have a combination of capital letters, small letters, figures, and special characters. This prevents them from realising the benefit of online databases. In some instances, users are still expected to memorise a long password in order to log in to desired online database. Much as this is a security measure, still more this requirement acts as an impediment to the use of online databases. Generally, students were dissatisfied with passwords which were not only long but also complex. Students may be encouraged to use online databases once their computers have the settings to remember the passwords once initially logged in. On the contrary, complicated passwords may discourage students from using online databases.

It is evident in the literature review that some contributing factors to this low utilisation of e-resources could be attributed to the users' poor attitude, lack of information literacy (IL) skills, lack of funds to subscribe for e-resources, high cost of internet, slow internet connectivity, long passwords, lack of time, inaccessibility of some databases, and frequent power cuts (Acheampong et al., 2019; Adetomiwa & Okwilagwe, 2018; Ajibade, 2019; Alison et al., 2012;

Anane, 2016; Ankrah & Atuase, 2018; Chaputula, 2016; Eyaufe, 2018; Kapondera & Hart, 2016; Isibika & Kavishe, 2018; Larson, 2017; Mollel & Mwantimwa, 2019; Nyasulu & Chawinga, 2019; Paulina et al., 2019; Soni et al., 2018; Ternenge & Kashimana, 2019). Furthermore, a mixture of local literature indicate that in a scenario where one lacks the required skills to identify, search, retrieve and evaluate the information, it is difficult for them to use the information resources (Chawinga, 2017; Chawing, et al. 2020; Chaura, 2014; Malanga, 2017; Nyasulu & Chawinga, 2018). In this case, it means that if a student lacks the information literacy skills, it is problematic to use the online databases.

From a critical synthesis of studies reviewed in this section, the researcher established a gap on the use of online databases among health science students. The researcher also observed a gap in the available studies, as most of them focused on postgraduate students but not undergraduate students. Ideally, postgraduate students are mostly involved in research hence researchers focus on them. The current study intends to fill this gap by investigating the utilisation of online databases by undergraduate students at Saint John of God College of Health Sciences which is a CHAM institution and nobody has ever investigated this system.

2.6 Summary

This chapter has presented a review of the literature about the use of online databases in institutions of higher learning globally. It addressed research objectives and attributes of the UTAUT theory adopted for the study. Literature was gleaned from the following sources: online journals, Master's degree thesis, PhD dissertations, and books. Furthermore, the researcher has critically analysed issues and identified the weaknesses or gaps and suggested what can be done by the current study to resolve the identified research gap.

The review of related literature has also clearly revealed that common approaches used to study the utilisation of online databases by students in higher education include surveys of both students, library staff and academics. It has also revealed that most studies collect data using self-reported questionnaires and interviews. The reviewed literature has therefore guided the researcher on the methods used in the present study. The next chapter (Chapter Three) provides the theoretical framework that underpinned the present study.

CHAPTER THREE

THEORETICAL FRAMEWORK

3.1 Introduction

A theoretical framework is a set of interrelated constructs (concepts), definitions, and propositions that present a systematic view of phenomenon by specifying relations among variables, explaining what has been done and what has been said on a topic (Sevilla, 1992, p.55). It is “a structure that guides research by relying on a formal theory, constructed by using an established, coherent explanation of certain phenomena and relationships” (Eisenhart, 1991, p.205). In a study, a theoretical framework gives a researcher structure and boundaries within which to work.

This study was guided by the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003). These scholars noticed that if information technology researchers had a chance to choose model from a number of models, they would choose their favoured model and ignore other alternative models even when such models had positive contributions. To this end, there was a need for a synthesis of models in order to reach a unified view of users’ technology acceptance. The UTAUT proponents reviewed and compared the eight dominant models that had been used to explain technology acceptance behaviour. Such models included the Theory of Reasoned Action (TRA) developed by Icek Ajzen and Martin Fishbein in 1980; Theory of Planned Behaviour (TPB) by Icek Ajzen in 1991; Technology Acceptance Model (TAM) by Fred Davis in 1986; Diffusion of Innovation (DOI) by Everett Rogers in 1995; Social Cognitive Theory (SCT) by Albert Bandura in 1986; Motivational Model (MM) by Fred Davies, Richard Bagozzi and Paul Warshaw in 1992; Model of Personal Computer Utilisation (MPCU) by Ronald Thompson, Christopher Higgins and Jane Howell in 1991; and Combined Theory of Planned Behaviour/Technology Acceptance Model (TPB/TAM) by Icek Ajzen in 1991.

3.2 The purpose of the theoretical framework

Theoretical framework provides a number of purposes in research. It is the lens through which literature is reviewed and discussed (Rockinson-Szapkiw & Spaulding, 2014, p.159). It determines the variables to be measured and the statistical relationships to be looked for. It means a theoretical framework provides itself more like a checklist of factors relevant to various aspects of implementation within a research process (Ngulube et al., 2015, p.56-57).

The roles of the theoretical framework can be summarised as follows:

- to serve as a basis of a research plan;
- to situate the researcher within a scholarly discourse and link the study to the broader body of literature;
- to provide a frame within which a problem under investigation can be understood;
- to shape the research questions and help to focus the study;
- to allow the researcher to narrow the project down to manageable size;
- to offer a plan for data collection;
- to operate as a tool to interpret research findings, and
- to provide a vehicle for generalisations to other contexts.

Indeed, a theoretical framework is a ‘blueprint’ for the entire dissertation inquiry which serves as a basis on which the researcher “philosophically, epistemologically, methodologically, and analytically approaches the dissertation as a whole” (Grant & Osanloo, 2014, p. 13). Generally, theoretical frameworks offer researchers with hints or guidelines to answer the questions which researchers may simply speculate or fail to offer any conclusive explanation.

3.3 Gaps identified in the theories

The following are some fundamental gaps and weaknesses identified in the stated theories that made the researcher not to choose them for this study.

The main emphasis of TRA is that attitude is influenced by belief which in turn determines behavioural intention to use a technology like online databases. TRA is effective in explaining behaviour when volitional control is high, that is, when there is a high degree of perceived success and actual control over the internal and external factors that may interfere with the

execution of the intended action, and this theory is not effective where volitional control is low (Ajzen, 1991; Ajzen & Fishbein, 1980). The major limitation of the theory stems from the assumption that behaviour is under volitional control. That is, the theory only applies to behaviour that is consciously thought out beforehand. Irrational decisions, habitual actions or any behaviour that is not consciously considered cannot be explained by this theory. Therefore, the UTAUT is the right model because it takes into account the facilitating conditions as constructs which were addressed in the last objective which looked at factors that influence the utilisation of online databases by students at Saint John of God College of Health Sciences.

TPB was developed by Ajzen in 1991 and is a modification of the Theory of Reasoned Action (TRA). It is concerned with the relationship between an individual's beliefs and behaviour in both voluntary and mandatory situations. Central to TPB, like in TRA, is that behavioural intention determines an individual's performance of behaviour. Armitage and Conner (2001) criticised the TPB for its claims that intention to perform some acts do not always culminate in the envisaged behaviour. In other words, perceived behavioural control is partly, but not absolutely, related to actual behavioural control. This in turn affects the extent to which intentions are associated with the corresponding behaviours. Perceived and actual behavioural control can sometimes diverge, such as when individuals are unaware to factors that facilitate the intended behaviour. Other factors that may facilitate behaviour are gender, age and social influence which are constructs in the UTAUT model. Considering such weaknesses, the researcher did not use TPB in this study, rather the researcher just benefited from the subjective norm construct which was also included in UTAUT model as social influence construct.

Much as TAM has been widely accepted in IT and Information Systems Technology Acceptance research, the model has been challenged for different reasons and within different contexts. Miller and Khera (2010) indicated that TAM had a shortfall of excluding the possibility of the influence of institutional, social and personal control factors in a potential user's decision to adopt or not adopt a given technology. This led to the questioning of the effectiveness of TAM in societies that are more collectively oriented and less individualistic.

TAM assumes that beliefs concerning ease of use and usefulness are always the principal determinants of any technological adoption and use decisions. Research conducted in developing countries, which generally value social cohesion and co-operation, has refuted this claim. The present study is being conducted in Malawi which is within the context of a developing country. Therefore, the researcher felt the model was not adequate on its own, hence

opted to use the UTAUT which has social influence as a construct which was used in the study. Therefore, these shortcomings of TAM made it unsuitable for this study because the college is a social system, located in a developing country whose society survives on social cohesion hence the UTAUT model was chosen on that basis, as it covers social influence in its constructs.

While DOI has been applied in a number of technology adoption situations, this model has well documented limitations. Firstly, the theory does not consider the possibility that people can reject an innovation even if they fully understand it (Walterman, 2004). Secondly, the theory does not give sufficient consideration to innovation characteristics and how these change over time (Wolfe, 1994). The theory also associates the latest technologies with progress hence ignoring alternatives. While it provides room for social factors, it is still biased towards studying the individual adopter, rather than group adopters. Due to these limitations, DOI does not meet the requirements of the current study hence dropped in favour of UTAUT model.

The gaps and weaknesses portrayed in the other models above do not necessarily disqualify them as potential theories for studying the adoption and usage of technology in general. Rather, these theories may provide a foundation for the UTAUT, which has been chosen for this study.

3.4 The UTAUT model

UTAUT model has the advantage over the others because it encompasses most elements inherent in the other models discussed above. The components of the UTAUT are shown in Figure 1.

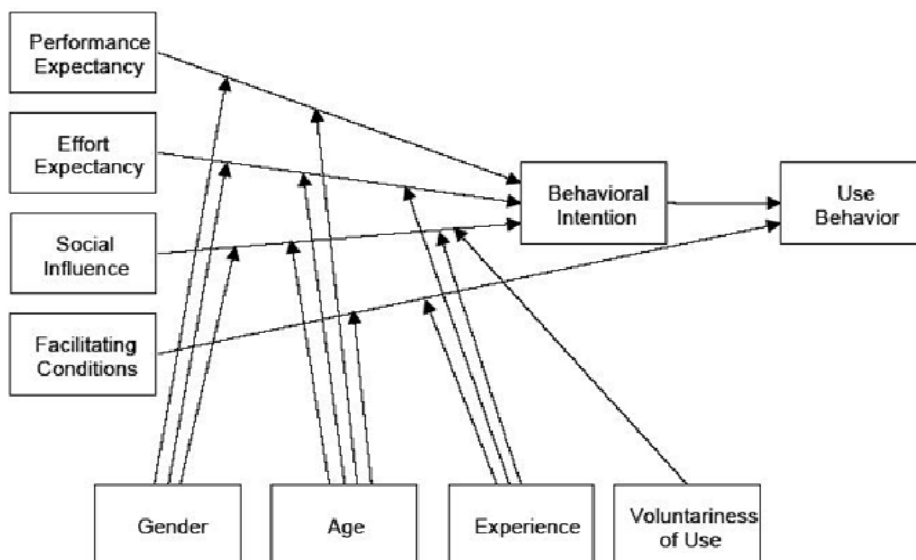


Figure 3.1: UTAUT model (Vankatesh et al, 2003, p. 447)

The UTAUT model has four main constructs which are performance expectancy, effort expectancy, social influence, and facilitating conditions, and these serve as direct determinants of usage intention and behaviour (Venkatesh et al., 2003). Gender, age, experience, and voluntariness of use are posited to mediate the impact of these constructs on usage intention and behaviour. Generally, this theory assesses whether the user is able to accept and use the new technologies. Accordingly, it is used in this study to investigate the students' utilisation of online databases at Saint John of God College of Health Sciences in Malawi.

The main constructs for UTAUT model are discussed below as the chosen model for this study.

3.4.1 Performance expectancy

Performance expectancy is defined as the degree to which an individual believes that using the system will enhance job performance (Venkatesh et al., 2003). In this study, the performance expectancy construct of UTAUT was used on the fourth research objective on the questionnaire which looked at the factors that influence students' utilisation of online databases at Saint John of God College of Health Sciences. This assumed that students can use online databases if they feel that such resources are useful in their studies, and can help them accomplish their tasks quickly.

3.4.2 Effort expectancy

Effort expectancy is defined as the degree of ease associated with the use of the system (Venkatesh et al., 2003). This means that the designed information system will be adopted or rejected by its users depending on its levels of difficulty or easiness when using it. In other words, adoption will depend on whether access to and use of online databases is clear and easily understood or whether it is easy for the user to use online databases or not. Effort expectancy construct also informed the second research objective of this study which looked at the students' competencies in the use of online databases at Saint John of God College of Health Sciences.

3.4.3 Social influence

Social influence is defined as the degree to which an individual perceives and believes in the importance of others towards his or her desire to use the new system (Venkatesh et al., 2003). In this case, students may use online databases because their 'significant others' are also using

them. Precisely, students may be influenced by their peers, lecturers and library staff to use the online databases. In this study, the social influence construct supported another construct, facilitating conditions, in addressing the fourth objective which looked at the factors that influence students' use of online databases at Saint John of God College of Health Sciences.

3.4.4 Facilitating conditions

Facilitating conditions are defined as the degree to which an individual believes that organisational and technical structures exist to support his or her use of the system (Venkatesh et al., 2003). Some of the conditions that affect the utilisation of online databases are availability of resources, technical support, adequate infrastructure, cost of technology, and black-outs among others. When these conditions are conducive, the positive attitudes can easily be nurtured in the use of technology. On the other hand, when these conditions tend to be negative, the negative attitudes come in and there are barriers to access and use technology. In this study, facilitating conditions, helped in addressing the fourth objective which looked at the factors that influence students' use of online databases at Saint John of God College of Health Sciences. These factors included those that either encourage or discourage students from using online databases.

Besides the above-mentioned four-core determinants, there are also four significant moderators in the theoretical structure of UTAUT model which include gender, age, experience and voluntariness of use (Venkatesh et al., 2003). This study used gender and age moderators which are briefly discussed below.

3.4.5 Gender

The UTAUT model posits that gender moderates the adoption and use of technology (Venkatesh, et al., 2003). In this study, the questionnaire captured gender variables (males and females) in the demographic section to check if gender had any influence on students' utilisation of online databases at Saint John of God College of Health Sciences.

3.4.6 Age

Similarly, the UTAUT model proposes that age moderator impacts the user intention on technology (Venkatesh, et al., 2003). In this study, the researcher incorporated different age categories (below 20, 20-24, 25-29 and above 30 years) in the demographics section of the questionnaire to examine if age impacts students' utilisation of online databases at Saint John of God College of Health Sciences.

3.5 Acceptance and use of UTAUT in related studies

There are some other researchers who used the UTAUT model in related studies and under different contexts. Some of such studies are as follows:

- Sejane (2017) used UTAUT model to investigate use of e-resources in the academic libraries of the Lesotho Library Consortium;
- Olanike (2016) used UTAUT model to determine the use of electronic instructional media among academics in universities in Nigeria;
- Tibenderana et al., (2010) used UTAUT model in measuring end-user' use of hybrid library services in Uganda;
- Machimbidza (2014) used UTAUT model to investigate the adoption and use of peer reviewed electronic journals by academics at the Zimbabwean State Universities;
- Hadebe (2010) used the UTAUT model to investigate the use of electronic databases by master's students at the University of KwaZulu-Natal in South Africa and
- Eyaufe (2018) used the UTAUT model to investigate the use of electronic information resources among doctoral students at the University of Kwazulu-Natal in South Africa and Obafemi Awolowo University (OAU), Nigeria.

Given the diversity of these studies, it is evident that the UTAUT model can be used in a variety of contexts, hence justifying its adoption in this present study.

3.6 Justification of using UTAUT model and its construct in this study

This study adopts the UTAUT model (Venkatesh et al., 2003) because it best addresses the research objectives in a clear and concise manner by discussing students' utilisation of online databases, and factors that influence utilisation of these online databases at Saint John of God College of Health Sciences in Malawi. Precisely, the UTAUT model provides "a-one-stop-shop" of robust constructs that help the researcher analyse, explain and understand the students' utilisation of online databases at Saint John of God College of Health Sciences in Malawi.

3.7 Summary

This chapter has presented the UTAUT model and why it has been adopted in this study. It also examined the alternative theories, their claims, gaps and key thrusts and why they were not utilised by this study. It finally provided the justification why UTAUT was preferred over the

others before concluding with a summary of the entire chapter. The next chapter (Chapter Four) provides the research methodology for the present study.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 Introduction

The chapter provides methodological justification for the study. Kumar (2011) defines research methodology as the specific procedures or techniques used to identify, select, process, and analyse information about a topic. This chapter describes the research methods and techniques that were used in connection with students' utilisation of online databases at the Saint John of God College of Health Sciences in Malawi. The chapter discusses research paradigm, research design, research methods, study population, sampling strategies, research instruments, data collection methods and procedures, data analysis, validity and reliability, and ethical considerations.

To recap, the main objective of the study was to investigate the utilisation of online databases among students at Saint John of God College of Health Sciences in Malawi. The researcher came up with four research questions that guided the study in accomplishing the main aim as follows:

- What is the level of students' awareness of online databases at Saint John of God College of Health Sciences?
- What are the students' competencies in the use of online databases at Saint John of God College of Health Sciences?
- What are the benefits that students accrue from using online databases at Saint John of God College of Health Sciences?
- What are the factors that influence students' use of online databases at Saint John of God College of Health Sciences?

4.2 Research paradigm

Creswell (2014) defines a paradigm as a worldview of acknowledging a way of thinking about the world that is inclusive of morals, values, attitudes and beliefs that are brought into the study, and eventually guide the approach into practice. Research is supported by "various philosophical beliefs called paradigms" (Creswell, 2014, p. 6). The research paradigms "include interpretivism, positivism, post-positivism and pragmatism" (Creswell, 2014, p. 6). This study was underpinned by the pragmatic research paradigm.

4.2.1 Interpretivism paradigm

Interpretivism paradigm also referred to as social constructivism or constructivism, hold the view that social realism is communally built based on peoples' interpretations of reality (Schutt, 2019). Social constructionism is an epistemological stand that stresses that human beings do not discover knowledge but rather actively construct or make it (Creswell, 2014). Creswell (2014) further argues that individuals invent concepts, models, and schemes to make sense of experience, and continually test and modify these constructions in the light of new experiences. The ontological viewpoint of the Interpretivists is that scientists construct an image of reality based on their own perceptions and biases; while the epistemological viewpoint is that there is no definite subject-object split in knowledge building. In other words, research is perceived to investigate the motives, insights and practices of social actors. Interpretivists employ different ways of interviews and observations to collect data which they interpret. To this end, the researcher did not choose this paradigm for this study.

4.2.2 Positivism

Denscombe (2008) referred to positivism as an approach to research that seeks to apply the natural science model of research to investigations of social phenomena and explanations of the social world. The main principles of this paradigm include objectivity, distance, detachment and control (Creswell, 2014). Positivism states that true knowledge is that which can be arrived at through use of the senses and gathering facts that provide the basis for laws (De Vos et al., 2011; Bryman, 2015). These attributes, in combination with the removal of bias, help each other in achieving objectivity. Creswell (2014) emphasises that a positivist method is the conventional quantitative method to social and educational investigation, whose investigation approaches largely belong to several possible alternatives concerning natural phenomena. Quantitative methods employ numerical descriptions of patterns, views and beliefs of a well-defined collection of individuals or objects by the study of a data sample of that statistical population. Researchers then generalise claims of the said population from sample findings (Bryman, 2015). Neuman (2020) further argues that positivist approaches are not suitable for the study of humans and their behaviour because they fail to take into account context and respondents' experiences. Since this paradigm relies much on quantitative approaches, therefore it was considered unsuitable for this study.

4.2.3 Post-positivism paradigm

Post-positivism was a direct challenge to positivism as an epistemological method that must be universally used in all fields of study. Whereas positivists argue that there is reality out there to be studied, captured and understood, post-positivists contend that reality can never be fully apprehended but only approximated (Guba, 1990). In other ways, post-positivists challenge the traditional notion of the absolute truth and objectivity of knowledge (Phillips & Burbules, 2000). Furthermore, post-positivists believe that not all methods are applicable in all contexts (Glicken, 2003). Despite the differences in the use of methods, post-positivists concur with positivists that research should comprise a series of logically related steps, employ rigorous methods and validity approaches, use multiple levels of data analysis, and where necessary employ computer programs to assist in data analysis (Creswell, 2018). This means that post-positivism paradigm supports a purely quantitative research method and the researcher did not opt for this paradigm.

4.2.4 Pragmatism

Pragmatism paradigm is a belief in research practice that advocates researchers to mix research components in ways that will work for their research problem, question and circumstances (Creswell, 2014). Pragmatists believe that research normally occurs in social, historical, political and other contexts hence mixed methods studies may include a postmodern turn, a theoretical lens that is reflexive of social justice and political aims (Creswell, 2014). In practice, a researcher using this worldview uses multiple methods of data collection to best answer the research question; focuses on the practical implications of the research, and the researcher puts much attention on the research problem in social science research (Creswell, 2014). Pragmatists do not see the world as an absolute unity, which is why they utilise various data collection and analysis approaches rather than subscribing to only one way such as qualitative or quantitative. Individual researchers therefore have the liberty to choose the methods, techniques, and research procedures that best meet their needs and purposes.

Pragmatism offers many benefits to researchers. In particular, flexibility of a researcher in investigative techniques in an attempt to address any arising research questions. Pragmatism is more likely to promote collaboration amongst researchers regardless of their philosophical orientation (Onwuegbuzie & Leech, 2005). According to Guba (1990) pragmatic researchers are more likely to view the world as a holistic endeavour that requires prolonged engagement, persistent observation and triangulation. By supporting both techniques, pragmatic researchers are in a better position to use qualitative research to inform the quantitative portion of research

studies and vice versa. The inclusion of the quantitative approach compensates for qualitative data that cannot be generalised. Similarly, the inclusion of qualitative data helps in explaining relationships discovered by quantitative data (Onwuegbuzie & Leech, 2005). This study was underpinned by the pragmatism paradigm. This paradigm is well suited for this study since both qualitative and quantitative (mixed) methods procedures were applied to understand the research problem better, and to gain deeper understanding of students' utilisation of online databases at Saint John of God College of Health Sciences.

4.3 Research design

Henn et al. (2009) define a research design as a plan or strategy that shapes the research. Creswell (2014) argues that research designs “are types of inquiry within qualitative, quantitative, and mixed methods approaches that provide specific direction for procedures in a research design” (p. 12). Qualitative, quantitative and mixed methods research designs are further categorised into sub-types or approaches (Creswell, 2014). Quantitative designs are categorised into two types, thus experimental designs and non-experimental design. Qualitative designs, on the other hand, are categorised into five types and these include narrative, phenomenology, grounded theory, ethnographies and case study designs. Lastly, mixed method designs “are categorised into six types including convergent parallel mixed methods, explanatory sequential mixed methods, exploratory sequential mixed methods; embedded design, transformative design and multiphase mixed methods designs” (Creswell & Plano-Clark, 2011, p. 70; Creswell, 2014, p. 12).

This study adopted the mixed methods design. Specifically, the study followed an explanatory sequential mixed method design, where the researcher first conducted quantitative research, analysed the results and then built on those results to explain them in more detail with qualitative research (Creswell, 2014). In this study, the researcher collected quantitative data from the students' using questionnaires, then later analysed the results and thereafter used the results to supplement on the qualitative data that was collected from the assistant librarian through interviews. This provided an opportunity for deeper understanding of the research results through explanations from both sets of data.

4.4 Research methods

Creswell (2014) defines research methods “as strategies of data collection, analysis and interpretation that researchers propose for their studies” (p. 16). Generally, there are three types of research methods which include “qualitative, quantitative and mixed methods” (Creswell,

2014, p. 17). Since the study is guided by the pragmatic paradigm, both quantitative and qualitative research approaches (Mixed methods) were adopted for this study. In other terms, this study was a mixed method. This combination of methods “involves the collection, analysis, and integration of quantitative and qualitative data in a single study to provide a comprehensive analysis” (Creswell, 2014, p. 19). These methods were chosen because they complemented each other and the nature of the problem under investigation required this approach. This way, the qualitative data collected from the assistant librarian helped in providing in-depth explanations to the quantitative data collected from students. The researcher is also sure that the study managed to generate reliable findings by triangulating the data that was collected using questionnaires and interview guide.

4.5 Study site and population

The study was conducted at Saint John of God College of Health Sciences in Mzuzu, Malawi. “Population is the entire group of persons or objects that is of interest to the researcher and that meets the criteria which the researcher is interested in studying” (Brink, 2006, p. 123). The study targeted the students at Saint John of God College of Health Sciences which has a total population of 188 as shown in the Table 1 below. In this study, students were targeted because the researcher informally observed underutilization of online databases among them, therefore evidence-based approach was imperative to be carried out. Additionally, being an employee of the institution, gathering data from the students would be convenient by the researcher.

Table 4.1: The population of students at Saint John of God College of Health Sciences

Programme	Level of study						Total
	2		3		4		
	M	F	M	F	M	F	
Diploma in Registered Nursing	33	29	34	29			125
Diploma in Psychosocial Counselling	15	10					25
Bachelor of Science in Clinical Medicine (Mental Health)			5	6	12	1	24
Bachelor of Science- Mental Health Psychiatric Nursing			5	5	2	2	14
Total	48	39	44	40	14	3	188
	87		84		17		

Source: Saint John of God College of Health Sciences (2020).

Key

M= Male, F= Female

4.6 Sampling procedure

Sampling is “the process of selecting a few subjects from a bigger group to become the basis for estimating the prevalence of an unknown piece of information, situation or outcome regarding the bigger group” (Kumar, 2011, p. 193). According to Pickard (2012) “sampling is done when it is not practical to include the whole research population in your study” (p. 59).

In this study, the target population was 188 students enrolled at Saint John of God College of Health Sciences. According to Israel (1992); Saunders et al. (2019), and Powell and Connaway (2010), the entire population (census) would have to be sampled in a small population of 200 or less in order to achieve a desired level of precision and in this case 188 was within the limit. Israel (1992) further argues that a census eliminates sampling errors and provides data on all the individuals in the population. Therefore, the researcher determined the sample size by employing census method to select all the 188 students at this institution to participate in the study. It is important to note that a census data is regarded as more accurate and reliable than data collected from other sampling surveys (Bhanu, 2012). In the first year, there were no students. This is because the College had no intake in the year 2020.

On the other hand, purposive sampling was used to select the assistant librarian who is involved in training students on how to access and use online databases available at this College. Purposive sampling technique involves “selecting participants against one or more trait to give what is believed to be a representative sample” (Gray, 2009, p. 152). The assistant librarian was interviewed, and the information supplemented the data collected from the students’ questionnaires.

4.7 Data collection instruments

Choices regarding data collection instruments to use are informed by the type of research approach used in a study. As already noted, this study used mixed methods approach, implying that both quantitative and qualitative methods were employed. Therefore, the study used questionnaires and interview guide to collect data.

4.7.1. Questionnaire

In order to gather quantitative data, the researcher used a questionnaire which is defined by Kumar (2012) as a “written list of questions, the answers to which are recorded by respondents” (p. 145). A questionnaire was chosen because it provides a number of advantages. A questionnaire is comparatively convenient and inexpensive especially when it is administered collectively to a study population (Kumar, 2019). Besides that, Powell and Connaway (2010)

argue that questionnaires are the best way to collect large amounts of data within a short period of time, and they are less costly.

In some instances, a questionnaire may have some weaknesses. For example, in situations where respondents are not competent to answer the questions due to poor understanding of the concepts being investigated, it may result into biased, inaccurate responses, and incomplete responses (Babbie, 2017). However, in this case, students are expected to have some basic understanding of the online databases considering that library staff conduct periodical information literacy education programmes on them on how they can access and utilise online databases. In addition, Kumar (2019) clarified that a questionnaire does not offer researchers the opportunity to clarify issues and probe for further information. Taking into account such weaknesses, the researcher triangulated the data collected using a questionnaire with qualitative data collected through interviews.

Basically, questionnaires can be categorised into two broad forms, considering how the actual data collection is performed: self-completed and interviewer completed (Saunders et al., 2019). Self-completed questionnaires are completed by the respondents and depending on the distribution strategy, they can be further categorised as web-based or Internet mediated questionnaires, intranet mediated questionnaires, postal or mail questionnaires and delivery and collection questionnaires (Saunders et al., 2019). On the other hand, interviewer- completed questionnaires are completed by the researcher by reading the questions to the respondents, and the interviewer records the answers chosen by the respondent. Likewise, depending on the communication mode between the interviewer and the respondent, these questionnaires can be categorised as telephonic questionnaires or structured interviews (Saunders et al., 2019).

In this study, the researcher employed a collective administration way of administering the questionnaires. Here, the researcher assembled students in their respective classrooms and distributed questionnaires to all of them. After filling in the questionnaires, the participants handed in the questionnaires to the researcher. Since the researcher had contact with the students, the aim and relevance of the study was explained. Apart from that, clear clarifications were also made to any questions that participants had. Kumar (2012) advises that collective administration is the fastest way of collecting data and that it guarantees very high responses rate as well as saving money. The researcher used the hand-delivered questionnaires other than web-based questionnaires because the researcher wanted to maximise the response rate. Health science students are normally busy as they are mostly allocated in hospitals across the country

where they are engaged in clinical placements. In this case, the researcher anticipated that some participants could find it tiresome and inconveniencing filling the questionnaire online, which could then be costly to others. Besides that, internet unavailability is a problem in Malawi (Chawinga & Zozie, 2016a). Consequently, it could negatively affect the research process.

The questionnaire items (see Appendix 3) were largely informed by the UTAUT model, the research questions and the literature review (see chapter two).

Questionnaires can also be open-ended or closed-ended. The open-ended questionnaire allows researchers to give answers in their own way (Fink, 2017) while the closed-ended one provides a list of multiple answers for respondents to choose from (Saunders et al., 2019). In this study, the questionnaire contained both closed and open-ended questions so that the open questions should make up for the weaknesses of the closed questions. The researcher employed self-administered questionnaire consisting of closed-ended questions, and to a lesser extent it had open-ended questions. The researcher opted for self-administered questionnaires because he also wanted to minimise the non-response rate as argued by Powell and Connaway (2010). Apart from that, questionnaires were used in this study because they make it possible for the researcher to harvest data from a larger population than would be possible using any other technique (Pickard, 2017). In this case, the researcher collected data from all the students at Saint John of God College of Health Sciences, hence the choice of this instrument.

Additionally, the choice of an open-ended questionnaire was aimed to allow respondents to provide their own ideas, views and opinions on the subject under study (Kumar, 2011). As such, this allowed the researcher to obtain responses that were not even anticipated. The questionnaire was further divided into five sections as shown on the following page.

Section A: Sought to gather data on demographic characteristics of respondents which included gender, year of study, programme of study and age.

Section B: Sought to elicit information on students' awareness of online databases. Some issues included specific online databases they were aware of; access to the online databases and frequency of using online databases.

Section C: Sought to determine the students' competencies in the use of online databases. The main aspects of this section included ranking the students' level of competency in using online databases.

Section D: Intended to establish the benefits students accrue from using the online databases. The following are the variables which were researched under this section: convenience; saving time; easiness in searching articles; access to a wide range of journals; searching within an article; easiness to access information; interactivity; provision of links to other articles; print research findings; fast researching; remote access; access to full text articles; high image quality; easiness in browsing; 24 hours' access and saving space.

Section E: Sought to determine the factors that influence the utilisation of online databases by students. The respondents were asked to indicate the factors that either encourage or discourage them from utilising online databases at the institution. The following are the actual variables that were covered under this section: Usefulness of online databases; accomplishments of tasks quickly; increasing productivity; increasing chances of passing with good grades; conduct research quickly; colleagues' influence; lecturers' influence; library staffs' influence; college support; encouragement in using online databases; resource availability; knowledge to use online databases; technical support availability; library trainings; infrastructure availability; Internet speed; awareness; skills; passwords; downloading full-text articles; information overload; lecturers' motivation; accessibility; cost; relevance; subscription and power supply availability

The five-point Likert scale format was used to measure some items in the questionnaire relating to the utilisation of online databases. The format allowed respondents to choose an option that best demonstrates their level of agreement with a given statement (Babbie, 2017). A five-point Likert scale, from 'strongly agree' to 'strongly disagree', was used to determine how a participant agreed or disagreed with a particular statement. The participants were also asked to mark their best responses. While in other sections, respondents were only asked to choose the most correct statement valid to their situation.

4.7.2 Interview guide

Interview guides or protocols are another data collection instrument that was used in this study (See Appendix 4). According to Punch (2009) an interview guide "is the most prominent data collection tool in qualitative research" (p. 144). It is a very good way of assessing people's perceptions, meanings, definitions of situations, and constructions of reality. Gorman and Clayton (2005) asserted that, "the first advantage of interviewing is that it allows you to receive an immediate response to a question, unlike significant delays in the data collection process.

In addition, interviewing allows both parties to explore the meaning of questions posed and answers given and to resolve any ambiguities” (p.125).

Generally, there are three types of interviews as identified by Saunders et al., (2019). These are structured, semi-structured and unstructured or in-depth interviews. In structured interviews, an interviewer asks respondents a series of predetermined questions that contain a limited set of responses (Pickard, 2012, 2017). Semi-structured interviews are those in which the researcher prepares a list of themes broken into some key questions which guide him/her in questioning the respondent (Saunders et al., 2019). Finally, unstructured or in-depth interviews entail the use of open-ended questions that afford the interviewees the opportunity to express their opinions, feelings and thoughts about the research problem; allowing them to narrate their story in their own words and in their own settings (Saunders et al., 2019). The researcher is convinced that through such interviews generated the most needed data on this topic for qualitative analyses (Creswell, 2014).

This study also employed in-depth interviews to collect data from the assistant librarian of this College who is responsible for the teaching of students on accessing and using online databases. The assistant librarian provided rich data about specific issues regarding online databases at the institution. During the interviews, the researcher was able to ask for more explanations and examples from him on the responses provided by the students to gain deeper understanding of the issues under investigation.

In this study, the interview was audio-recorded using Sony audio-recorder, and notes were hand-written in a notepad as a backup. Information generated from the interviews was also used to substantiate and supplement information gathered from the questionnaires.

The interview guide was in line with the research objectives of the study as summarised below.

Section A: The level of students’ awareness on online databases

The following variables were covered under this section: strategies put in place to make students aware; best time to introduce students to online databases and extent of awareness.

Section B: Students’ competencies in the use of online databases

Under this section, the researcher gave an opportunity to the Assistant librarian to rank the students’ level of competency in using online databases.

Section C: Benefits students accrue from utilising online databases

Under this section, the researcher was interested to know the benefits of online databases to students from the Assistant Librarians' perspective.

Section D: Factors that affect the utilisation of online databases

The following variables were researched: encouraging factors; discouraging factors; Online Public Access Catalogue (OPAC) conduciveness; top management support and quality of internet connection.

4.8 Data collection procedures and management

In this study, the researcher collected quantitative data from the students using questionnaires (See Appendix 3). The questionnaire was self-administered. Data was collected for a period of three weeks from all the respondents. Furthermore, the researcher conducted interviews (See Appendix 4) with the Assistant Librarian. Data collection instruments were in English language, and were not translated in any local language because the study was conducted at an institution of higher learning where the formal mode of communication is in English and participants were expected to be conversant and proficient with the language. After the study, data was archived in the College's repository. Table 2 presents mapping of data collection tools against research objectives, data variables and data analysis. These were reflected in the data collection instruments and data analysis strategy.

Table 4.2: Concept mapping

Research objectives	Variables being addressed	Sources of variables	Data collection instruments	Data analysis
To establish the level of students' awareness of online databases at Saint John of God College of Health Sciences	Knowledge of online databases based on gender; year of study; programme of study; age range	UTAUT model	Questionnaire;	SPSS
	Awareness; specific online databases awareness; mode of awareness; online databases used in academic studies; place of access; frequency of access	Literature reviewed.	Interview guide	Thematic analysis
To establish students' competencies in the use of online databases at Saint John of God College of Health Sciences	Interaction with online databases; skilful use of online databases; easiness in using; easiness in learning to use	UTAUT model	Questionnaire;	SPSS
	Relevance of online information literacy skills; level of competency	Literature reviewed.	Interview guide	Thematic analysis
To investigate the benefits that students at Saint John of God College of Health Sciences accrue from using online databases	Convenience; easiness in searching articles; easiness to access information; Interactivity; fast researching; easiness in browsing;	UTAUT model	Questionnaire;	SPSS
	provision of links to other articles; print research findings; remote access; access to full text articles; high image quality; 24 hours' access and saving space; access to a wide range of journals; searching within an article and saving time	Literature reviewed.	Interview guide	Thematic analysis
To determine factors influencing students' use of online databases at Saint John of God College of Health Sciences	Usefulness of online databases; accomplishments of tasks quickly; increasing productivity; increasing chances of passing; conduct research quickly; colleagues' influence; lecturers' influence; library staffs' influence; college support; encouragement in using online databases;	UTAUT Model	Questionnaire;	SPSS
	Resource availability; knowledge to use online databases; technical support availability; library trainings; infrastructure availability; Internet speed; awareness; skills; passwords; downloading full-text articles; information overload; lecturers' motivation; accessibility; cost; relevance; subscription; power supply availability	Literature reviewed.	Interview guide	Thematic analysis

4.9 Data Analysis

The quantitative data was analysed using a software package called Statistical Package for Social Sciences (SPSS) version 20.0 to present charts, graphs and tables. The data collected through questionnaires were fed into the SPSS for analysis to produce charts, graphs and tables. While qualitative data that was collected through an interview was analysed thematically.

4.10 Validity and reliability

Reliability is “concerned with consistency, predictability and stability of instruments used in research” (Kumar, 2010, p. 181). It questions whether the same results could be found if another researcher were to conduct related research using the same instruments. On the other hand, validity refers to appropriateness and accuracy of the research procedures used to find solutions (Kumar, 2010). Validity questions if the research is really measuring what it is supposed to measure, thus getting answers to questions it was intended to answer.

4.10.1 Quantitative data

This study tested the questionnaire so that any inconsistencies can be corrected. Kumar (2011) states that in testing an instrument, it should be administered repeatedly under the same or similar situations. In this study, the researcher pre-tested the questionnaire on five students in the Department of Nursing, Faculty of Health Sciences at Mzuzu University. Following the pre-test, essential corrections were done based on the feedback. The study also adopted questionnaires that have been successfully used to investigate the utilisation of online databases in some universities in the world. The adopted questionnaires included those of Sejane (2017) and Machimbidza (2014).

Creswell (2014) emphasizes that one of the strengths of quantitative research is validity, and is based on determining whether the findings are accurate from the viewpoint of the researcher, the participant, or the readers of the report. Kumar (2019) states that one way to validate quantitative data collection instrument is through face and content validity. According to Kumar (2019), face validity involves establishing a logical link between an item and each question on the research instrument with an objective of the study. The assessment of the items of an instrument is called content validity. In this study, face and content validity were used to ensure that the questionnaires measured what was intended regarding the logical link between the research questions and the objectives of the study.

4.10.2. Qualitative data

Creswell (2014) argues that themes are established based on converging several sources of data or perspectives from participants, and then, this process can be claimed as adding to the validity of the study.

To ensure reliability of the qualitative findings, the researcher made ensured that the answers from the respondents were written down thoroughly, and checked them to avoid any apparent errors. The researcher involved an expert to cross-check the codes. Creswell (2014) explains that in qualitative research, reliability often refers to the stability of responses to multiple codes of data sets. In addition, the researcher made sure that there were no alterations in the meaning of the codes during the process of coding. In this study, qualitative data were subjected to thematic analysis for commonly recurring and predominant themes which helped in answering the research questions.

4.11 Ethical considerations

Babbie (2017) and Creswell (2018) argue that anyone involved in social science research is supposed to be aware of the general agreements shared by researchers about what is proper and improper in conducting research. Before data collection begun, respondents were requested to read and sign the consent forms which clearly indicated that participation was voluntary, and that respondents were free to withdraw any time they wanted (See Appendix 1 and 2). Participants were also told that discontinuing from the study was not going to affect them in anyway. It should be noted that anonymity and confidentiality are very important ethical considerations in any research (Creswell, 2018). The researcher assigned codes to the participants, unlike using their real names, and data was locked in cabinet drawers only accessible to the researcher. Thereafter, the researcher sought ethical clearance from the Mzuzu University Research Ethics Committee (MZUNIREC). The researcher also got the consent letter from the Chief Executive Officer of Saint John of God College of Health Sciences to carry out the study at this College.

4.12 Summary

The chapter has described the methodology that was used in this study. It essentially discussed the anatomy of the research paradigm, research design, research methods, study site and population; sampling strategies, research instruments, data collection methods and procedures; data analysis, findings' validity and reliability, and ethical considerations. The next chapter (Chapter Five) provides a detailed presentation and analysis of the study findings.

CHAPTER FIVE

DATA PRESENTATION AND ANALYSIS

5.1 Introduction

This chapter presents, summarises and interprets the data that were collected using the questionnaire and an interview guide from students and the assistant librarian respectively. Creswell (2018) avers that data analysis is a key aspect of any research since it helps in making conclusions and generalisations from the data as it relates to the problem statement. Berg (2004) as well as Connaway and Powell (2010) concur with this view, and assert that the main purpose of analysing data is to summarise observations or data such that it provides answers to a hypothesis or the research questions. The researcher investigated students' utilisation of online databases at Saint John of God College of Health Sciences in Malawi. To this end, the study addressed the following research questions:

1. What is the level of students' awareness of online databases at Saint John of God College of Health Sciences?
2. What are the students' competencies in the use of online databases at Saint John of God College of Health Sciences?
3. What are the benefits that students accrue from using online databases at Saint John of God College of Health Sciences?
4. What factors influence students' use of online databases at Saint John of God College of Health Sciences?

The findings presented and analysed in this chapter are preceded by response rates and demographic details of respondents. The chapter is organised according to the research themes identified in Chapter One. The chapter is also divided into two parts: the first section presents quantitative data collected from students while the subsequent section presents qualitative data collected from the assistant librarian.

5.2 Presentation and analysis of quantitative data from students

A self-administered questionnaire was distributed to 188 students, and from this, 181 (96%) responded. As alluded to in the methodological chapter, both the questionnaire and the interview guide consisted of five sections (A, B, C, D, E), and the questions in these sections gathered data on background information; level of students' awareness of online databases;

students' competencies in using online databases; benefits of using online databases and factors that influence students' use of online databases.

5.2.2 Background information

The first section of the questionnaire provided demographic information of the respondents. The basic information which respondents were asked included their gender, year of study, programme of study and age range.

Results presented in Table 3 show that there were 94 (51.9%) males and 87 (48.1%) females. This indicates that there were more male participants than female participants in this study. These figures reflect the demographic composition of the student population in Malawian institutions of higher learning as being generally dominated by male students (Southern Africa Regional Universities Association, 2011).

On year of study, an analysis of results shown in Table 3 shows that 82 (45.3%) respondents are in level two, 83 (45.9%) are in level three and 16 (8.8%) are in level four. These results show that there were very few students in level four. This is because the intake for that year was also low for the college (Saint John of God College of Health Sciences, 2019).

Regarding programmes of study, 118 (65.2%) were studying Diploma in Registered Nursing, 25 (13.8%) were studying Diploma in Psychosocial Counselling, 15 (8.3%) were studying Bachelor of Science in Mental Health Psychiatric Nursing and 23 (12.7%) were studying Bachelor of Science in Clinical Medicine (Mental Health). This means that the majority of the students at the institution were pursuing a Diploma in Registered Nursing while the minority were pursuing a Bachelor of Science in Mental Health Psychiatric Nursing.

On age range, nine (5%) were below the age of 20; 79 (43.6%) were within the age range of 20-24; 39 (21.5%) were aged between 25-29; while 51 (28.2%) were above the age of 30. On the other hand, 3 (1.7%) of the respondents did not indicate their age range.

Table 2.3: Respondents by gender, year of study, programme of study and age range (n=181)

Dimension	Category	Frequency	Percentage (%)
Gender	Male	94	51.9
	Female	87	48.1
Year of study	Second year	82	45.3
	Third year	83	45.9
	Fourth year	16	8.8
Program of study	Diploma in Registered Nursing	118	65.2
	Diploma in Psychosocial Counselling	25	13.8
	Bachelor of Science in Mental Health Psychiatric Nursing	15	8.3
	Bachelor of Science in Clinical Medicine (Mental Health)	23	12.7
Age	Below 20	9	5.0
	20-24	79	43.6
	25-29	39	21.5
	Above 30	51	28.2
	No response	3	1.7

5.2.3. Awareness of online databases

Section B of the questionnaire consisted of questions that sought to solicit data from students on their awareness of online databases at Saint John of God College of Health Sciences. The section had six questions which aimed to understand general awareness of online databases; specific online databases students are aware of; mode of awareness of online databases; online databases used in academic studies; access to online databases, and frequency of use of online databases.

5.2.3.1 General awareness of online databases

Figure 2 below shows that the majority 178 (98.3%) of the students were aware of online databases available at the College while only 3 (1.7%) were not aware of these online databases. These results suggest a high level of general awareness of online databases at the

college. This can be attributed to the fact that library staff does conduct periodical awareness of online databases available to students.

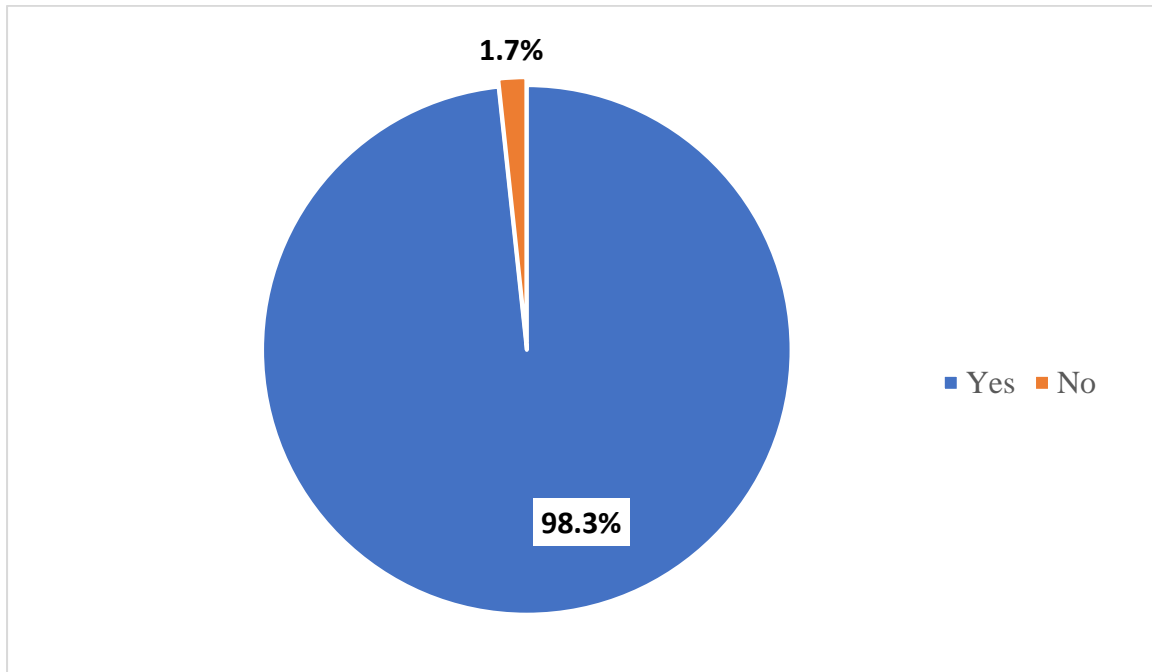


Figure 4.1: General awareness (n=181)

5.2.3.2 Awareness of specific online databases

Question 2 requested students to indicate the specific online databases that students were aware of. Results presented in Figure 3 indicated that 166 (91.7%) were aware of HINARI while only 3 (2%) were aware of Taylor and Francis. This was followed by 64 (35.4%) students who were aware of PubMed. The findings also revealed that students were not much aware of the rest of the online databases available at the College, registering 6 (3.3%) BioOne; 20 (11.0%) Cambridge University Press; 32 (17.7%) Oxford Reference Online; 4 (2.2%) EBSCOHost; 22 (12.2%) Sage; 7 (3.9%) Wiley, and 52 (29.3%) African Journals Online (AJOL). The same question had an option that requested respondents to state other online databases which were not on the given list. Thirteen (7.2%) respondents indicated that they were aware of Google Scholar and only one (0.6%) respondent was aware of Mayo Clinic.

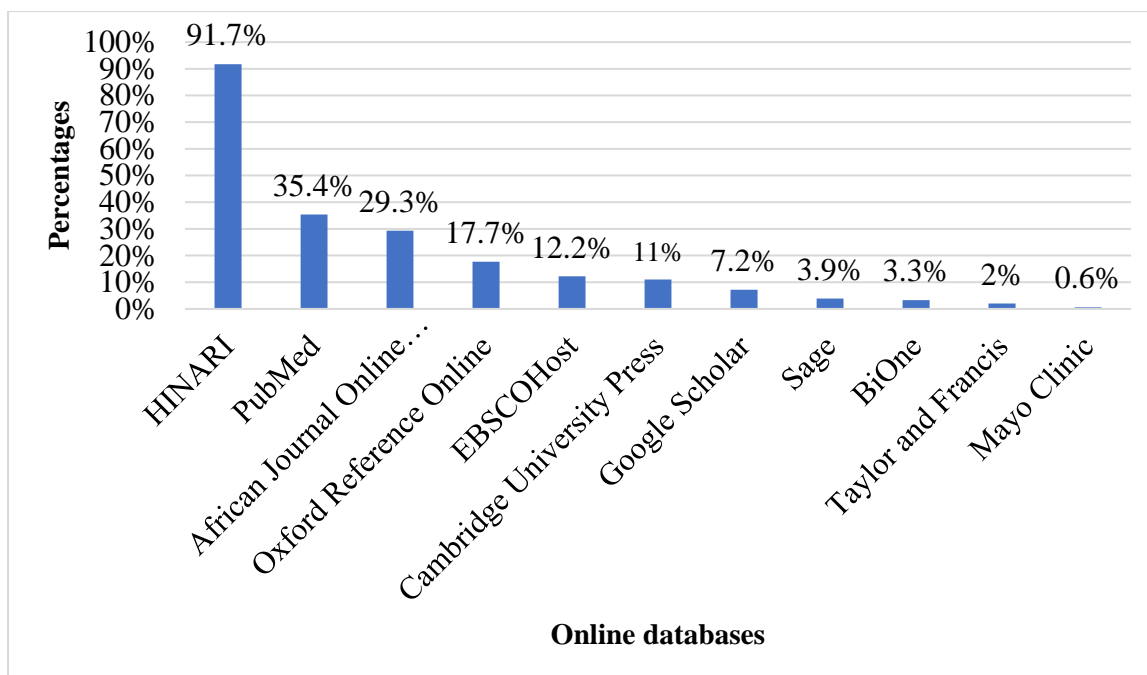


Figure 4.2: Awareness of specific online databases by students (n=181)

5.2.3.3 Mode of awareness

Respondents were also asked to indicate how they became aware of online databases available at Saint John of God College of Health Sciences. This was a question with multiple responses with the following options: library orientation, library brochures, library website, library staff, lecturers and colleagues. The results are presented in Figure 4. These results show that most respondents with scores of 116 (64.1%) and 111 (61.3%) of the respondents became aware of online databases through their lecturers and library staff respectively. Similarly, ninety-seven (53.6%) of the respondents became aware through library orientation. Conversely, forty-six (26%) of the respondents became aware through colleagues. Finally, twelve (6.6%) of the respondents became aware through library brochures and 14 (7.7%) through library website. These suggest that lecturers and library staff played a great role in making sure that students were aware of the online databases available at the College.

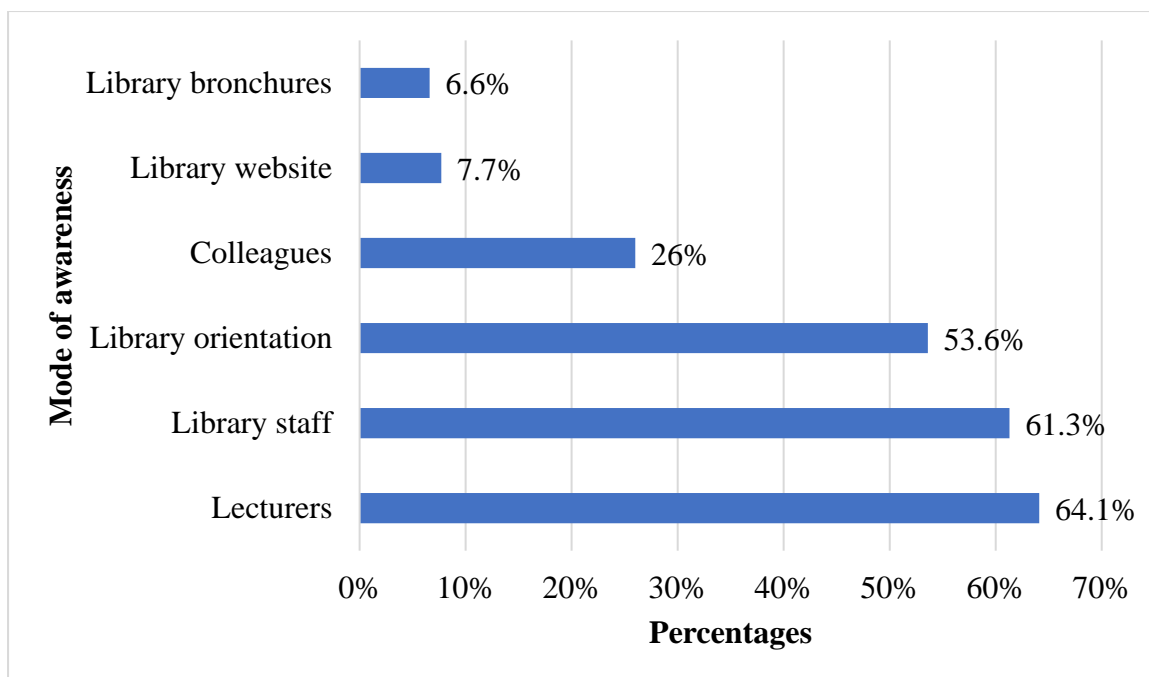


Figure 4.3: Mode of awareness of online databases (n=181)

5.2.3.4 Online databases used in academic studies

Results presented in Figure 5 revealed that 166 (91.7) of the respondents used HINARI; 42 (23.2%) used PubMed; 26 (14.4%) used AJOL; 16 (8.8%) used Oxford Reference Online; 8 (4.4%) used Cambridge University Press; 5 (2.8%) used Sage; 3 (1.7%) used Wiley; 2 (1.1%) used BioOne, one (0.6%) used EBSCOHost, and one (0.6%) used Taylor and Francis.

Students were also asked to state other online databases they used but were not on the given list, and the results revealed that 11 (6.1%) of the respondents used Google Scholar while one (0.6%) used Mayo Clinic for academic studies. One (0.6%) did not respond to the question. Results suggest that HINARI was the most commonly used online database by students at the College.

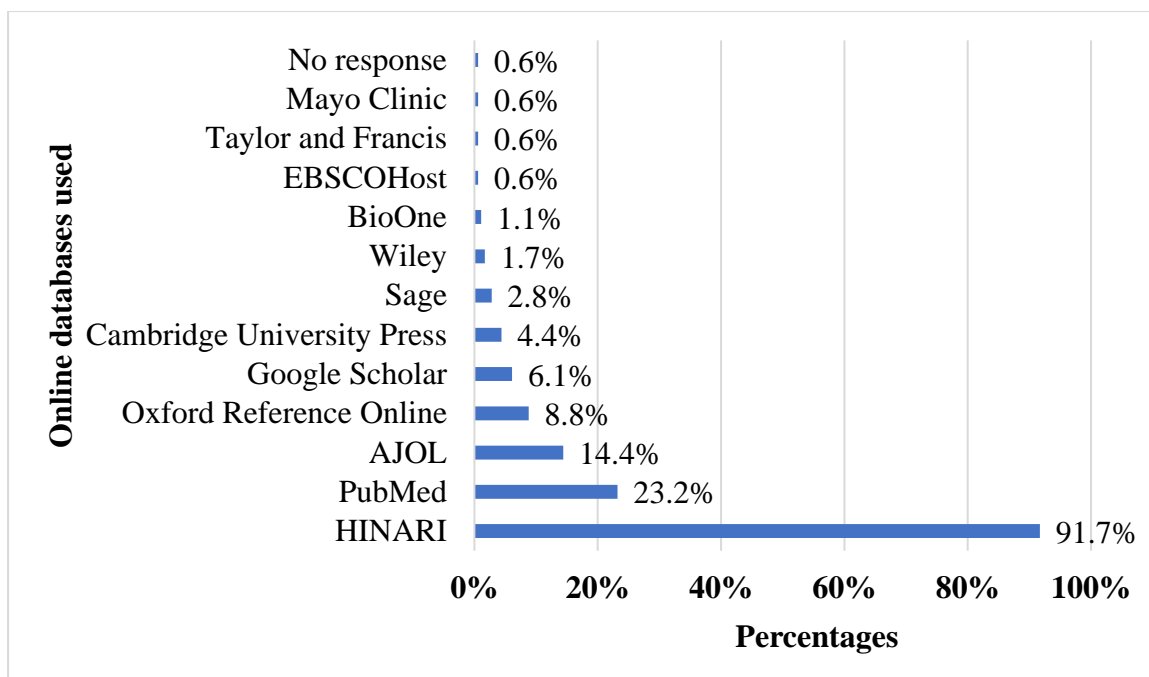


Figure 4.4: Online databases used in academic studies (n=178)

5.2.3.5 Places of access of online databases

The findings in Table 5 below show the places where students accessed online databases. The question was a multiple response one, and respondents were required to select from a predetermined list of options. The list of places included the hostels, home, computer laboratory, departmental office and internet café. One hundred thirty-three (73.5%) respondents indicated that they accessed online databases at the computer laboratory; 65 (35.9%) accessed at home; 24 (13.3%) accessed at hostels; 11 (6.1%) accessed the resources at internet cafés, while 3 (1.7%) accessed them at departmental offices. These findings suggest that a lot of students at Saint John of God College of Health Sciences access online databases at the computer laboratory located within the College.

Table 4.4: Places of access of online databases (n=181)

Location of access	Frequency	Percentage
Hostels	23	13.3
Home	65	35.9
College computer laboratory	133	73.5
Departmental office	3	1.7
Internet café	11	6.1

5.2.3.6 Frequency of Access of online databases

Question 6 in the questionnaire, demanded respondents to select an option regarding how frequent they accessed online databases. The list of time-frames to be selected included daily, weekly, monthly and yearly. Results presented in Figure 5 below indicate that 77 (42.5%) respondents access online databases at least weekly; 55 (30.4%) access at least monthly; 32 (17.7%) access daily; 14 (7.7%) access at least yearly, while 3 (1.7%) did not respond to the question. These results also suggest that many students accessed online databases at least weekly.

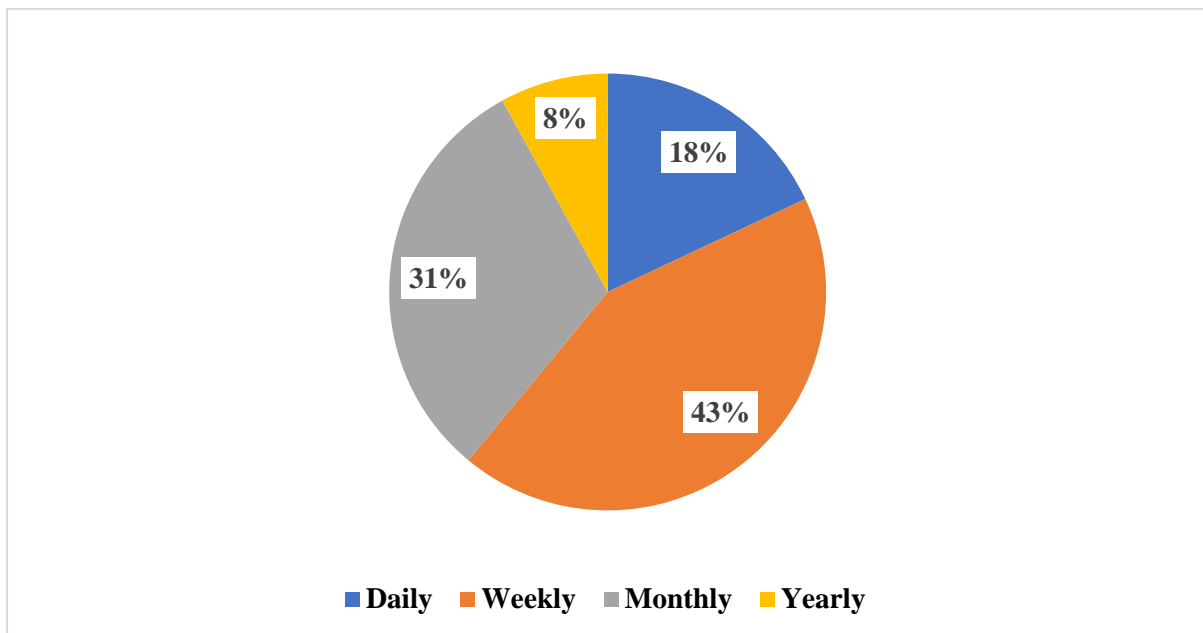


Figure 2.5: Frequency of access of online databases (n=178)

5.2.4. Competencies in the use of online databases at Saint John of God College of Health Sciences

This section addresses the second research question which looked at the competencies in the use of online databases at Saint John of God College of Health Sciences. Specifically, the questionnaire addressed the research questions 7, 8 and 9.

5.2.4.1 Level of agreement on the relevance of online information literacy skills to use online databases

Question 7 (see Questionnaire) requested respondents to indicate their level of agreement to the relevance of online information literacy skills to successfully use online databases. A four-point Likert scale was used for respondents to select the extent they agreed that online information literacy skills are important to successfully use online databases. Results are

presented in Table 6. These results demonstrate that 111 (61.3%) respondents strongly agreed and 50 (27.6%) agreed that online information literacy skills were important to successfully use online databases. In contrast, 2 (1.1%) responded that they strongly disagreed while 18 (10%) of the respondents were neutral. An analysis of the results clearly shows that a good number of the students were of the view that online information literacy skills are important to successfully use online databases.

Table 4.5: Relevance of online information literacy skills to use online databases (n=181)

Online information literacy skills	Frequency	Percentage
Strongly Agree	111	61.3
Agree	50	27.6
Neutral	18	10
Disagree	0	0
Strongly Disagree	2	1.1

5.2.4.2 Level of competency in using online databases

Question 8 aimed at establishing the students' level of competencies in the use of online databases. Respondents were asked to rank themselves in terms of their level of competencies in using online databases. Results presented in Table 7 below show that 91 (50.3%) of the respondents ranked themselves that their level of competency in using online databases was average; 41 (22.7%) of the respondents indicated high; 14 (7.7%) indicated very high; 22 (12.2%) indicated low; 6 (3.3%) indicated very low, while 7 (3.8%) of the respondents did not respond to the question. These findings reveal that a lot of students at Saint John of God College of Health Sciences can be ranked on average in terms of their level of competencies in using online databases.

Table 4.6: Level of competency in using online databases (n=181)

Level of competency	Frequency	Percentage
Very High	14	7.7
High	41	22.7
Average	91	50.3
Low	22	12.2
Very Low	6	3.3
No response	7	3.8

5.2.4.4 Effort expectancy

Effort expectancy was measured using four statements presented in Table 8 below to see the competency of students in using online databases. Calculating subtotal of those that strongly agreed and agreed, the findings reveal that between 106 (58.5%) and 129 (71.3%) of the respondents indicated that their interaction with online databases was clear and understandable, it is easy for them to become skilful in using online databases, they find online databases easy to use and they realise that learning to use online databases is easy. These findings mesh well with the UTAUT's construct of 'effort expectancy' which assumes that students' competence in using online databases can be increased through easiness in finding and using online databases. In other words, users will be more motivated to use online databases if they are easy to locate, access and use.

Table 4.7: Effort expectancy (n=181)

Effort Expectancy	Strongly Agree f (%)	Agree f (%)	Neutral f (%)	Disagree f (%)	Strongly disagree f (%)	Neutral f (%)
My interaction with online databases is clear and understandable	13 (7.2%)	96 (53%)	60 (33.1%)	9 (5%)	3 (1.7%)	0 (0%)
It is easy for me to become skilled in using online databases	44 (24.3%)	85 (47%)	36 (19.9%)	12 (6.6%)	2 (1.1%)	2 (1.1%)
I find online databases easy to use	25 (13.8%)	85 (47%)	52 (28.7%)	14 (7.7%)	4 (2.2%)	1 (0.6)
Learning to use online databases is easy for me	19 (10.5%)	87 (48%)	54 (29.8%)	17 (9.4%)	3 (1.7%)	1 (0.6%)

5.2.5 Benefits of using online databases

Question number 10 in the questionnaire required students to express their opinions about the benefits they get from using online databases. Table 9 below presents a summary of the results. Calculating the subtotals of those that strongly agreed and agreed, the findings reveal that between 65 (35.9%) and 152 (83.9%) of the students agreed on the following benefits of using online databases among students: convenience in using them; saving time in accessing them; easier access to information; provision of simultaneous access to a wide range of journals; ability to search within articles; easiness in accessing information; interactivity in using them; provision of links to other relevant articles; ability to print research findings; ability to do fast researching; ability to access them from their home or hostel; ability to access full text articles; ability to access high quality image; easiness in browsing; ability to access them 24 hours, and ability to save space when using them. These findings reveal that students at this College were able to identify many benefits of using online databases.

Table 4.8: Benefits of using online databases (n=181)

Benefits	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree	No response
I find them convenient to use	37 (20.4%)	102 (56.4%)	36 (19.9%)	4 (2.2%)	2 (1.1%)	0 (0%)
I save time in accessing information	55 (30.3%)	92 (50.8%)	26 (14.4%)	5 (2.8%)	2 (1.1%)	1 (0.6%)
I find them easy in searching articles	59 (32.5%)	79 (43.6%)	34 (18.8%)	7 (3.9%)	1 (0.6%)	1 (0.6%)
I am provided with simultaneous access to a wide range of journals	29 (16%)	87 (48%)	43 (23.8%)	19 (10.5%)	2 (1.1%)	1 (0.6%)
I am able to search within an article easily	35 (19.3%)	93 (51.4%)	42 (23.2%)	8 (4.4%)	2 (1.1%)	1 (0.6%)
I find them easy to access information	56 (30.9%)	96 (53%)	20 (11.1%)	7 (3.9%)	0 (0%)	2 (1.1%)
I find them interactive when using them	31 (17.1%)	98 (54.1%)	41 (22.7%)	7 (3.9%)	2 (1.1%)	2 (1.1%)
I am given links to other relevant articles	46 (25.4%)	76 (42%)	37 (20.4%)	16 (8.8%)	4 (2.2%)	1 (1.1%)
I am able to print research findings	21 (11.6%)	49 (27.1%)	59 (32.6%)	39 (21.5%)	10 (5.5%)	3 (1.7%)
I am able to do fast researching	41 (22.7%)	76 (42%)	46 (25.4%)	14 (7.7%)	2 (1.1%)	2 (1.1%)
I am able to access them from my hostel or home	33 (18.2%)	64 (35.4%)	30 (16.6%)	30 (16.6%)	22 (12%)	2 (1.1%)
I am able to access full text articles	28 (15.5%)	84 (46.4%)	48 (26.5%)	14 (7.7%)	5 (2.8%)	2 (1.1%)
I am able to access high image quality	37 (20.4%)	78 (43.1%)	50 (27.6%)	8 (4.4%)	4 (2.2%)	4 (2.2%)
I find them easy when browsing	42 (23.2%)	91 (50.2%)	36 (19.9%)	10 (5.5%)	1 (0.6%)	1 (0.6%)
I am able to access them 24 hours	25 (13.8%)	40 (22)	47 (26%)	42 (23.2%)	24 (13.3%)	3 (1.7%)
I save space when using them	28 (15.5%)	73 (40.3%)	61 (33.7%)	14 (7.7%)	4 (2.2%)	1 (0.6%)

5.2.6 Factors that influence students' use of online databases

Questions 11, 12, 13 and 14 of section E in the questionnaire solicited data from students about the factors that influenced them to use or not to use online databases respectively.

5.2.6.1 Factors that encourage students to use online databases

Question 11 in the questionnaire required students to state the level of agreement with regards to factors that encourage them to use online databases by selecting strongly agree, agree, neutral, disagree and strongly disagree. As can be seen in Table 10 below, calculating subtotals of those that strongly agreed and agreed, findings reveal that 169 (93.4%) students were encouraged to use online databases because they found them useful in their studies; 165 (91.2%) students indicated that they were encouraged to use online databases because they were able to accomplish tasks like assignments more quickly, while 141 (77%) students indicated that they were encouraged to use online databases because their productivity was increased. Likewise, 118 (65%) students indicated that they were encouraged to use online databases because they increased their chances of passing with good grades while 140 (77%) of the respondents indicated that they were encouraged to use online databases because they enabled them to conduct research more quickly. These results suggest that more students were encouraged to use online databases because they found them useful in their studies.

Furthermore, a Chi-Square test was run to establish performance expectancy factors that were associated with utilisation of online databases. The study established that performance expectancy influences utilisation of online databases with a p-value of 0.000 across all performance expectancy factors such as usefulness of online databases in studies, quick accomplishment of tasks, increasing productivity, increasing chances of passing with good grades and ability to conduct research quickly (Refer to Table 10.0).

Table 4.9: Performance expectancy (n= 181)

Performance Expectancy	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree	No response	Chi-Square	p-value
Online databases are useful in my studies	92 (50.8%)	77 (42.6%)	8 (4.4%)	2 (1.1%)	2 (1.1%)	0 (0%)	47.1074	0.000*
Using online databases enable me to accomplish tasks like assignments more quickly	89 (49.2%)	76 (42%)	13 (7.1%)	1 (0.6%)	2 (1.1%)	0 (0%)	44.4739	0.000*
Using online databases increase my productivity	52 (28.7%)	89 (49.1%)	32 (17.7%)	2 (1.1%)	3 (1.7%)	3 (1.7%)	29.8924	0.000*
If I use online databases, I increase chances of passing with good grades	42 (23.2%)	76 (42%)	45 (24.8%)	13 (7.2%)	2 (1.1%)	3 (1.7%)	44.1947	0.000*
The online databases enable me to conduct my research more quickly	56 (31%)	84 (46.4%)	37 (20.4%)	2 (1.1%)	2 (1.1%)	0 (0%)	44.5438	0.000*
*significant at 0.05 significance level								

Question 12 in the questionnaire also required students to state the level of agreement on the factors that encourage them to use online databases by selecting strongly agree, agree, neutral, disagree and strongly disagree. Table 11 below presents a summary of the results. Calculating subtotal of those that strongly agree and agree, results show that 94 (51.5%) of the respondents were influenced by their colleagues to use online databases; 145 (80.1%) students were encouraged by their lecturers to use online databases; 157 (86.7%) were encouraged by library staff to use online databases; 115 (63.5%) were encouraged by the college support rendered to use online database and 143 (79%) were encouraged to use online databases when they were

helped by others. These factors suggest that more students were able to use online databases when encouraged by library staff.

Furthermore, a Chi-square test was run to check association between social influence factors and utilisation of online databases. Among all the social influence factors, lecturers influence ($p=0.000$) and receiving help in using online databases ($p=0.000$) were statistically significant which means they had an association with utilisation of online databases.

Table 4.10: Social Influence (n= 181)

Social Influence	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree	No response	Chi-square	p-value
My colleagues influenced me to use online databases	17 (9.4%)	77 (42.5%)	38 (21%)	32 (17.7%)	17 (9.4%)	0 (0%)	8.2913	0.081
My lecturers influenced me to use online databases	55 (30.4%)	90 (49.7%)	17 (9.4%)	14 (7.7%)	4 (2.2%)	1 (0.6%)	30.0119	0.000*
The library staff have been helpful in my use of online databases	78 (43.1%)	79 (43.6%)	14 (7.7%)	7 (3.9%)	3 (1.7%)	0 (0%)	8.5227	0.074
The college has supported the use of online databases	44 (24.3%)	71 (39.2%)	37 (20.4%)	11 (6.1%)	17 (9.4%)	1 (0.6%)	7.9522	0.093
I feel encouraged if I receive help in using online databases	67 (37%)	76 (42%)	33 (18.2%)	3 (1.7%)	2 (1.1%)	0 (0%)	45.3330	0.000*
*Significant at 0.05 significance level								

Question 13 in the questionnaire also required students to identify the factors that encourage them to use online databases by selecting strongly agree, agree, neutral, disagree and strongly disagree. Table 12 below summarises the results. Calculating the subtotals of those that strongly agreed and agreed, the results revealed that 101 (55.7%) of the respondents were encouraged to use online databases because they had necessary resources, while 128 (70.6%) of the students reported that they were encouraged to use online databases because they have the necessary knowledge to use them. Similarly, 124 (68.4%) of the respondents indicated that availability of technical support to assist them when they face problems encouraged them to use online databases, while 146 (80.7%) indicated that they were encouraged by the trainings they got from the library staff. Moreover, 91 (50.3%) reported that they were encouraged to use online databases by the availability of adequate infrastructure such as computers, internet and power supply. These findings suggest that more students were encouraged to use online databases by the trainings conducted by the library staff.

Besides that, the researcher computed a Chi-Square test to check the association between facilitating conditions and utilisation of online databases. Among all the facilitating conditions factors given on the list, the following were statistically significant: knowledge to use online databases ($p=0.000$), availability of technical support ($p=0.000$), and the library trainings on online databases ($p=0.012$) had an association with utilisation of online databases. Refer to table 12.

Table 4.11: Facilitating conditions

Facilitating conditions	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree	No response	p-value
I have the resources available necessary to use online databases	31 (17.1%)	70 (38.6%)	41 (22.7%)	22 (12.2%)	15 (8.3%)	2 (1.1%)	0.718
I have the knowledge necessary to use online databases	18 (9.9%)	110 (60.7%)	47 (26%)	3 (1.7%)	1 (0.6%)	2 (1.1%)	0.000*
Availability of technical support to assist	36 (19.8%)	88 (48.6%)	41 (22.7%)	9 (5%)	4 (2.2%)	3 (1.7%)	0.000*
The library trains us on how to use online databases	58 (32%)	88 (48.7%)	25 (13.8%)	6 (3.3%)	2 (1.1%)	2 (1.1%)	0.012*
I have adequate infrastructure (e.g., computers, internet, power supply) to utilise online databases	29 (16%)	62 (34.3%)	43 (23.8%)	35 (19.3%)	10 (5.5%)	2 (1.1%)	0.52
*Significant at 0.05 significance level							

5.2.6.2 Factors that discourage students from using online databases

Students were asked to give their views on the factors that discourage them from using online databases. Table 13 presents a summary of the results. Calculating the subtotals of those that strongly agreed and agreed, the findings reveal that between 41 (22.6%) and 129 (71.2%) students agreed on the following factors that discouraged students from using online databases: slow internet connection; lack of awareness of online databases; lack of skills to use online databases; complicated passwords to access online databases; failure to download full-text articles; difficulties in finding the relevant information; information overload; lack of motivation from lecturers; inaccessibility of the computer laboratory; high cost of information technology equipment; irrelevance of online databases to their discipline; limited subscription to online databases and intermittent black-outs. From these results, it is clear that slow internet was the main factor that discouraged students from using online databases.

Additionally, overall Chi-Square results show that there were no statistically significant discouraging factors except for lack of motivation from lecturers ($p=0.030$).

Table 4.12: Factors that discourage students from using online databases (n=181)

Discouraging factors	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree	No response	Chi-square	p-value
Slow internet connection	75 (41.4%)	54 (29.8%)	22 (12.2%)	20 (11%)	3 (1.7%)	7 (3.9%)	1.3274	0.857
Lack of awareness of online databases	17 (9.4%)	51 (28.2%)	48 (26.5%)	51 (28.2%)	8 (4.4%)	6 (3.3%)	5.1289	0.274
Lack of skills to use online databases	17 (9.4%)	63 (34.8%)	41 (22.7%)	48 (26.5%)	8 (4.4%)	4 (2.2%)	3.1274	0.537
Complicated passwords to access online databases	53 (29.3%)	43 (23.8%)	30 (16.6%)	39 (21.5%)	13 (7.2%)	3 (1.7%)	5.1567	0.272
Failure to download full-text articles	33 (18.2%)	50 (27.6%)	47 (26%)	39 (21.5%)	9 (5%)	3 (1.7)	0.6834	0.953
Difficulties in finding the relevant information	21 (11.6%)	48 (26.5%)	43 (23.8%)	54 (29.8%)	11 (6.1%)	4 (2.2%)	6.8651	0.1432
Information overload	22 (12.1%)	50 (27.6%)	47 (26%)	51 (28.2%)	7 (3.9%)	4 (2.2%)	2.3614	0.670
Lack of motivation from lecturers	20 (11%)	22 (12.2%)	39 (21.5%)	73 (40%)	22 (12.2%)	5 (2.8%)	10.6885	0.030
Inaccessibility of the computer laboratory	36 (20.4%)	29 (16%)	33 (17.7%)	57 (31.5%)	23 (12.7%)	3 (1.7%)	4.6717	0.323
High cost of information technology equipment	48 (26.5%)	52 (28.7%)	29 (16%)	36 (20%)	12 (6.6%)	4 (2.2%)	3.1125	0.539
Irrelevance of online databases	12 (6.6%)	29 (16%)	55 (30.4%)	60 (33.1%)	20 (11%)	5 (2.8%)	4.7214	0.317
limited subscription to online databases	34 (18.7%)	51 (28.2%)	47 (26%)	35 (19.3%)	9 (5%)	5 (2.8%)	2.8786	0.578
Intermittent black outs	36 (19.9%)	64 (35.4%)	30 (16.6%)	27 (14.9%)	18 (9.9%)	6 (3.3%)	3.5590	0.469
*Significant at 0.05 significance level								

5.2.6.3 Summary

This section has presented, summarised and analysed students' demographic data; students' competencies; awareness levels of online databases; benefits students accrue from using online databases, and factors that encourage or discourage them from using online databases. The next section summarises and analyses qualitative data.

5.3. Presentation and analysis of qualitative data

As stated in the Methodology chapter, the researcher also collected qualitative data by conducting in-depth interviews with the Assistant Librarian who is also responsible for online databases in the library of this College. An interview guide (See Appendix 4) was used to guide the researcher in conducting the interview. This section presents data on the four themes that form the basis of the study namely; level of students' awareness of online databases, the students' competencies in the use of online databases, the benefits that students accrue from using online databases and factors that influence the use of online databases.

5.3.1 Level of students' awareness of online databases

It was revealed in section 5.2.3 that the majority of the students were aware of online databases available at Saint John of God College of Health Sciences. This high level of general awareness can be attributed to the fact that library staff conducts periodical awareness of online databases available at the college to students.

The data collected from the interview also presented similar findings with those from the questionnaire as it revealed that most of the students were aware of the online databases. The following is a verbatim response from the Assistant Librarian:

I am sure the students are highly aware of the online databases available at this institution. Actually, the majority are supposed to be aware of Research4Life online databases especially HINARI itself.

Interviews conducted with the Assistant Librarian revealed that library orientations, library brochures and book-fairs were the strategies put in place to make sure that students were aware of online databases available. This corresponds well with the data collected from students through a questionnaire. This then suggests that, apart from the library staff playing a great role in making sure that students are aware of the online databases available at the college, lecturers also play a pivotal role on the same. The following was the response from the Assistant Librarian;

Fellow library staff and I, carry out library orientations to new and continuing students with an aim of making them aware of the services, which include availability of online databases. Apart from that, I develop printed brochures that demonstrate the availability of the online databases, and also on how they can log in. Besides that, book-fairs are conducted to let students know the library collection including the online databases.

The researcher was interested to know the actual level when these students are introduced to online databases. It was very clear, from the interview, that students are introduced to this when they have just arrived at the college during orientation. Apart from that, the interview also revealed that continuing students go through library user education where online databases are also taught. The following was the extract from the response from the assistant librarian;

Actually, we make it a point that we orient new students on their arrival of all the services that we have including the online databases. Furthermore, for the continuing students, we take them through various periodical library user education sessions so as to teach them a number of library electronic services including online databases.

The responses provided by the students in section 5.2.3.1 are in tandem with the response by the assistant librarian during the interviews as both reveal that students become aware of online databases through library orientation. Additionally, the interview also revealed that students become aware of the online databases through user education programs conducted by the library staff.

5.3.2 Students' competencies in the use of online databases

Results obtained from students in section 5.2.4.2 indicated that almost half of the respondents had an average level of competency. Interviews with the Assistant Librarian also showed that students competency levels in the use of online databases was average. See the Assistant Librarian's comments below:

As a matter of fact, I would rank them moderate or average. At times, despite the awareness of online databases, the students have difficulties to fully access these online databases due to poor internet connectivity and lack of computer skills.

The responses given by both the students and Assistant Librarian concur as they both agree that students' competency levels are on average.

5.3.3 Benefits students accrue from utilising online databases

Question number 10 of the questionnaire required students to express their opinions about the benefits they get from using online databases.

The researcher asked the Assistant Librarian to comment on the benefits students get from utilising online databases. It was revealed that students' access updated e-resources through the online databases. Besides that, it was revealed that improvement in academic performance can also be attributed to the use of online databases. A selection of verbatim quotes from the Assistant Librarian is presented below.

Yes, the benefit of online databases to students can't be overemphasized because the online databases give them updated e-resources such as e-journals which are also recommended in academic writing. In addition, I should also point it out that the level of performance in academic assignments and research work shows that students are benefiting a lot from using the online databases.

Results obtained from both the questionnaires and interviews complement each other by clearly showing that students benefit a lot from using online databases in their academic studies.

5.3.4 Factors that affect the utilisation of online databases by students

The last section in the interview guide focused on finding out from the Assistant Librarian the factors that affected the utilisation of online databases by students at the institution. These factors were categorised into those that either encourage or discourage students from utilising the online databases.

5.3.4.1 The factors that encourage students from utilising online databases

According to the Assistant Librarian, the factors that encourage students from utilising online databases include easiness of accessing the online databases which also provide them with reliable and useful information for their academic studies. It was also revealed that library trainings in online databases access and usage encourage students to use them. The library staffs also conduct user education programs in which they teach students how to access online databases. Eventually, students have a lot of knowledge on how to use online databases. It was further revealed that the availability of the resources, such as computers connected to the internet, encourage students to use online databases. Some quotes from the Assistant Librarian interview, in relation to factors that encourage students from utilising online databases, are presented below.

I think the online databases are easy to access, yet they get reliable information that is beneficial in their studies hence they are motivated to use the online databases. Again, the fact that we as library staff help and teach them how they can easily access these online databases encourage them as well to use them. Even the availability of the resources such as computers connected to the internet encourages them as well.

The findings obtained from the Assistant librarian on this matter are in agreement with the results that were obtained from students' responses in relation to the factors that encourage them to use online databases.

5.3.4.3 Factors that discourage students from utilising online databases

The key factors revealed in the interview with the Assistant Librarian included poor internet connectivity and high cost of internet data. In this regard, when the internet is slow it is difficult for students to download articles hence; they are discouraged from using online databases. The Assistant Librarian commented that:

Normally, when I interact with these students, they complain of poor internet connectivity at this campus and indeed, I am also sure because of exorbitant internet data charges, they are further demotivated to use the online databases.

The responses obtained from the Assistant Librarian interview are in line with those highlighted by students in the questionnaire. Both responses pointed to the internet data being too expensive as well as slow and intermittent internet connectivity being main problems faced by students which hamper them from using online databases.

5.4 Summary

This chapter has presented, summarised and interpreted two forms of data on the students' utilisation of online databases at Saint John of God College of Health Sciences. The first form was quantitative data collected from students through questionnaires while the second was collected from Assistant Librarian through interviews to supplement the latter.

The next chapter (Chapter Six) discusses the findings realised in this chapter. It will further make some recommendations and conclusions.

CHAPTER SIX

DISCUSSION, RECOMMENDATIONS AND CONCLUSION

6.1 Discussion

This chapter is aimed at discussing and interpreting the findings obtained from the quantitative and qualitative data presented in Chapter Five. Discussion of findings entails “interpretation of the study’s results in the context of previous studies, and providing implications for policy, theory and practice of the findings produced by the current study” (Oso & Onen, 2008, p. 134). According to Fink (2017) and Creswell (2014) discussing and interpreting findings involve providing meaning to those results by linking them with the research objectives, theoretical frameworks and the existing literature. Therefore, discussion provides a chance to demonstrate how results fit in with works that were done in the past by other researchers in the field, pointing out the agreements and disagreements between the current study and previous studies, and establishing reasons for disagreements (Franklin, 2013; Oso & Onen, 2008). In this case, this discussion is informed by the UTAUT model, the reviewed related literature and the empirical findings obtained by this study.

6.1.1 Recap of research questions

The discussion themes were drawn from the following research questions of the study:

1. What is the level of students’ awareness of online databases at Saint John of God College of Health Sciences?
2. What are the students’ competencies in the use of online databases at Saint John of God College of Health Sciences?
3. What are the benefits that students accrue from using online databases at Saint John of God College of Health Sciences?
4. What factors influence students’ use of online databases at Saint John of God College of Health Sciences?

6.1.2 Response rates

The study achieved a very high response rate from the questionnaires that were administered to the students. This was achieved because the researcher used a collective administration way of administering the questionnaires. In this way, the researcher assembled students in a classroom. Since the researcher had contact with the study population, the purpose and relevance of the study was explained. Besides that, clarifications were made to any questions

that respondents had. Kumar (2012) advises that collective administration is the quickest way of collecting data and that it ensures very high responses rate as well as saving money.

6.1.3 Demographic characteristics of the respondents

The researcher gathered demographic details of the students in terms of gender, year of study, program of study and age.

In terms of gender, results of the study showed that there were more male participants than female participants. The low female rate could be attributed to the fact that in the past three years or so, more males have been enrolled at the college as compared to females. Similarly, Chawinga and Zozie (2016b) observed the dominance of male students in institutions of higher learning in Malawi. Chawinga and Zozie (2016b) argued that this could be because of culture which encourages females to get married soon after attaining puberty stage. The authors also argued that male domination is fuelled because society considers men as breadwinners hence, they are advised to work hard in school so that they can support their families.

The results for the current study also indicated that, in first year, there were no students. This is because the college did not enrol any students in the year 2020.

Regarding programmes of study, the study established that the majority of the students were pursuing a Diploma in Registered Nursing. This could be attributed to the fact that the institution enrolls more students in this programme as compared to other programmes.

On age range, the study revealed that most students were within the age range of 20-24. Probably, the age pattern came in because of the 8-4-4 education system (8 years of primary, 4 years of secondary and 4 years of tertiary) in Malawi. This is because a lot of students come straight from secondary school to join tertiary education hence, they are still young.

Venkatesh et al. (2003), in the UTAUT model, regarded gender, age, experience and voluntariness as moderators for the adoption of technology. In this study, only gender and age were included. Surprisingly, the study found out that gender and age of students did not influence awareness and use of online databases.

6.1.4 What is the level of students' awareness of online databases at Saint John of God College of Health Sciences?

The first research question sought to solicit data from the students and the Assistant Librarian on the level of students' awareness of online databases at Saint John of God College of Health Sciences focusing on general awareness of online databases; specific online databases students

are aware of; mode of awareness of online databases; specific online databases used in academic studies; places of access of online databases, and frequency of use of these online databases.

The present study revealed that the majority of the students were aware of online databases available at the institution. This high level of general awareness can be attributed to the fact that library staffs conduct periodical awareness campaigns of online databases available at the college. Again, the other reason could be the fact that some lecturers encourage students to be getting information in the online databases as revealed by both the interviews and the questionnaires.

On the contrary, similar studies conducted in the developing nations by Kwadzo (2015), and Baro, et al. (2011) independently at the University of Ghana and Delta State University in Nigeria also reported low awareness levels of the online databases. Likewise, a number of other scholars conducted studies in Tanzanian Universities and found low awareness levels of online databases among the users. They attributed the low utilisation to lack of awareness about the online databases (Angello & Wema, 2010). These studies recommended library staff and lecturers to conduct regular awareness campaigns and trainings on the availability and use online databases. Similar to these findings, the current study also established that library staffs play a great role in awareness campaigns of online databases which has helped raise awareness levels among the students, and this may most likely increase online database users with time.

Apart from the general awareness levels that were established, it was also necessary to know if the students were aware of the specific online databases that were available at the institution. Results indicated that the majority were aware of HINARI, while few were aware of Taylor and Francis, PubMed, BioOne, Cambridge University Press, Oxford Reference Online, EBSCOHost, Sage, Wiley, and African Journals Online (AJOL). The implication is that being a college of health sciences, it is indeed expected that students should be more aware of HINARI online database which has a lot of health-related information.

These findings bear resemblance to other related studies. In particular, Anane (2016) conducted a study on the use of electronic databases by final year students at the University of Ghana College of Health Sciences. The study found out that the majority of the students were more aware of HINARI databases than other online databases. Again, Shabi, Shabi, Akewukereke, and Udofia (2011) conducted a study on physicians' utilisation of internet medical databases

in some tertiary health institutions in Osun State, South West, Nigeria. The study revealed that HINARI was well known by the majority of the students. In this study, the researcher believes that HINARI registered high levels of awareness because of the awareness campaigns advocated by partners like Research4Life (R4L), the International Network for the Availability of Scientific Publications (INASP) and World Health Organisation (WHO) who supported and endorsed it. For example, R4L conducts trainings to teach librarians on how they can be training library users on accessing and using HINARI. INASP and WHO also help in the processes of accessing online databases, and give consortia in low-income countries heavily subsidised or donor funded access to a wide range of electronic resources.

On mode of awareness, this study established that a lot of students became aware of online databases through their lecturers and library staff. Contrary to the findings of the current study, the study conducted by Anane (2016) found out that a lot of final year students at the University of Ghana College of Health Sciences became aware of online databases through library orientation. This implies that several strategies can be put in place to make sure that library users are aware of online databases available at the institution.

After knowing the awareness levels, it was also imperative for the study to establish the specific online databases used in students' academic studies. The study revealed that HINARI was the most used online database by the majority of the students. The study further revealed that other online databases like PubMed, African Journals Online (AJOL), Oxford Reference Online, Cambridge University Press, Sage, Wiley, BioOne, EBSCOHost, Taylor and Francis were the least used online databases. These results are in line with those of Anane (2016) and Shabi et al, (2011) who found out that HINARI was heavily used following the high levels of awareness among the students. This implies that there is a direct connection between awareness and utilisation of online databases.

The researcher was also interested to know the place where students accessed online databases. The study revealed that the majority of the students accessed online databases in the College computer laboratory; a few others accessed these at home, hostels and internet cafés, while 3 (2%) accessed online databases at departmental office. The results of this study are in agreement with Alison et al. (2012) who did a study on electronic health information resources usage in three universities offering medical education in Uganda. The study established that the majority of the users were using the schools' computer laboratory to access online

databases. These results are similar because in African developing countries, it may be argued that most of the students lack personal information technology infrastructure such as computers and internet to access online databases.

To obtain an in-depth understanding of students' awareness and usage levels of online databases, it was imperative to know the frequency of access to online databases. A close examination of the results revealed that most students accessed online databases weekly. In this case, the results showed that very few students accessed online databases daily and slightly less than half access weekly. Results of this study are in disagreement with those of Somers (2015) who conducted a study on the use of electronic resources by postgraduate students and academics at the University of KwaZulu-Natal (UKZN). The study found that postgraduate students at the UKZN used e-journals heavily on a daily basis, while academics used them weekly. This is an indication that much as students are aware of the existence of the online databases but they rarely use them. This could be because of the high cost of internet data in Malawi. As a matter of fact, the high cost of internet data in Malawi has been independently reported by Chawinga (2017), Chawinga (2014), Chaputula (2016) and Mapulanga (2012).

According to the UTAUT model, moderators such as gender, age experience, and voluntariness of use play a huge role in the adoption and use of technologies (Venkatesh, et al., 2003). In this regard, findings of the present study seem to show high levels of online databases awareness among all demographic variables that is age, gender, level of study and program of study. This can be seen from majority high level of general awareness of online databases among students. Therefore, it implies that age and gender constructs of the UTAUT model, did not influence awareness and use of online databases. However, high levels of awareness and usage can be attained through regular trainings conducted by library staffs on how to access and use online databases as this research and other related studies have proved.

6.1.5 What are the students' competencies in the use of online databases at Saint John of God College of Health Sciences?

This section discusses the second research question which looked at the students' competencies in the use of online databases at Saint John of God College of Health Sciences.

From an analysis of the results, it was evident that the majority of the respondents agreed that online information literacy skills were important for them to successfully use online databases. Online information literacy skills were important for users to successfully locate, retrieve,

organise, evaluate, and apply information while using online databases in their academic work. This correlates with a related study that was done by Ankrah and Atuase (2018) on the use of electronic resources by postgraduate students at the University of Cape Coast in Ghana. The study affirms that online information literacy skills are important for students to successfully use online databases.

On students' level of competencies required in using online databases, it was established that slightly above half of the students indicated that their level of competency was average. The study also found out that few students had high to very high competency levels in using online databases. This may imply that these students were confident users of online databases. This may also mean that these students can independently search, retrieve, classify, assess, and use information while using online databases in their education. The present study results can be equated to that of Mawindo (2005) who conducted a study on the evaluation of students' use of print and electronic resources at the University of Malawi, College of Medicine. The study found out that the majority's level of online information literacy skills was average while few were competent in using online databases.

This correlates well with a related study by Saulus (2017) on the usability of the institutional repository by faculty and postgraduate students at the University of Swaziland (UNISWA). The study found out that the majority's levels of online skills were low, while fewer individuals indicated that their levels of skills were relatively high.

On the other hand, a study by Adeleke and Nwalo (2017) examined the relationship between information literacy and the use of information resources by postgraduate students at the university of Ibadan in Nigeria. They discovered that a lot of students had high to very high skills in accessing electronic information resources, while only a few had skills ranging from low to very low. The high-level skills in online information literacy were attributed to the trainings offered by the library staff. Chipeta (2008) emphasizes the need for formal information literacy training among library users as it gives them the ability to independently identify, locate, retrieve and use information sources. This implies that imparting skills in using online databases has to be intensified by the library staff so as to increase the level of competency among students at Saint John of God College of Health Sciences. This means that training boosts the competency of students in online information literacy.

Findings of this present study show that the majority of students' interaction with online databases was clear and understandable. Besides that, it demonstrated that it is easy for students to become skilful in using online databases, they find them easy to use, and realise that learning to use them is easy. These results correlate well with the effort expectancy construct of the UTAUT model which argues that the degree of ease associated with the use of the system, have a huge influence on the levels of adoption and use of that system (Vanketesh, 2003). In this study, the easiness in becoming skilled in using and learning to utilise online databases translates into the competency levels in using such online databases.

The implication is that the effort expectancy construct of the UTAUT model has a direct link to the use of online databases by students. This is because the use of online databases by students is likely to be influenced by how easy or complex it is to retrieve relevant information within the shortest time. Hence, if students realise that it is very easy to use online databases and retrieve the intended information for assignments, research and other needs, they will be motivated to use them.

6.1.6 What are the benefits that students accrue from using online databases at Saint John of God College of Health Sciences?

Saint John of God College of Health Sciences has made available access to a wide range of online databases and has invested heavily in electronic services (Saint John of God College of Health Sciences, 2019). It was very important to investigate the benefits that students at the institution are getting from using online databases.

It was very clear from the results of the present study that the majority of the students get the following benefits out of using online databases: convenience, saving time, easier access to information, access to a wide range of journals at once, search within articles, easiness in accessing information, Interactivity, provision of links to other important articles, print research results, fast researching, remote access, access to full text articles, access to high quality images, easiness in browsing, twenty four hours access and saving space. These findings agree with a study by Tenopir et al. (2009) who found out that scholars benefited a lot from using online databases in spite few of them claiming to have been using printed resources.

Several studies have also reported on the benefits students get from using online databases in their respective institutions and countries (Adeleke & Nwalo, 2017 in Nigeria; Mwantimwa, Elia, & Ndenje-sichalwe, 2017 in Tanzania; Mawere & Sai, 2018 in Zimbabwe; Chimsinde, 2019 in Malawi). These studies have also yielded similar results to the current study in the sense that both have found out that online databases provide students with a simultaneous access to a wide range of electronic resources such as e-journals, books; enable students to easily search for specific information within a document; makes it easy for students to access information and provides students with links to other relevant information resources; allows students to access resources from far distances; helps students to access full text journals; facilitates easy surfing through the web pages; ability to access to resources 24 hours and saving physical space. Ideally, these then help explain why the majority of the students were enthusiastic and positive that online databases were beneficial to them.

In the same vein, Vanketesh et al. (2003) proposed that performance expectancy of the UTAUT model is a determinant of behaviour for the system that enhances job performance. This further implies that students at Saint John of God College of Health Sciences use online databases because they are seen as beneficial in their education. In fact, it was established that most of the learners at this College used the online databases because of the various benefits they derived from them, such as having remote access, quick access to information and other educational related benefits.

6.1.7 What factors influence the use of online databases by students at Saint John of God College of Health Sciences?

The fourth research question of this study sought to determine the factors that influenced the use of online databases by students at Saint John of God College of Health Sciences. In tackling this question, the researcher was guided by the performance expectancy, social influence and facilitating conditions constructs of the UTAUT model which directly affects the usage behaviour of users in a technological environment.

6.1.7.1 Factors that encourage students from utilising online databases

Looking through the lens of the UTAUT model, it is possible to elucidate how performance expectancy, social influence and facilitating conditions encourage students' utilisation of online databases.

The study has revealed that the majority of the students were encouraged to utilise online databases by the following factors: usefulness of online databases to their studies;

accomplishments of tasks like assignments more quickly; increasing their productivity; increasing their chances of passing with good grades, and enabling them to conduct their research more quickly. These results are in line with the performance expectancy construct of the UTAUT model in which Vanketesh et al. (2003) believed that once a person knows that using a system will enhance job performance, they are more likely to adopt and use that system.

These study results also concur with those by Machimbidza (2014) and Sejane (2017), who confirmed that performance expectancy was the factor that propelled students and academics to use e-resources. This means that students are encouraged to use online databases if they know and perceive them as being useful of their studies, and can expedite the execution of academic tasks. This also implies that students at Saint John of God College of Health Sciences were encouraged to use of online databases because they realised that online databases could enhance their academic tasks.

Besides that, the current study found out that a lot of students were encouraged and influenced by their colleagues and lecturers to use these resources. Apart from that, they were also encouraged and motivated by the support they get from the library staff and the college management. It is generally argued that students feel encouraged if they receive maximum help in using online databases. This means that the support from the library staff could be in terms of technical support and information literacy trainings where online databases were taught. Others reported that lecturers influenced them to use online databases in order to respond to particular academic assignments. Normally, lecturers encourage their students to usually search for information from different sources including online databases for different academic purposes. Apart from that, some students reported that their peers influenced them to use online databases. Other students also indicated that the college mostly supported the use of online databases. The support could be in terms of subscribing to online databases and purchasing technological equipment's such as computers and other IT infrastructure. Some students felt encouraged if they receive help in using online databases. This help could be in terms of assistance or training from library staff on how to access information on the online databases.

These current findings are in line with those of Pontes and Costa (2019), Machimbidza (2014) and Sejane (2017) who observed that students may use online databases because their significant others are also using them. The scholars observed that students may be influenced to use online databases by their friends, lecturers and library staff. Moreover, the 'social

influence' construct of the UTAUT model which according to Venkatesh et al. (2003) explains that an individual can be encouraged to use a system because he views that the 'important others' are using that system. In this way, such 'important others' believe that they should also use that system. This implies that Saint John of God College of Health Sciences students were encouraged to use online databases because of the influence from their peers, lecturers and library staff, and the direct or indirect support from the College.

This study also established that the majority of the students were encouraged to use online databases because the library staff trained them and they had the necessary knowledge. It was further revealed that students were encouraged to use online databases because of the availability of other necessary resources. These resources included subscribed e-resources and the computer laboratory which had internet computers at the institution. That aside, other students were encouraged to use online databases because of the availability of technical support both from the knowledgeable peers, IT technicians and the library staff which helped them overcome challenges while using them. It was also established in the study that some students were influenced to use online databases by the availability of other infrastructure such as personal computers, internet and power supply.

These findings augers well with that of Badan and Igeria (2018) who found out that 'facilitating conditions' which is also a construct of the UTAUT model, are factors in an environment that make possible the use of smart phones in mobile learning possible at the University of Ibadan in Nigeria. Similarly, Hamutumwa (2014) found out that various environmental factors such as 'facilitating conditions' motivated learners to use electronic resources at the University of Namibia. The current study has also found out that the 'facilitating conditions' construct really encouraged students to use online databases at Saint John of God College of Health Sciences. In this study, the implication is that when facilitating conditions are conducive, the students will be encouraged to adopt and utilise online databases.

6.1.7.2 Factors that discourage students from utilising online databases

The study sought to establish the factors that discourage the use of online databases by students at Saint John of God College of Health Sciences. It revealed the following discouraging factors: slow internet connection; lack of awareness of online database; lack of skills to use online databases; complicated passwords to access online databases; failure to download full-text articles; difficulties in finding the relevant information; information overload; lack of

motivation from some lecturers; inaccessibility of the computer laboratory; high cost of information technology equipment and supplies; irrelevance of online databases to their discipline; limited subscription to online databases and intermittent blackouts.

Primarily, slow internet makes students fail to download articles hence they are discouraged to utilise online databases. Machimbidza (2014) argues that the speed of internet is closely related to the issue of technological infrastructure since the quality and speed of internet connection are dependent on the infrastructure and equipment available. In Malawi, some scholars (Mapulanga, 2012; Chaputula, 2016; Chawinga, 2014) have also echoed that slow internet discourages users from using different library services. This implies that students can be frustrated with the slow internet connection and in the long run, they may fail to effectively use online databases.

The findings of the current study revealed that few students indicated that lack of awareness of online databases was another factor that discouraged them from utilising online databases. This finding should not be ignored on the basis that the respondents were too few and that they were in minority since there is a serious meaning embedded within that response. What this could essentially mean is that whenever users are not aware of the available services offered, chances are high that some users will not use them, and may unjustly be excluded because they are ignorant about that service (Chaputula, 2016; Chaura, 2015; Wella, n.d.). Therefore, raising awareness is an important step towards achieving an inclusive, just and fair participation of all students in using online databases.

Machimbidza (2014) found out that common promotional strategies for achieving inclusive access and participation to online databases are library orientations, posters, flyers, library trainings, library websites, and OPACs. For this current study, it was revealed by the Assistant Librarian that some of the stated strategies are also used by Saint John of God College of Health Sciences library staff to promote awareness of online databases and inclusive participation. This study also revealed that the general awareness at this college is very high. However, the awareness of other specific online databases is the one that is problematic. In particular, the majority of students are aware of HINARI, while the minority 'others' are aware of BioOne, EBSCOHOST, Taylor and Francis, and Wiley. Even the usage pattern of the latter listed online databases was much lower than that of the former (HINARI). This implies that knowing the availability of generic online databases is one thing, and knowing specific online databases available is another. This then suggests that when users are not aware of the specific options of

the available online databases, it is likely that they may not be interested to explore them, to access them and use them as widely as they should have done.

On the other hand, the results of the present study revealed that the majority of the students lacked skills to use online databases and this discouraged them to utilise online databases. In related studies, Adeleke and Nwalo (2017); Isibika and Kavishe (2018); Machimbidza and Mutula (2018) and Nkoyo and Nsante (2016) also identified the challenge of lack of skills by users of online databases, and blamed it for low usage of e-resources in most institutions. Arguably, in a situation where one lacks necessary skills to identify, search, retrieve and evaluate the information, it is difficult for them to use the information resources (Chawinga & Majawa, 2018; Chaura, 2014; Malanga, 2017; Chipeta, et al., 2018; Gama, Chipeta, Phiri & Chawinga, 2020; Phiri, Chipeta & Chawinga, 2019; Thindwa, Chawinga & Dube, 2019). Moreover, Chipeta (2008) asserts that all students that had received formal information literacy training at Mzuzu University had the perception that they had the ability to independently identify, locate, retrieve and use information sources. This means that training boosts the skills of students in online information literacy. This may also entail that, in cases where students are trained, they can be highly competent in using the online databases.

Another factor that was reported by this study was complicated passwords. Over half of the students reported that complicated passwords were some of the factors that hindered them from using online databases. Relative to this, Coetzer and Mapulanga (2020), Alison et al., (2012), Hadebe (2010) and Machimbidza (2014) have all reported that the use of passwords indeed did impede users from accessing electronic information resources. Generally, students were dissatisfied with passwords which were not only long but also complex. Since these are institutional computers, the IT technicians have inputted passwords on these computers so that only registered students can be given the password and log onto them. This then means that students should always ask for passwords each time they visit the computer laboratory for them to access online databases as these passwords are regularly updated. For instance, MALICO online database has a complex password which includes lower- and upper-case letters, digits, and characters which may be difficult to memorise at times, while HINARI online databases requires one log in with lower- and upper-case letters and digits. These passwords really prevent users from accessing the online databases especially when they have forgotten the passwords and there is no IT technician around them. The researcher feels that this problem can be solved if the passwords are pasted on the walls of the computer laboratory where the

students can often access and refer to them in order to access the online databases but even then, this would contradict the whole purpose of having these passwords.

From the findings in the previous chapter; it is evident that some students indicated failure to download full-text articles; information overload, and difficulties in finding relevant information as some of the factors that prevent them from accessing and using online databases. Treptow and James (2011) found out that full-text journals are favoured by most researchers to undertake searches as such journals provide comprehensive information unlike those that frustratingly provide abstracts or bibliographic details only. Such being the case, this present study suggests that higher education institutions should compromise and aim to subscribe to e-resources that would provide comprehensive journal articles which could then benefit institutions within the consortium. It is not surprising that unique disciplines such as Mental Health and Psychiatry have suffered from limited access to wider relevant literature because the Consortia have mostly subscribed to databases that favour general nursing and midwifery programmes. This is because these programmes are offered by many institutions within the Consortium. The declined usage levels then may also be explained from this reality as students who want to download full-text files in the unsubscribed journals fail to do so hence end up for those options that give them access to irrelevant e-resources.

Besides these, few students reported that lack of motivation from some lecturers is one of the factors that discourage them from using online databases. As alluded in the UTAUT model, students may use online databases because the 'significant others' are also using them (Venkatesh et al., 2003). In this case, students may be influenced to use online databases if they are motivated by their lecturers. In situations, where some lecturers are not motivating their students to use online databases, students will most likely be discouraged to use online databases.

The infrastructural situation at Saint John of God College of Health Sciences and most Malawian universities in general mirrors the story of most African institutions of higher education. African scholars like Ternenge and Kashimana (2019) and Machimbidza and Mutula (2018) concede that one of the major hindrances to the utilisation of online databases on the continent is lack of technological infrastructure in African institutions. The present study equally established that inaccessibility of computer laboratories is one of the factors that discourage students from using online databases. While the College has a computer laboratory, the problem is that this laboratory does not have adequate computers and an all-round internet

provision. In other words, the available space and computers do not match with the increased number of students who want to use the services and this creates traffic and frustration. This may entail shortage of technological infrastructure like computers with internet access against the student population at the college. Since the majority of the poor students depend on the College computer laboratory, it is IT infrastructural under-resourced that negatively affects their participation, access and use of these online databases hence subjecting them deprivation and information injustices. This then results into students looking for alternative information sources like printed resources which are not only scarce but are also mostly out-dated.

The study also found out that high cost of information technology equipment deters students from using online databases at Saint John of God College of Health Sciences. This is particularly explained in the prohibitive cost of purchasing laptops, desktop computers, software; setting a computer laboratory and buying internet routers, modems and data. Agreeing with this, Olanike (2016) confirmed that other impediments to online databases adoption and use include high cost of hardware, licensed software, import tariffs of technological gadgets such as computers, laptops, internet servers and data bundles. In Malawi, the very same problem of exorbitant internet charges was previously reported by Mapulanga (2012), Chawinga and Zozie (2016), and Chaputula (2016) and it still persists. It is not surprising then that this study landed the same problem as students at the Saint John of God College of Health Sciences have felt discouraged to use of online databases because of prohibitive IT infrastructure.

In the current study, it has also been shown that an accumulative of 100 (55%) students strongly agreed or agreed that intermittent electricity black-outs discouraged students from using online databases. In Malawi, Gama, Chipeta and Chawinga (2022), Kapondera and Hart (2016) and Nyasulu and Chawinga (2019) also reported the problem of frequent power outages as being retrogressive to the success of e-resources consumption. It is evident then that there is also an outcry over electricity cuts that have affected use of online databases by students at Saint John of God College of Health Sciences. In spite of the installed generator at this College, challenges still persist as it is not stable and reliable. Thus, the issue of electricity still remains one of the major drawbacks to the utilisation of online databases at Saint John of God College of Health Sciences.

Generally, the findings chapter revealed that most of the respondents agreed with all the factors that were perceived as discouraging students from using online databases. On the other hand,

after critically synthesizing the discouraging factors discussed above, the study established that some of these factors were similar with those found in other developing countries in their context and connotation. These included irrelevance of online databases to their discipline, limited subscription to relevant databases and difficulties in finding the relevant information. The results from the interviews also revealed that poor internet connectivity and exorbitant internet charges were key factors that discouraged students from using online databases.

6.2 CONCLUSION

This section provides some reflections into the major findings of the study, and how the UTAUT model has provided useful theoretical framework for the study.

Nearly all students at Saint John of God College of Health Sciences were aware of online databases available at their institution.

The study established that almost all the students were aware of HINARI. However, few students knew Taylor and Francis, PubMed, BioOne, Cambridge University Press, Oxford Reference Online, EBSCOHost, Sage, Wiley and African Journals Online (AJOL). The study also found out that of the majority of students became aware of online databases through their lecturers and library staff, while others knew about online databases through, library orientation, library brochures, library website, library staff, and peers. The study further revealed that HINARI was the most used online database by the majority of the students because of the publicity it received from private partners as well as the fact that it is centrally about health sciences databases. The study further revealed that the other online databases like PubMed, African Journals Online (AJOL), Oxford Reference Online, Cambridge University Press, Sage, Wiley, BioOne, EBSCOHost, Taylor and Francis were the least used online databases probably because of limited publicity, non-health targeted content and limited subscription by the College. The results also showed that there was a direct connection between awareness and utilisation of online databases. It established that a lot of students accessed online databases at the computer laboratory. Homes, hostels, internet cafés and departmental offices were also identified as other places where some students accessed online databases. The study equally established that a lot of students' access online databases on weekly basis while some few accessed them daily, monthly or yearly. It can be concluded then that, much as students were aware of the existence of some online databases, still they occasionally used them. Since nearly all students were aware of the online databases, it may also mean that 'age' and 'gender' constructs of the UTAUT model, do not really influence awareness of online

databases. Instead, high level of awareness campaigns and trainings conducted by library staff and influence by ‘significant others’ can play critical roles in enhancing students’ access to and use of online databases.

The study further established that online information literacy skills were needed for students to use online databases effectively. Such skills helped students to find, retrieve, organise, evaluate, and use information in the course of using online databases. The study also found out that marginally above half of the students reported that their level of competency was moderate. It equally revealed that few students had high competency levels in using online databases. It also showed that effort expectancy, a construct of the UTAUT model, provides a useful framework for understanding and explaining students’ competencies in the use of online databases. The UTAUT model has explained that when it is easy for students in becoming skilful, using and learning to use online databases, it also relates to the competencies in using online databases.

The current study, on the other hand, established that the majority of students got the following benefits from using online databases: convenience, saving time, easier access to information, access to a wide range of e-resources, searching within articles, easiness in accessing information, interactivity, provision of links to other vital articles, printing research results, fast researching, remote access, access to full text articles, access to high quality images, easiness in browsing, twenty-four hours access and saving physical storage space.

The study also established that the majority of the students were motivated to use online databases by databases’ relevance to their studies; quick accomplishments of academic tasks; increased productivity; added opportunities for passing better and enabled them to do their research with speed. It also established that students were encouraged to use online databases because they were influenced by the library staff, lecturers, friends and the college support. The study also found out that the majority of the students were encouraged to use online databases by library trainings; necessary knowledge they acquired to use online databases; availability of the resources; technical support from IT technicians and skilled peers, and adequacy of technological infrastructure. It then demonstrated that performance expectancy, social influence and facilitating conditions constructs of the UTAUT model provided a useful framework for explicating and understanding how students are encouraged to use online databases.

Over and above these, the study revealed that students were discouraged from using online databases by slow internet connection; lack of awareness; lack of skills; complicated passwords; failure to download full-texts; difficulties in finding the relevant information; information overload; lack of motivation from some lecturers; computer laboratory inaccessibility; high cost of information technology equipment and supplies; irrelevance of online databases to their discipline; limited subscription to databases and intermittent black-outs. It finally managed to show that if the ‘facilitating conditions’ construct of the UTAUT model are not conducive, students will be less likely motivated to use online databases.

6.3 RECOMMENDATIONS

Based on results of this study, the researcher makes the following recommendations at the institution. However, they may also be applied to other countries of similar conditions.

- The librarian should consider crafting other promotional and marketing strategies that will increase in-depth knowledge of specific online databases. For instance, targeted emails, messages, posters, flyers, guides, workshops and class visits to augment the broad-based strategies they are currently using.
- The Saint John of God College of Health Sciences management, ICT office and Library team should collaborate to improve ICT infrastructure by upgrading Internet bandwidth and increase the number of computers in the computer laboratory.
- The college management and library department should consider providing other solutions aimed at mitigating power supply issues. These could include buying and installing mass heavy duty solar panel systems as it is done in other universities.
- The ICT officer, in collaboration with the college Librarian, should consider training students with basic ICT skills to help them solve password and log-in problems as well as surfing issues. This will help students not to be frustrated when using online databases.
- Intensive library user education training programmes should be made compulsory for students. This can be done by introducing an online information literacy course at first year of the curriculum for all the academic programmes. The user training programmes should be delivered to students during orientation, and regularly spaced during their stay at the college. Students should also be taught information literacy skills such as on how to practically search, locate, retrieve, organise, evaluate, and apply information

while using online databases in their academic work. The same trainings should be a platform for motivating students to use online databases.

6.4 LIMITATIONS TO THE STUDY

The study focused at Saint John of God College of Health Sciences Students only. It did not include students from other CHAM training institutions as well as other public universities offering similar programmes. This means its findings cannot be generalised to other CHAM institutions or public universities.

The other limitation to the study is the prolonged period of waiting for participants during data collection. This happened because not all the students were available on campus during the planned data collection period, hence the researcher had to wait for them to come back from their clinical placements to collect the data. This delay may have some impact on data collection and interpretation since students might have been exhausted and busy with compiling their reports from the clinical trials. However, after they came back on campus, the researcher collected the data successfully from the students.

COVID-19 also disturbed the data collection process to some lesser extent. Data was collected when COVID-19 had hit very hard and some participants were afraid to touch the questionnaires. With the use of some preventive measures like sanitizers, the researcher still managed to collect data successfully.

Despite these limitations, these findings have undergone rigorous and unbiased analysis alongside the literature reviews and the theoretical lenses hence their reliability and applicability cannot just be reduced to nothing. In fact, those contexts, of which conditions and issues are similar to the current study, could actually make good use of these findings and find them much helpful.

6.5 AREAS OF FURTHER STUDY

The findings of this study have highlighted some grey areas that require further investigations as shown below:

- There should be further studies to investigate the use of online databases by lecturers at Saint John of God College of Health Sciences.
- Further studies should be conducted on the use of online databases by lecturers and students in all CHAM training institutions.

- Research should be undertaken to compare usage of online databases between students from private universities and public universities.

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LIST OF APPENDICES

Appendix 1: Informed consent form for Students



Mzuzu University Research Ethics Committee (MZUNIREC)

Informed Consent Form for Research in Masters in Library and Information Science

Introduction

I am **Teddie Chima**, a Master of Library and Information Science student from Mzuzu University. I am doing research titled *“Utilisation of online databases by students at Saint John of God College of Health Sciences in Malawi”*. This consent form may contain words that you do not understand. Please ask me to stop as we go through the information and I will take time to explain. If you have questions later, you can ask them of me or of another researcher.

Purpose of the research

This research aims to examine the utilisation of online databases by students at Saint John of God College of Health Sciences in Malawi.

Type of Research Intervention

This research will involve your participation in answering a questionnaire/interview questions.

Participant Selection

You are being invited to take part in this research because you are one of the Saint John of God College of Health Sciences students/assistant librarian.

Voluntary Participation

Your participation in this research is entirely voluntary. It is your choice whether to participate or not. If you choose not to participate nothing will change. You may skip any question and move on to the next question.

Duration

The research may take a period of about 25 minutes.

Risks

You do not have to answer any question or take part in the discussion/interview/survey if you feel the question(s) are too personal or if talking about them makes you uncomfortable.

Reimbursements

You will not be provided any incentive to take part in the research.

Sharing the Results

The knowledge that we get from this research will be shared with you and your community before

it is made widely available to the public. Following, we will publish the results so other interested people may learn from the research.

Who to Contact

If you have any questions, you can ask them now or later. If you wish to ask questions later, you may contact: Mr **Teddie Chima**. (Saint John of God College of Health Sciences, P.O Box 744, Mzuzu. +265 884 710 944)

This proposal has been reviewed and approved by Mzuzu University Research Ethics Committee (MZUNIREC) which is a committee whose task it is to make sure that research participants are protected from harm. If you wish to find about more about the Committee, contact Mr. Gift Mbwele, Mzuzu University Research Ethics (MZUNIREC) Administrator, Mzuzu University, P/Bag 201, Luwinga, Mzuzu 2, Phone: 0999404008/0888641486

Do you have any questions?

Part II: Certificate of Consent

I have been invited to participate in research about “Utilisation of online databases by students at Saint John of God College of Health Sciences in Malawi”.

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study

Print Name of Participant _____

Signature of Participant _____

Date _____
Day/month/year

*If illiterate*¹

I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely.

Print name of witness _____

Thumb print of participant



Signature of witness _____

Date _____
Day/month/year

Statement by the researcher/person taking consent

I have accurately read out the information sheet to the potential participant, and to the best of my ability made sure that the participant understands the research project. I confirm the

¹ A literate witness must sign (if possible, this person should be selected by the participant and should have no connection to the research team). Participants who are illiterate should include their thumb print as well.

participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

Signature of Researcher /person taking the consent T. Q. e

Date _____
Day/month/year

Appendix 2: Informed consent form for Assistant Librarian



Mzuzu University Research Ethics Committee (MZUNIREC)

Informed Consent Form for Research in Masters in Library and Information Science

Introduction

I am **Teddie Chima**, a Master of Library and Information Science student from Mzuzu University. I am doing research titled *“Utilisation of online databases by students at Saint John of God College of Health Sciences in Malawi”*. This consent form may contain words that you do not understand. Please ask me to stop as we go through the information and I will take time to explain. If you have questions later, you can ask them of me or of another researcher.

Purpose of the research

This research aims to examine the utilisation of online databases by students at Saint John of God College of Health Sciences in Malawi.

Type of Research Intervention

This research will involve your participation in answering a questionnaire/interview questions.

Participant Selection

You are being invited to take part in this research because you are the Assistant Librarian who is responsible for training students on how to access and utilise the online databases available at Saint John of God College of Health Sciences.

Voluntary Participation

Your participation in this research is entirely voluntary. It is your choice whether to participate or not. If you choose not to participate nothing will change. You may skip any question and move on to the next question.

Duration

The research may take a period of about 25 minutes.

Risks

You do not have to answer any question or take part in the discussion/interview/survey if you feel the question(s) are too personal or if talking about them makes you uncomfortable.

Reimbursements

You will not be provided any incentive to take part in the research.

Sharing the Results

The knowledge that we get from this research will be shared with you and your community before it is made widely available to the public. Following, we will publish the results so other interested

people may learn from the research.

Who to Contact

If you have any questions, you can ask them now or later. If you wish to ask questions later, you may contact: Mr **Teddie Chima**. (Saint John of God College of Health Sciences, P.O Box 744, Mzuzu. +265 884 710 944)

This proposal has been reviewed and approved by Mzuzu University Research Ethics Committee (MZUNIREC) which is a committee whose task it is to make sure that research participants are protected from harm. If you wish to find about more about the Committee, contact Mr. Gift Mbwele, Mzuzu University Research Ethics (MZUNIREC) Administrator, Mzuzu University, P/Bag 201, Luwinda, Mzuzu 2, Phone: 0999404008/0888641486

Do you have any questions?

Part II: Certificate of Consent

I have been invited to participate in research about “Utilisation of online databases by students at Saint John of God College of Health Sciences in Malawi”.

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study

Print Name of Participant _____

Signature of Participant _____

Date _____

Day/month/year

If illiterate ²

I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely.

Print name of witness _____

Thumb print of participant

Signature of witness _____

Date _____

Day/month/year

Statement by the researcher/person taking consent

I have accurately read out the information sheet to the potential participant, and to the best of my ability made sure that the participant understands the research project. I confirm the participant was given an opportunity to ask questions about the study, and all the questions

² A literate witness must sign (if possible, this person should be selected by the participant and should have no connection to the research team). Participants who are illiterate should include their thumb print as well.

asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

Signature of Researcher /person taking the consent T. Q. e

Date _____
Day/month/year

Appendix 3: Questionnaire for students

Questionnaire for students

questionnaire no.....

GENERAL INSTRUCTIONS

- Tick or circle the responses of your choice where applicable
- Elaborate your responses on the spaces provided below the questions that require it.
- Be as honest as possible and do not confer with anyone except the researcher

Section A: Background Information

- a. Gender : Male Female
- b. Year of study : First year Second year Third year Fourth year
- c. Programme of study : Diploma in Registered Nursing
 Diploma in Psychosocial Counselling
 Bachelor of Science in Mental Health Psychiatric Nursing
 Bachelor of Science in Clinical Medicine (Mental Health)
- d. Age range : below 20 years 20-24 years 25-29 years above 30 years

Section B: Awareness on online databases

1. Are you aware of the online databases available at Saint John of God College of Health Sciences Library? (*If No, Skip to section C*)

Yes No

2. Which of the following online databases are you aware of? (*Please tick all that apply*)

HINARI PubMed BioOne Cambridge University Press
Journals EBSCOHost Sage Taylor and Francis
Oxford Reference Online Wiley African Journals Online
(AJOL)

Other (please specify) -----

3. How did you become aware of online databases available at Saint John of God College of Health Sciences? *(Please tick all that apply)*

- Library orientation Library brochures Library website
 Library staff Lecturers Colleagues

4. Which of the following online databases do you use in your academic studies? *(Please tick all that apply)*

- HINARI PubMed BioOne Cambridge University Press Journals
 EBSCOHost Sage Taylor and Francis Oxford Reference Online Wiley African Journals Online (AJOL)

Other (please specify) -----

5. From where do you access online databases? *(Please tick all that apply)*

- Hostels Home Computer Laboratory
 Departmental office Internet café

6. How regularly do you use online databases?

- Daily Weekly Monthly Yearly

Section C: Students' competencies in the use of online databases

(In this study, competencies are the necessary skills required for students to use online databases)

7. To what extent do you agree that online information literacy skills are important to successfully use online databases?

- Strongly agree Agree Neutral Disagree Strongly disagree

8. How would you rank your level of competency in using online databases?

- Very High High Average Low Very Low

9. To what extent do you agree with the following statements?

Effort Expectancy	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
My interaction with online databases is clear and understandable					
It is easy for me to become skilful in using online databases					
I find online databases easy to use					
Learning to use online databases is easy for me					

Section D: Benefits of using online databases

10. From your experience as a student, what are the benefits that you get from utilising online databases?

Benefit	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
I find them convenient in using them					
I save time in accessing information					
I find them easy in searching articles					
I am provided with simultaneous access to a wide range of journals					
I am able to search within an article easily					
I find them easy to access information					
I find them interactive when using them					
I am given links to other relevant articles					
I am able to print research findings					

I am able to do fast researching					
I am able to access them from my hostel or home					
I am able to access full text articles					
I am able to access high image quality					
I find them easy when browsing					
I am able to access them 24 hours					
I save space when using them					

Please indicate any other benefits you find from utilising online databases not cited above:

.....

Section E: Factors that influence students' use of databases

11. To what extent do you agree with the following statements?

Performance Expectancy	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
Online databases are useful in my studies					
Using online databases enables me to accomplish tasks like assignments more quickly					
Using online databases increases my productivity					
If I use online databases, I increase chances of passing with good grades					
The online databases will enable me to conduct my research more quickly					

12. To what extent do you agree with the following statements?

Social Influence	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
My colleagues influence me to use online databases					
My lecturers influence me to use online databases					
The library staff have been helpful in my use of online databases					
In general, the college has supported the use of online databases:					
I feel encouraged if I receive help in using online databases					

13. To what extent do you agree with the following statements?

Facilitating conditions	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
I have the resources available (e.g. computer, internet connectivity, power supply) necessary to use online databases					
I have the knowledge necessary to use online databases					
Technical support is available to assist me when I face problems using online databases					
The library trains us on how to use online databases					
I have adequate infrastructure (e.g., computer, internet, power supply) to utilise online databases					

14. To what extent do these factors discourage you from using online databases offered through Saint John of God College of Health Sciences?

Discouraging factors	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Slow internet connection					
Lack of awareness of online database					
Lack of skills to use online databases					
Complicated passwords to access online databases					
Failure to download full-text articles					
Difficulties in finding the relevant information					
Information overload					
Lack of motivation from lecturers					
Inaccessibility of the computer laboratory					
high cost of information technology equipment					
Irrelevance of online databases to their discipline					
limited subscription to databases					
Intermittent black outs					

Other (s) please specify:

.....

END OF QUESTIONNAIRE

Thank you for Spending Your Time to fill in this Questionnaire.

Appendix 4: Interview guide for Assistant Librarian

Interview guide for the Assistant Librarian

Section A: The level of students' awareness on online databases

1. What strategies do you put in place to make sure that students are aware of online databases?
2. At what level are these strategies introduced to students?
3. To what extent would you say students in your college are aware of the range of online databases available to them? What is the evidence?

Section B: Students' competencies in the use of online databases

4. How would you rank students' level of competency in using online databases? What is the evidence?

Section C: Benefits students accrue from utilising online databases

5. Do you think students have benefited from the use of online databases? Explain your answer.

Section D: Factors that affect the utilisation of online databases at SJOGHS by students

6. What do you think are the factors that encourage students from utilising online databases at Saint John of God College of Health Sciences?
7. How conducive is the library Online Public Access Catalogue (OPAC) to the access and use of online databases?
8. Do you think top management has helped in anyway in making sure that online databases are available and utilised by students in the college?
9. What do you think are the factors that discourage students from utilising online databases at Saint John of God College of Health Sciences?
10. How efficient is your Internet connection and how does the quality of Internet connection affect the use of online databases by students in the college?

End of Interview

Thank you

Appendix 5: Request for ethical clearance

Teddie Chima,
Saint John of God College of Health Sciences,
P/O Box 744,
Mzuzu.

27th October, 2020.

Cell Phone: +265 884 710 944

+265 991 710 944

Email : teddiechima@gmail.com
teddie.chima@sjog.mw

The Chairperson,
Mzuzu University Research Ethics Committee (MZUNIREC),
Mzuzu University,
Private Bag 201,
Luwinga,
Mzuzu 2,
Malawi.

SUBJECT: Request for ethical clearance

I am **Teddie Chima**, a Master of Library and Information Science student from Mzuzu University. I am doing a research titled *"Utilisation of online databases by students at Saint John of God College of Health Sciences in Malawi"*.

The purpose of this research is to examine the utilisation of online databases by students at Saint John of God College of Health Sciences in Malawi. The outcome from the study is expected to improve practice, inform policy and extend theory in this field of study.

As a partial fulfilment for the award of a Master's degree in Library and Information Science in the Faculty of Humanities and Social Science, department of Information Science at Mzuzu University, I am expected to carry out a study. This study is supposed to pass through your Committee for ethical clearance and approval.

I, therefore, write to apply for ethical clearance from MZUNIREC for ethical approval to proceed with this study.

I strongly believe that my application will meet your favourable consideration.

Yours sincerely,



Teddie Chima.

Appendix 6: Ethical Approval from Mzuzu University Research Ethics Committee



MZUZU UNIVERSITY

DIRECTORATE OF RESEARCH

Mzuzu University
Private Bag 201
Luwinga
Mzuzu 2
MALAWI
TEL: 01 320 722
FAX: 01 320 648

MZUZU UNIVERSITY RESEARCH ETHICS COMMITTEE (MZUNIREC)

Ref No: MZUNIREC/DOR/20/07

17th Nov, 2020.

Mr. Teddie Chima,
St. John of God
College of Health
Sciences,
P.O. Box 744,
Mzuzu 2.

Email:
teddiechima@gmail.com

Dear Mr. Teddie Chima,
**RESEARCH ETHICS AND REGULATORY APPROVAL AND PERMIT FOR
PROTOCOL REF NO: MZUNIREC/DOR/20/07: UTILIZATION OF ONLINE DATABASES BY
STUDENTS AT SAINT JOHN OF GOD COLLEGE OF HEALTH SCIENCES IN MALAWI**

Having satisfied all the relevant ethical and regulatory requirements, I am pleased to inform you that the above referred research protocol has officially been approved. You are now permitted to proceed with its implementation. Should there be any amendments to the approved protocol in the course of implementing it, you shall be required to seek approval of such amendments before implementation of the same.

This approval is valid for one year from the date of issuance of this approval. If the study goes beyond one year, an annual approval for continuation shall be required to be sought from the Mzuzu University Research Ethics Committee (MZUNIREC) in a format that is available at the Secretariat. Once the study is finalised, you are required to furnish the Committee with a final report of the study. The Committee reserves the right to carry out compliance inspection of this approved protocol at any time as may be deemed by it. As such, you are expected to properly maintain all study documents including consent forms.

Committee Address:

Secretariat, Mzuzu University Research Ethics Committee, P/Bag 201, Luwinga, Mzuzu 2; E-mail address: mzunirec@mzuni.ac.mw

Wishing you a successful implementation of your study.

Yours Sincerely,



Gift Mbwele

MZUNIREC ADMINISTRATOR

For: CHAIRMAN OF MZUNIREC

Committee Address:

Secretariat, Mzuzu University Research Ethics Committee, P/Bag 201, Luwingu, Mzuzu 2; E-mail address: mzunirec@mzuni.ac.mw

Appendix 7: Request for permission to conduct research

Teddie Chima,
Mzuzu University,
Private Bag 201,
Luwinga, Mzuzu 2.

14th December, 2020.

Cell Phone: +265 884 710 944
+265 991 710 944
Email : teddiechima@gmail.com
teddie.chima@sjog.mw

Att'n: The Chief Executive Officer (CEO)
Saint John of God College of Health Sciences,
P/O Box 744,
Mzuzu.

Dear Sir,

SUBJECT: REQUEST FOR PERMISSION TO CONDUCT RESEARCH AT YOUR INSTITUTION

I am Teddie Chima, a final year Master of Library and Information Science (MLIS) student in the department of Information Science at Mzuzu University with registration Number MLIS 03/18. I am mandated by the University to do research as part of the fulfilment for the award of Master's Degree in Library and Information Science.

My research topic is "**Utilisation of online databases by students at Saint John of God College of Health Sciences in Malawi**". This study will be underpinned by the pragmatism paradigm, this implies that both qualitative and quantitative (mixed) methods procedures will be applied to understand the research problem better. The outcome from the study is expected to improve practice, inform policy and extend theory in this field of study.

The Mzuzu University Research Ethics Committee (MZUNIREC) reviewed my proposal submission and having satisfied all the relevant ethical and regulatory requirements my research proposal was officially approved. I am now permitted to proceed with its implementation. To this end, be rest assured that the data collected will be used for academic purposes only.

Therefore, the purpose of this letter is to seek your permission to allow me collect data from your institution.

I strongly believe that my application will meet your favourable consideration.

With special kindest regards,



Teddie Chima.

Appendix 8: Letter of acceptance to conduct the study



Saint John of God Hospitaller Services

Registered company under Companies Act 1984

15th December, 2020

Teddie Chima
Mzuzu University
Private Bag 201
Luwinga
MZUZU 2

Dear Madam,

RE: PERMISSION TO CONDUCT A RESEARCH WITHIN ST. JOHN OF GOD HOSPITALLER SERVICES

Your earlier communication requesting permission to conduct a study within St. John of God Hospitaller Services titled "**Utilization of Online Databases by students at St. John of God College of Health Sciences**" refers.

I am pleased to grant you permission to carry out the said exercise subject to the following conditions: -

- Participants will be facilitated to understand the purpose of your study, their personal involvement in the study and involvement of other people/groups
- Consent of participants will be sought before participation in the study – the participants will also be given freedom to withdraw during any stage of the study.
- Participants will be assured of confidentiality e.g. their identity and views.

Would you need any clarification on any of the above, feel free to contact the undersigned.

Wishing you the very best in your research project.

Faithfully yours,

Michael Chisimba Nyirenda
CLINICAL DIRECTOR

P.O. Box 744 Tel: 265 (0) 1 311 495 Fax: 265 (0) 1 311 213 Email: sjog@sjog.mw Web: www.sjog.mw
Katoto, Mzuzu.

Appendix 9: Professional editing of Thesis



Contact address
University of Johannesburg
Faculty of Education
Auckland Park and Kingsway Campus
P.O. Box 524
Code 2006
Johannesburg
South Africa

6th October, 2021

To Whom It May Concern

Subject: Confirmation of professional editing of Teddie Chima's Thesis

This letter serves to certify that I have professionally edited Mr. Teddie Chima's Thesis entitled "**Utilisation of online databases by students at Saint John of God College of Health Sciences in Malawi**".

As an academic practice, I mainly focused on substantive editing and technical/copy editing so that both the content and language issues were in line with the demands of the information studies field as well as the acceptable English tradition. This meant checking the text more broadly for sense, accuracy, factualness, ease of use, relevance, appropriateness of language, appropriateness of the terms used, and consistent referencing of tables and figures used.

At a more deeper and technical level, I focused on vetting correctness of words, phrases, sentences, punctuations and all grammar elements. I also double checked uniformity of font sizes and font types, alignment, word spacing, sentence spacing, character spacing, image, table and figure captioning consistency, figures and percentages accuracy; omissions and/or extraneous words and symbols; capitalisation and punctuation marks.

I also checked the text for availability and/or lack of horizontal and vertical logics to make sure that sentences flowed naturally and showed relationships with the next sentences as well as with the whole paragraph (Horizontal logics). This also entailed checking that each paragraph contributed to and/or demonstrated some relationship

with the subsequent paragraph (Vertical logics) as well as to the whole chapter. Again, each chapter showed that vertical logics be demonstrating that it was contributed or related to the succeeding chapter as well as to the entire thesis.

I also checked for consistence in spelling use, and in this case, use of British English. Referencing and citation were also double checked to make sure that they were in line with the APA Version 7. I also checked chapter numbering as well as section numbering to ensure that every chapter and subsections were number progressively and consistently.

Having submitted the edited file to the student, he has so far effected all the corrections as I had suggested, and at the moment the project is in the right shape. I therefore have all the feeling that this dissertation is in the best possible form for further assessment by any examiners.

I wish the student and all those who will work on this project good luck

Sincerely yours,

Chibambo

Mackenzie Chibambo.

Professional English Language editor

Lecturer in Communication Studies, Mzuzu University

PhD student (Philosophy of Education), University of Johannesburg, APK, South Africa; MA (Publishing and Creative Writing) (Kingston University London); MA (Communication) New Orleans; B.Ed. (Languages) University of Malawi.

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